U.S. Fish & Wildlife Service

# Wichita Mountains Wildlife Refuge

## *Comprehensive Conservation Plan and Environmental Assessment*

## *Volume 2: Appendices*

*September 2013*

**U.S. Fish and Wildlife Service Mission Statement**

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

**National Wildlife Refuge System Mission Statement**

The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

-National Wildlife Refuge System Improvement Act of 1997

*Comprehensive conservation plans provide long-term guidance for management decisions and set forth goals, objectives, and strategies needed to accomplish refuge purposes and identify the Service's best estimate of future needs. These plans detail program planning levels that are sometimes substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. The plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition.*

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# B. Wichita Mountains Wildlife Refuge Species Lists

- All species lists developed from Refuge inventories and surveys and Ft. Sill Comprehensive Surveys

**Vertebrates**

**Amphibians**

| Order | Family | Scientific Name | Common Name |
|---|---|---|---|
| Caudata | Ambystomatidae | *Ambystoma texanum* | Small-mouthed Salamander |
| | | *Ambystoma mavortium* | Barred Tiger Salamander |
| Anura | Bufonidae | *Anaxyrus cognatus* | Great Plains Toad |
| | | *Anaxyrus debilis* | Eastern Green Toad |
| | | *Anaxyrus punctatus* | Red-spotted Toad |
| | | *Anaxyrus speciosus* | Texas Toad |
| | | *Anaxyrus woodhousii* | Woodhouse's Toad |
| | Scaphiopodidae | *Scaphiopus couchii* | Couch's Spadefoot |
| | | *Spea bombifrons* | Plains Spadefoot |
| | Microhylidae | *Gastrophryne olivacea* | Great Plains Narrowmouth Toad |
| | Hylidae | *Acris crepitans* | Northern Cricket Frog |
| | | *Hyla chrysoscelis* | Cope's Gray Treefrog |
| | | *Hyla versicolor* | Gray Treefrog |
| | | *Pseudacris clarkii* | Spotted Chorus Frog |
| | | *Pseudacris streckeri* | Strecker's Chorus Frog |
| | Ranidae | *Lithobates blairi* | Plains Leopard Frog |
| | | *Lithobates catesbeiana* | Bullfrog |
| | | *Lithobates sphenocephalus* | Southern Leopard Frog |

**Birds** (A single asterisk (*) denotes that the species is non-native)

**<u>Occurance Information</u>**

A - Abundant: a common and numerous species

C - Common: certain to be seen in suitable habitat

O- Occasional: seen only a few times during a season

U - Uncommon: present, but not certain to be seen

R - Rare: seen at intervals of 2 to 5 years

X - Accidental: has been seen only once or twice

| Order | Family | Scientific Name | Common Name | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|---|---|
| Anseriformes | Anatidae | *Anser albifrons* | Greater White-fronted Goose | O | - | R | R |
| | | *Chen caerulescens* | Snow Goose | O | - | R | R |
| | | *Branta hutchinsii* | Cackling Goose | - | - | R | R |
| | | *Branta canadensis* | Canada Goose | C | C | C | C |
| | | *Cygnus buccinator* | Trumpeter Swan | - | - | - | X |
| | | *Cygnus columbianus* | Tundra Swan | - | - | - | X |
| | | *Aix sponsa* | Wood Duck | C | C | C | O |
| | | *Anas strepera* | Gadwall | C | - | C | C |
| | | *Anas penelope* | Eurasian Wigeon | X | - | - | X |
| | | *Anas americana* | American Wigeon | C | - | C | C |
| | | *Anas rubripes* | American Black Duck | - | - | X | - |
| | | *Anas platyrhynchos* | Mallard | C | U | C | C |
| Anseriformes | Anatidae | *Anas discors* | Blue-winged Teal | C | R | C | X |
| | | *Anas cyanoptera* | Cinnamon Teal | R | - | X | - |
| | | *Anas clypeata* | Northern Shoveler | C | - | C | U |
| | | *Anas acuta* | Northern Pintail | U | - | C | C |
| | | *Anas crecca* | Green-winged Teal | C | - | C | C |
| | | *Aythya valisineria* | Canvasback | U | - | U | U |
| | | *Aythya americana* | Redhead | U | X | U | U |
| | | *Aythya collaris* | Ring-necked Duck | C | - | C | C |
| | | *Aythya marila* | Greater Scaup | R | - | R | - |
| | | *Aythya affinis* | Lesser Scaup | U | - | U | U |
| | | *Clangula hyemalis* | Long-tailed Duck | - | - | X | X |
| | | *Bucephala albeola* | Bufflehead | C | - | U | C |
| | | *Bucephala clangula* | Common Goldeneye | U | - | U | U |
| | | *Lophodytes cucullatus* | Hooded Merganser | U | - | U | U |
| | | *Mergus merganser* | Common Merganser | R | - | R | O |
| | | *Mergus serrator* | Red-breasted Merganser | X | - | - | X |
| | | *Oxyura jamaicensis* | Ruddy Duck | U | - | U | U |
| Galliformes | Odontophoridae | *Colinus virginianus* | Northern Bobwhite | C | C | C | C |
| | Phasianidae | *Meleagris gallopavo* | Wild Turkey | C | C | C | C |
| Gaviiformes | Gaviidae | *Gavia immer* | Common Loon | O | X | O | O |
| Podicipediformes | Podicipedidae | *Podilymbus podiceps* | Pied-billed Grebe | C | U | C | C |
| | | *Podiceps auritus* | Horned Grebe | U | - | U | O |
| | | *Podiceps nigricollis* | Eared Grebe | U | - | U | - |
| Suliformes | Phalacrocoracidae | *Phalacrocorax auritus* | Double-crested Cormorant | U | R | U | O |
| Pelecaniformes | Pelecanidae | *Pelecanus erythrorhynchos* | American White Pelican | O | - | O | O |
| | Ardeidae | *Botaurus lentiginosus* | American Bittern | - | X | R | - |
| | | *Ixobrychus exilis* | Least Bittern | - | R | - | - |
| | | *Ardea herodias* | Great Blue Heron | C | C | C | C |
| | | *Ardea alba* | Great Egret | U | U | U | - |
| | | *Egretta thula* | Snowy Egret | O | O | R | X |

| Order | Family | Scientific Name | Common Name | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|---|---|
| | | *Egretta caerulea* | Little Blue Heron | O | O | O | - |
| | | *Bubulcus ibis* | Cattle Egret | O | O | O | - |
| | | *Butorides virescens* | Green Heron | U | U | O | - |
| | | *Nycticorax nycticorax* | Black-crowned Night-heron | R | R | R | - |
| Pelecaniformes | Ardeidae | *Nyctanassa violacea* | Yellow-crowned Night-heron | - | X | - | - |
| | Threskiornithidae | *Plegadis chihi* | White-faced Ibis | R | - | O | - |
| Accipitriformes | Cathartidae | *Coragyps atratus* | Black Vulture | O | O | - | - |
| | | *Cathartes aura* | Turkey Vulture | A | A | A | R |
| | Pandionidae | *Pandion haliaetus* | Osprey | O | - | O | O |
| | Accipitridae | *Elanus leucurus* | White-tailed Kite | X | - | - | - |
| | | *Ictinia mississippiensis* | Mississippi Kite | C | C | C | - |
| | | *Haliaeetus leucocephalus* | Bald Eagle | - | - | U | U |
| | | *Circus cyaneus* | Northern Harrier | C | X | C | C |
| | | *Accipiter striatus* | Sharp-shinned Hawk | U | X | U | U |
| | | *Accipiter cooperii* | Cooper's Hawk | U | U | U | U |
| | | *Accipiter gentilis* | Northern Goshawk | - | - | - | X |
| | | *Buteo lineatus* | Red-shouldered Hawk | U | U | U | U |
| | | *Buteo platypterus* | Broad-winged Hawk | U | O | O | - |
| | | *Buteo nitidus* | Gray Hawk | X | - | - | - |
| | | *Buteo swainsoni* | Swainson's Hawk | O | R | O | - |
| Accipitriformes | Accipitridae | *Buteo jamaicensis* | Red-tailed Hawk | C | C | C | C |
| | | *Buteo regalis* | Ferruginous Hawk | - | - | R | R |
| | | *Buteo lagopus* | Rough-legged Hawk | - | - | O | O |
| | | *Aquila chrysaetos* | Golden Eagle | X | - | U | U |
| Falconiformes | Falconidae | *Falco sparverius* | American Kestrel | U | R | U | U |
| | | *Falco columbarius* | Merlin | R | - | O | O |
| | | *Falco peregrinus* | Peregrine Falcon | O | X | R | R |
| | | *Falco mexicanus* | Prairie Falcon | - | - | R | O |
| Gruiformes | Rallidae | *Porzana carolina* | Sora | R | - | R | X |
| | | *Fulica americana* | American Coot | C | O | C | C |
| | Gruidae | *Grus canadensis* | Sandhill Crane | U | O | X | - |
| Charadriiformes | Charadriidae | *Pluvialis squatarola* | Black-bellied Plover | - | - | X | - |
| | | *Charadrius semipalmatus* | Semipalmated Plover | R | - | R | - |
| | | *Charadrius vociferus* | Killdeer | C | C | C | U |
| | Recurvirostridae | *Himantopus mexicanus* | Black-necked Stilt | X | - | - | - |
| | | *Recurvirostra americana* | American Avocet | O | O | O | - |
| Charadriiformes | Scolopacidae | *Actitis macularia* | Spotted Sandpiper | U | - | O | - |
| | | *Tringa solitaria* | Solitary Sandpiper | O | - | O | - |

| Order | Family | Scientific Name | Common Name | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|---|---|
| | | *Tringa melanoleuca* | Greater Yellowlegs | O | - | O | X |
| | | *Tringa semipalmata* | Willet | O | - | R | - |
| | | *Tringa flavipes* | Lesser Yellowlegs | O | - | O | - |
| | | *Bartramia longicauda* | Upland Sandpiper | U | - | U | - |
| | | *Numenius phaeopus* | Whimbrel | X | - | - | - |
| | | *Numenius americanus* | Long-billed Curlew | R | - | R | - |
| | | *Limosa fedoa* | Marbled Godwit | X | - | - | - |
| | | *Calidris pusilla* | Semipalmated Sandpiper | R | - | - | - |
| | | *Calidris mauri* | Western Sandpiper | R | - | O | - |
| | | *Calidris minutilla* | Least Sandpiper | U | - | U | O |
| | | *Calidris fuscicollis* | White-rumped Sandpiper | O | - | - | - |
| | | *Calidris bairdii* | Baird's Sandpiper | U | - | O | - |
| | | *Calidris melanotos* | Pectoral Sandpiper | U | - | O | - |
| | | *Calidris himantopus* | Stilt Sandpiper | - | - | R | - |
| Charadriiformes | Scolopacidae | *Limnodromus scolopaceus* | Long-billed Dowitcher | U | - | U | X |
| | | *Gallinago delicata* | Wilson's Snipe | U | - | U | O |
| | | *Scolopax minor* | American Woodcock | O | - | O | O |
| | | *Phalaropus tricolor* | Wilson's Phalarope | O | - | R | - |
| | Laridae | *Chroicocephalus philadelphia* | Bonaparte's Gull | - | - | R | R |
| | | *Leucophaeus pipixcan* | Franklin's Gull | U | - | O | - |
| | | *Larus delawarensis* | Ring-billed Gull | U | X | U | U |
| | | *Larus argentatus* | Herring Gull | - | - | R | R |
| | | *Chlidonias niger* | Black Tern | O | - | O | - |
| | | *Sterna forsteri* | Forster's Tern | O | - | O | - |
| Columbiformes | Columbidae | *Columba livia* | Rock Pigeon* | U | O | O | O |
| | | *Streptopelia decaocto* | Eurasian Collared-Dove* | X | - | - | - |
| | | *Zenaida asiatica* | White-winged Dove | R | O | X | X |
| | | *Zenaida macroura* | Mourning Dove | A | A | A | O |
| | | *Columbina inca* | Inca Dove | X | - | - | X |
| Cuculiformes | Cuculidae | *Coccyzus americanus* | Yellow-billed Cuckoo | C | C | O | - |
| | | *Coccyzus erythropthalmus* | Black-billed Cuckoo | X | - | - | - |
| Cuculiformes | Cuculidae | *Geococcyx californianus* | Greater Roadrunner | U | U | U | O |
| Strigiformes | Tytonidae | *Tyto alba* | Barn Owl | R | R | R | R |
| | Strigidae | *Megascops asio* | Eastern Screech-owl | C | C | C | C |
| | | *Bubo virginianus* | Great Horned Owl | C | C | C | C |
| | | *Athene cunicularia* | Burrowing Owl | O | O | O | X |
| | | *Strix varia* | Barred Owl | U | U | U | U |
| | | *Asio otus* | Long-eared Owl | - | - | - | R |
| | | *Asio flammeus* | Short-eared Owl | - | - | - | R |
| Caprimulgiformes | Caprimulgidae | *Chordeiles minor* | Common Nighthawk | C | C | C | - |

| Order | Family | Scientific Name | Common Name | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|---|---|
| | | *Phalaenoptilus nuttallii* | Common Poorwill | U | U | O | - |
| | | *Caprimulgus carolinensis* | Chuck-will's-widow | C | C | O | - |
| Apodiformes | Apodidae | *Chaetura pelagica* | Chimney Swift | U | U | O | - |
| | | *Aeronautes saxatalis* | White-throated Swift | X | - | - | - |
| | Trochilidae | *Cynanthus latirostris* | Broad-billed Hummingbird | X | - | - | - |
| | | *Archilochus colubris* | Ruby-throated Hummingbird | O | O | R | - |
| | | *Archilochus alexandri* | Black-chinned Hummingbird | C | C | R | - |
| Apodiformes | Trochilidae | *Caprimulgus carolinensis* | Calliope Hummingbird | - | X | - | - |
| | | *Selasphorus rufus* | Rufous Hummingbird | - | X | - | - |
| Coraciiformes | Alcedinidae | *Megaceryle alcyon* | Belted Kingfisher | U | U | U | U |
| Piciformes | Picidae | *Melanerpes lewis* | Lewis' Woodpecker | X | - | X | X |
| | | *Melanerpes erythrocephalus* | Red-headed Woodpecker | U | U | U | U |
| | | *Melanerpes formicivorus* | Acorn Woodpecker | X | - | - | X |
| | | *Melanerpes aurifrons* | Golden-fronted Woodpecker | X | - | X | - |
| Piciformes | Picidae | *Melanerpes carolinus* | Red-bellied Woodpecker | C | C | C | C |
| | | *Sphyrapicus varius* | Yellow-bellied Sapsucker | O | - | U | U |
| | | *Sphyrapicus nuchalis* | Red-naped Sapsucker | X | - | - | - |
| | | *Picoides scalaris* | Ladder-backed Woodpecker | R | O | O | R |
| | | *Picoides pubescens* | Downy Woodpecker | U | U | C | C |
| | | *Picoides villosus* | Hairy Woodpecker | C | C | C | C |
| | | *Colaptes auratus* | Northern Flicker | C | O | C | C |
| | | *Dryocopus pileatus* | Pileated Woodpecker | R | R | R | R |
| Passeriformes | Tyrannidae | *Contopus cooperi* | Olive-sided Flycatcher | O | X | O | - |
| Passeriformes | Tyrannidae | *Contopus sordidulus* | Western Wood-Pewee | X | - | - | - |
| | | *Contopus virens* | Eastern Wood-Pewee | O | O | O | - |
| | | *Empidonax flaviventris* | Yellow-bellied Flycatcher | R | - | R | - |
| | | *Empidonax virescens* | Acadian Flycatcher | - | X | - | - |
| | | *Empidonax alnorum* | Alder Flycatcher | O | - | O | - |
| | | *Empidonax trailii* | Willow Flycatcher | O | - | O | - |
| | | *Empidonax minimus* | Least Flycatcher | C | O | U | - |
| | | *Sayornis phoebe* | Eastern Phoebe | C | C | C | O |
| | | *Myiarchus cinerascens* | Ash-throated Flycatcher | X | R | - | - |

| Order | Family | Scientific Name | Common Name | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|---|---|
| | | *Myiarchus crinitus* | Great Crested Flycatcher | C | C | U | - |
| | | *Tyrannus verticalis* | Western Kingbird | U | U | R | - |
| | | *Tyrannus tyrannus* | Eastern Kingbird | U | U | R | - |
| | | *Tyrannus forficatus* | Scissor-tailed Flycatcher | C | C | C | - |
| | Laniidae | *Lanius ludovicianus* | Loggerhead Shrike | U | O | U | U |
| | Vireonidae | *Vireo griseus* | White-eyed Vireo | U | U | O | - |
| | | *Vireo bellii* | Bell's Vireo | R | - | - | - |
| Passeriformes | Vireonidae | *Vireo atricapilla* | Black-capped Vireo | C | C | U | - |
| | | *Vireo solitarius* | Blue-Headed Vireo | O | - | R | - |
| | | *Vireo gilvus* | Warbling Vireo | R | R | - | - |
| | | *Vireo olivaceus* | Red-eyed Vireo | U | C | O | - |
| | Corvidae | *Gymnorhinus cyanocephalus* | Pinyon Jay | - | - | X | X |
| | | *Cyanocitta cristata* | Blue Jay | A | C | A | C |
| | | *Nucifraga columbiana* | Clark's Nutcracker | - | - | X | X |
| | | *Corvus brachyrhynchos* | American Crow | A | C | A | A |
| | Alaudidae | *Eremophila alpestris* | Horned Lark | O | R | R | U |
| | Hirundinidae | *Progne subis* | Purple Martin | U | C | O | - |
| | | *Tachycineta bicolor* | Tree Swallow | O | - | - | - |
| | | *Stelgidopteryx serripennis* | Northern Rough-winged Swallow | U | O | O | - |
| | | *Riparia riparia* | Bank Swallow | X | - | - | - |
| | | *Petrochelidon pyrrhonota* | Cliff Swallow | C | C | O | - |
| | | *Petrochelidon fulva* | Cave Swallow | - | A | - | - |
| | | *Hirundo rustica* | Barn Swallow | C | C | C | - |
| | Paridae | *Poecile carolinensis* | Carolina Chickadee | A | A | A | A |
| Passeriformes | Paridae | *Baeolophus bicolor* | Tufted Titmouse | A | A | A | A |
| | Aegithalidae | *Psaltriparus minimus* | Bushtit | - | X | - | X |
| | Sittidae | *Sitta canadensis* | Red-breasted Nuthatch | O | - | O | O |
| | | *Sitta carolinensis* | White-breasted Nuthatch | U | U | U | O |
| | Certhidae | *Certhia americana* | Brown Creeper | U | - | U | O |
| | Troglodytidae | *Salpinctes obsoletus* | Rock Wren | U | U | U | U |
| | | *Catherpes mexicanus* | Canyon Wren | C | C | C | C |
| | | *Thryothorus ludovicianus* | Carolina Wren | O | O | O | O |
| | | *Thryomanes bewickii* | Bewick's Wren | C | C | C | U |
| | | *Troglodytes aedon* | House Wren | C | - | U | R |
| | | *Troglodytes hiemalis* | Winter Wren | - | - | - | O |
| | | *Cistothorus palustris* | Marsh Wren | - | - | - | X |
| | Polioptilidae | *Polioptila caerulea* | Blue-gray Gnatcatcher | C | C | C | - |
| | Regulidae | *Regulus satrapa* | Golden-crowned Kinglet | U | - | U | O |
| | | *Regulus calendula* | Ruby-crowned Kinglet | C | - | C | U |
| | Turdidae | *Sialia sialis* | Eastern Bluebird | C | C | C | C |

| Order | Family | Scientific Name | Common Name | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|---|---|
| Passeriformes | Turdidae | *Sialia currucoides* | Mountain Bluebird | R | - | O | U |
| | | *Myadestes townsendi* | Townsend's Solitaire | R | - | O | O |
| | | *Catharus ustulatus* | Swainson's Thrush | C | - | O | X |
| | | *Catharus guttatus* | Hermit Thrush | O | - | U | O |
| | | *Hylocichla mustelina* | Wood Thrush | X | X | - | - |
| | | *Turdus migratorius* | American Robin | U | U | C | A |
| | Mimidae | *Dumetella carolinensis* | Gray Catbird | O | - | R | - |
| | | *Mimus polyglottos* | Northern Mockingbird | U | C | U | U |
| | | *Oreoscoptes montanus* | Sage Thrasher | - | - | - | X |
| | | *Toxostoma rufum* | Brown Thrasher | U | O | O | O |
| | | *Toxostoma curvirostre* | Curve-billed Thrasher | - | - | X | X |
| | Sturnidae | *Sturnus vulgaris* | European Starling* | U | U | U | U |
| | Motacillidae | *Anthus rubescens* | American Pipit | R | - | O | O |
| | | *Anthus spragueii* | Sprague's Pipit | - | - | O | X |
| | Bombycillidae | *Bombycilla cedrorum* | Cedar Waxwing | C | - | U | A |
| | Calcariidae | *Calcarius lapponicus* | Lapland Longspur | - | - | R | R |
| Passeriformes | Calcariidae | *Calcarius ornatus* | Chestnut-collared Longspur | U | - | C | A |
| | | *Calcarius pictus* | Smith's Longspur | - | - | - | R |
| | | *Rhynchophanes mccownii* | McCown's Longspur | - | - | - | X |
| | Parulidae | *Seiurus aurocapilla* | Ovenbird | O | - | - | - |
| | | *Parkesia motacilla* | Louisiana Waterthrush | U | U | O | - |
| | | *Parkesia noveboracensis* | Northern Waterthrush | R | - | R | - |
| | | *Vermivora chrysoptera* | Golden-winged Warbler | - | - | X | - |
| | | *Vermivora cyanoptera* | Blue-winged Warbler | X | - | - | - |
| | | *Mniotilta varia* | Black-and-white Warbler | C | C | U | - |
| | | *Limnothlypis swainsonii* | Swainson's Warbler | X | - | - | - |
| | | *Oreothlypis peregrina* | Tennessee Warbler | O | - | R | - |
| | | *Oreothlypis celata* | Orange-crowned Warbler | C | - | C | O |
| | | *Oreothlypis ruficapilla* | Nashville Warbler | C | - | U | - |
| | | *Geothlypis tolmiei* | MacGillivray's Warbler | X | - | - | - |
| | | *Geothlypis trichas* | Common Yellowthroat | O | X | R | R |
| Passeriformes | Parulidae | *Setophaga citrina* | Hooded Warbler | - | X | - | - |
| | | *Setophaga ruticilla* | American Redstart | O | - | O | - |
| | | *Setophaga cerulea* | Cerulean Warbler | X | - | - | - |
| | | *Setophaga americana* | Northern Parula | C | O | - | - |
| | | *Setophaga magnolia* | Magnolia Warbler | O | - | R | - |
| | | *Setophaga fusca* | Blackburnian Warbler | X | - | - | - |

| Order | Family | Scientific Name | Common Name | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|---|---|
| | | *Setophaga petechia* | Yellow Warbler | C | O | U | - |
| | | *Setophaga pensylvanica* | Chestnut-sided Warbler | O | - | X | - |
| | | *Setophaga striata* | Blackpoll Warbler | O | - | - | - |
| | | *Setophaga caerulescens* | Black-throated Blue Warbler | X | - | X | - |
| | | *Setophaga coronata* | Yellow-rumped Warbler | A | - | C | C |
| | | *Setophaga discolor* | Prairie Warbler | R | - | - | - |
| | | *Setophaga virens* | Black-throated Green Warbler | O | X | R | - |
| | | *Cardellina canadensis* | Canada Warbler | X | - | X | - |
| | | *Cardellina pusilla* | Wilson's Warbler | U | - | U | - |
| Passeriformes | Parulidae | *Icteria virens* | Yellow-breasted Chat | O | X | - | - |
| | Emberizidae | *Pipilo chlorurus* | Green-tailed Towhee | X | - | X | - |
| | | *Pipilo maculatus* | Spotted Towhee | C | - | C | C |
| | | *Pipilo erythrophthalmus* | Eastern Towhee | O | - | - | O |
| | | *Aimophila ruficeps* | Rufous-crowned Sparrow | A | A | C | U |
| | | *Peucaea cassinii* | Cassin's Sparrow | R | R | - | - |
| | | *Spizella arborea* | American Tree Sparrow | O | - | R | O |
| | | *Spizella passerina* | Chipping Sparrow | A | U | A | U |
| | | *Spizella pallida* | Clay-colored Sparrow | C | - | U | - |
| | | *Spizella pusilla* | Field Sparrow | U | O | U | C |
| | | *Pooecetes gramineus* | Vesper Sparrow | U | - | U | O |
| | | *Chondestes grammacus* | Lark Sparrow | C | C | C | X |
| | | *Calamospiza melanocorys* | Lark Bunting | O | - | - | X |
| | | *Passerculus sandwichensis* | Savannah Sparrow | C | - | C | C |
| | | *Ammodramus savannarum* | Grasshopper Sparrow | C | C | U | X |
| | | *Ammodramus leconteii* | Le Conte's Sparrow | O | - | U | O |
| Passeriformes | Emberizidae | *Passerella iliaca* | Fox Sparrow | O | - | O | O |
| | | *Melospiza melodia* | Song Sparrow | C | - | C | C |
| | | *Melospiza lincolnii* | Lincoln's Sparrow | U | - | U | O |
| | | *Melospiza georgiana* | Swamp Sparrow | - | - | - | R |
| | | *Zonotrichia albicollis* | White-throated Sparrow | O | - | U | U |
| | | *Zonotrichia querula* | Harris's Sparrow | U | - | U | U |
| | | *Zonotrichia leucophrys* | White-crowned Sparrow | U | - | U | U |
| | | *Junco hyemalis* | Dark-eyed Junco | U | - | C | A |
| | Cardinalidae | *Piranga rubra* | Summer Tanager | C | C | U | - |

| Order | Family | Scientific Name | Common Name | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|---|---|
| | | *Piranga ludoviciana* | Western Tanager | X | - | - | - |
| | | *Cardinalis cardinalis* | Northern Cardinal | A | A | A | A |
| | | *Cardinalis sinuatus* | Pyrrhuloxia | - | - | - | X |
| | | *Pheucticus ludovicianus* | Rose-breasted Grosbeak | X | - | - | - |
| | | *Pheucticus melanocephalus* | Black-headed Grosbeak | O | - | - | - |
| | | *Passerina caerulea* | Blue Grosbeak | U | U | O | - |
| | | *Passerina amoena* | Lazuli Bunting | O | O | - | - |
| Passeriformes | Cardinalidae | *Passerina cyanea* | Indigo Bunting | U | U | U | - |
| | | *Passerina ciris* | Painted Bunting | C | A | U | - |
| | | *Spiza americana* | Dickcissel | C | C | U | - |
| | Icteridae | *Agelaius phoeniceus* | Red-winged Blackbird | C | U | C | C |
| | | *Sturnella magna* | Eastern Meadowlark | A | A | A | A |
| | | *Sturnella neglecta* | Western Meadowlark | O | R | O | U |
| | | *Xanthocephalus xanthocephalus* | Yellow-headed Blackbird | U | - | O | - |
| | | *Euphagus carolinus* | Rusty Blackbird | R | - | R | R |
| | | *Euphagus cyanocephalus* | Brewer's Blackbird | C | - | C | U |
| | | *Quiscalus quiscula* | Common Grackle | C | C | C | O |
| | | *Quiscalus mexicanus* | Great-tailed Grackle | - | O | - | - |
| | | *Molothrus bonariensis* | Shiny Cowbird | - | X | - | - |
| | | *Molothrus aeneus* | Bronzed Cowbird | X | - | - | - |
| | | *Molothrus ater* | Brown-headed Cowbird | A | C | C | U |
| | | *Icterus spurius* | Orchard Oriole | O | - | R | |
| | | *Icterus bullockii* | Bullock's Oriole | - | R | - | - |
| Passeriformes | Icteridae | *Icterus galbula* | Baltimore Oriole | O | O | - | - |
| | | *Icterus bullockii-galbula* | Bullock x Baltimore Oriole | - | R | - | - |
| | Fringillidae | *Haemorhous purpureus* | Purple Finch | R | - | R | O |
| | | *Haemorhous cassinii* | Cassin's Finch | - | - | - | X |
| | | *Haemorhous mexicanus* | House Finch | U | U | U | O |
| | | *Loxia curvirostra* | Red Crossbill | X | - | X | X |
| | | *Spinus pinus* | Pine Siskin | C | R | O | U |
| | | *Spinus psaltria* | Lesser Goldfinch | O | O | R | X |
| | | *Spinus tristis* | American Goldfinch | C | O | U | C |
| | Passeridae | *Passer domesticus* | House Sparrow | U | U | U | U |

**Fishes**

- A single asterisk (*) denotes that the species is non-native.
- Two asterisks (**) denotes that there are no recent records.

- Three asterisks (***) denotes hatchery produced hybrid cross between walleye and sauger.

| Order | Family | Scientific Name | Common Name |
|---|---|---|---|
| Perciformes | Percidae | *Dorosoma cepedianum* | American gizzard shad |
| Cypriniformes | Cyprinidae | *Campostoma anomalum* | Central stoneroller |
| | | *Notropis lutrensis* | Red shiner |
| | | *Ctenopharyngodon idella* | Grass carp* |
| Cypriniformes | Cyprinidae | *Cyprinus carpio* | Common carp* |
| | | *Notemigonus crysoleucas* | Golden shiner |
| | | *Notropis boops* | Bigeye shiner** |
| | | *Notropis stramineus* | Sand shiner** |
| | | *Pimephales promelas* | Fathead minnow** |
| | Catostomidae | *Ictiobus bubalus* | Smallmouth buffalo |
| | | *Moxostoma duquesnei* | Black redhorse |
| | | *Moxostoma erythrurum* | Golden redhorse |
| Siluriformes | Ictaluridae | *Ictalurus melas* | Black bullhead |
| | | *Ictalurus natalis* | Yellow bullhead |
| | | *Ictalurus punctatus* | Channel catfish |
| | | *Pylodictis olivaris* | Flathead catfish |
| Cyprinodontiformes | Cyprinodontidae | *Cyprinodon rubrofluviatilis* | Red River pupfish |
| | Poeciliidae | *Fundulus kansae* | Plains killifish** |
| | | *Gambusia affinis* | Mosquito fish |
| Atheriniformes | Atherinopsidae | *Labidesthes sicculus* | Brook silverside |
| Perciformes | Centrarchidae | *Lepomis cyanellus* | Green sunfish |
| | | *Lepomis gulosus* | Warmouth |
| | | *Lepomis humilis* | Orange-spotted sunfish |
| | | *Lepomis macrochirus* | Bluegill |
| Perciformes | Centrarchidae | *Lepomis megalotis* | Longear sunfish |
| | | *Lepomis microlaphus* | Redear sunfish |
| | | *Micropterus dolomieui* | Smallmouth bass* |
| | | *Micropterus punctulatus* | Spotted bass** |
| | | *Micropterus salmoides* | Largemouth bass* |
| | | *Pomoxis annularis* | White crappie |
| | | *Pomoxis nigromaculatus* | Black crappie |
| | Percidae | *Etheostoma spectabile* | Orangethroat darter |
| | | *Percina caprodes* | Logperch |
| | | *Stizostedion canadense x vitreum* | Saugeye*** |
| | Sciaenidae | *Aplodinotus grunniens* | Freshwater drum |

**Mammals (**A single asterisk (*) denotes that the species is non-native)

| Order | Family | Scientific Name | Common Name |
|---|---|---|---|
| Didelphimorphia | Didelphidae | *Didelphis virginiana* | Opossum |
| Soricomorpha | Soricidae | *Blarina hylophaga* | Elliot's short-tailed shrew |
| | | *Cryptotis parva* | Least shrew |
| | | *Notiosorex crawfordi* | Desert shrew |
| | Talpidae | *Scalopus aquaticus* | Eastern mole |
| Chiroptera | Vespertilionidae | *Myotis ciliolabrum* | Western small-footed |

| Order | Family | Scientific Name | Common Name |
|---|---|---|---|
| | | | myotis |
| | | *Myotis velifer* | Cave myotis |
| Chiroptera | Vespertilionidae | *Lasionycteris noctivigans* | Silver-haired bat |
| | | *Parastrellus hesperus* | Western pipistrelle |
| | | *Perimyotis subflavus* | Eastern pipistrelle |
| | | *Lasiurus borealis* | Red bat |
| | | *Lasiurus cinereus* | Hoary bat |
| | | *Nycticeius humeralis* | Evening bat |
| | | *Corynorhinus townsendii pallescens* | Pale lump-nosed bat |
| | | *Antrozous pallidus* | Pallid bat |
| | Molossidae | *Tadarida brasiliensis* | Brazilian free-tailed bat |
| Cingulata | Dasypodinae | *Dasypus novemcinctus* | Nine-banded armadillo |
| Lagomorpha | Leporidae | *Sylvilagus aquaticus* | Swamp rabbit |
| | | *Sylvilagus audubonii* | Desert cottontail |
| | | *Sylvilagus floridanus* | Eastern cottontail |
| | | *Lepus californicus* | Black-tailed jackrabbit |
| Rodentia | Sciuridae | *Spermophilus spilosoma* | Spotted ground squirrel |
| | | *Spermophilus tridecemlineatus* | Thirteen-lined ground squirrel |
| | | *Cynomys ludovicianus* | Black-tailed prairie dog |
| | | *Sciurus niger* | Eastern fox squirrel |
| Rodentia | Sciuridae | *Glaucomys volans* | Southern flying squirrel |
| | Geomyidae | *Geomys bursarius major* | Plains pocket gopher |
| | Heteromyidae | *Chaetodipus hispidus* | Hispid pocket mouse |
| | Castoridae | *Castor canadensis* | Beaver |
| | Muridae | *Reithrodontomys fulvescens* | Fulvous harvest mouse |
| | | *Reithrodontomys montanus* | Plains harvest mouse |
| | | *Peromyscus attwateri* | Texas mouse |
| | | *Peromyscus leucopus* | White-footed mouse |
| | | *Peromyscus maniculatus* | Deer mouse |
| | | *Sigmodon hispidus* | Cotton rat |
| | | *Neotoma floridana* | Eastern woodrat |
| | | *Microtus ochrogaster* | Prairie vole |
| | | *Microtus pinetorum* | Woodland vole |
| | | *Rattus norvegicus* | Norway rat* |
| | | *Mus musculus* | House mouse* |
| | Erethizontidae | *Erethizon dorsatum* | Porcupine |
| Carnivora | Canidae | *Canis latrans* | Coyote |
| | | *Canis lupus familiaris* | Domestic dog* |
| | | *Vulpes vulpes* | Red fox |
| Carnivora | Canidae | *Urocyon cinereoargenteus* | Gray fox |
| | Procyonidae | *Bassariscus stutus* | Ringtail |
| | | *Procyon lotor* | Raccoon |
| | Mustelidae | *Mustela vison* | Mink |
| | | *Taxidea taxis* | Badger |
| | | *Spilogale putorius* | Eastern spotted skunk |
| | | *Mephitis mephitis* | Striped skunk |

| Order | Family | Scientific Name | Common Name |
|---|---|---|---|
| | | *Lutra canadensis* | River otter |
| | Felidae | *Felis concolor* | Mountain lion |
| | | *Lynx rufus* | Bobcat |
| | | *Felis catus* | Domestic cat* |
| Artiodactyla | Cervidae | *Cervus elaphus* | Elk |
| | | *Odocoileus virginianus* | White-tailed deer |
| | Bovidae | *Bison bison* | American bison |
| | | *Bos taurus* | Longhorn* |
| | Suidae | *Sus scrofa* | Feral pig* |

## Reptiles

| Order | Family | Scientific Name | Common Name |
|---|---|---|---|
| Chelonia | Chelydridae | *Chelydra serpentina serpentina* | Eastern snapping turtle |
| | Kinosternidae | *Kinosternon flavescens* | Yellow mud turtle |
| | Emydidae | *Graptemys ouachitensis* | Ouachita map turtle |
| | | *Terrapene ornata ornata* | Ornate box turtle |
| | | *Trachemys scripta elegans* | Red-eared slider |
| Chelonia | Trionychidae | *Apalone mutica mutica* | Midland smooth softshell |
| | | *Apalone spinifera pallida* | Pallid spiny softshell |
| Sauria | Crotaphytidae | *Crotaphytus collaris* | Eastern collared lizard |
| | Phrynosomatidae | *Holbrookia maculata perspicua* | Prairie earless lizard |
| | | *Phrynosoma cornutum* | Texas horned lizard |
| | | *Sceloporus consobrinus* | Prairie lizard |
| | Teiidae | *Aspidoscelis gularis gularis* | Texas spotted whiptail |
| | | *Aspidoscelis sexlineatus viridis* | Prairie racerunner |
| | | *Aspidoscelis sexlineatus sexlineatus* | Eastern six-lined racerunner |
| | Scincidae | *Plestiodon septentrionalis obtusirostris* | Southern prairie skink |
| | | *Plestiodon fasciatus* | Common five-lined skink |
| | | *Plestiodon obsoletus* | Great plains skink |
| | | *Scincella lateralis* | Little brown skink |
| | Anguidae | *Ophisaurus attenuatus attenuatus* | Western slender glass lizard |
| Serpentes | Leptotypholopidae | *Leptotyphlops dissectus* | New Mexico threadsnake |
| | | *Leptotyphlops dulcis dulcis* | Plains threadsnake |
| | Colubridae | *Arizona elegans elegans* | Kansas glossy snake |
| | | *Coluber constrictor flaviventris* | Eastern yellow-bellied racer |
| | | *Diadophis punctatus arnyi* | Prairie ring-necked snake |
| Serpentes | Colubridae | *Pantherophis emoryi* | Great plains rat snake |
| | | *Pantherophis obsoletus* | Texas ratsnake |
| | | *Heterodon platirhinos* | Eastern hognose snake |
| | | *Heterodon nasicus* | Plains hognose snake |
| | | *Hypsiglena jani texana* | Texas nightsnake |

| Order | Family | Scientific Name | Common Name |
|---|---|---|---|
| | | *Lampropeltis calligaster callisgaster* | Prairie kingsnake |
| | | *Lampropeltis getula holbrooki* | Speckled kingsnake |
| | | *Lampropeltis triangulum gentilis* | Central plains milksnake |
| | | *Coluber flagellum flagellum* | Eastern coachwhip |
| | | *Coluber flagellum testaceus* | Western coachwhip |
| | | *Nerodia erythrogaster transversa* | Blotched water snake |
| | | *Nerodia rhombifer rhombifer* | Northern diamond-backed water snake |
| | | *Opheodrys aestivus* | Rough greensnake |
| | | *Pituophis catenifer sayi* | Bullsnake |
| | | *Regina grahamii* | Graham's crayfish snake |
| | | *Rhinocheilus lecontei* | Long-nosed snake |
| | | *Sonora semiannulata* | Western groundsnake |
| | | *Storeria dekayi texana* | Texas brown snake |
| | | *Tantilla gracilis* | Flatheaded snake |
| | | *Tantilla nigriceps* | Plains black-headed snake |
| Serpentes | Colubridae | *Thamnphis marcianus marcianus* | Marcy's checkered gartersnake |
| | | *Thamnphis marcianus* | Checkered gartersnake |
| | | *Thamnophis proximus proximus* | Orange-striped ribbonsnake |
| | | *Thamnophis sirtalis parietalis* | Red-sided gartersnake |
| | | *Tropidoclonion lineatum* | Lined snake |
| | Viperidae | *Agkistrodon contortrix laticinctus* | Broad-banded copperhead |
| | | *Agkistrodon piscivorous leucostoma* | Western cottonmouth |
| | | *Crotalus horridus* | Timber rattlesnake |
| | | *Crotalus atrox* | Western diamondback rattlesnake |
| | | *Crotalus viridis* | Prairie rattlesnake |
| | | *Sistrurus catenatus tergeminus* | Western massasauga |

**Invertebrates** (A single asterisk (*) denotes that the species is non-native)

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| Cnidaria | Hydrozoa | Hydroida | Olindiidae | *Craspedacusta sowerbii* | Freshwater jellyfish* |
| Rotifera | Monogononta | Ploima | Brachionidae | *Keratella* | Rotifer |
| Platyhelmi-nthes | Turbellaria | Tricladida | Dugesiidae | *Dugesia tigrina* | Flatworm |
| Annelida | Clitellata | Haplotaxida | Tubificidae | *Branchiura sowerbyi* | Tubificid worm |
| | | | | *Limnodrilus* | Tubificid worm |
| | | | Naididae | *Stylaria* | Oligochaete worm |
| | | Lumbriculida | Lumbriculidae | *Lumbriculus* | Microdrile oligochaete |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| Annelida | Clitellata | Rhynchobdelli-da | Glossiphonii-dae | *Helobdella* | Leech |
| | | | | *Helobdella triserialis* | Leech |
| Bryozoa | Phylactolae-mata | Plumatellida | Pectinatelli-dae | *Pectinatella magnifica* | Freshwater bryozoan |
| Mollusca | Bivalvia | Unionoida | Unionidae | *Lampsilis teres* | Yellow sandshell |
| | | | | *Ligumia subrostrata* | Pondmussel |
| | | | | *Potamilus ohioensis* | Pink papershell |
| | | | | *Pyganodon grandis* | Giant floater |
| | | | | *Quadrula quadrula* | Mapleleaf |
| | | | | *Toxolasma parvus* | Lilliput |
| | | | | *Utterbackia imbecillis* | Paper pondshell |
| | | Veneroida | Corbiculidae | *Corbicula* | Clam |
| | | | Sphaeriidae | *Sphaerium* | Freshwater clam |
| | Gastropoda | Basommatophor a | Planorbidae | *Ferrissia* | Fresh water limpet |
| | | | | *Gyraulus* | Freshwater snail |
| | | | | *Helisoma* | Fresh water snail |
| | | | | *Planorbella* | Freshwater snail |
| | | | | *Planorbella trivolvis* | Freshwater snail |
| | | | Physidae | *Physa* | Snail |
| | | | | *Physa anatina* | Freshwater snail |
| Mollusca | Gastropoda | Basommatophor a | Physidae | *Physa crandalli* | Freshwater snail |
| | | | | *Physella* | Bladder snail |
| | | Stylommatopho-ra | Bulimulidae | *Bulimulus dealbatus* | Air breathing land snail |
| | | | Pupillidae | *Gastrocopta pellucida* | Slim snaggle tooth |
| | | | Polygyridae | *Polygyra dorfueilliana* | Oakwood liptooth |
| | | | Strobilopsid-ae | *Strobilops texasianus* | Southern pinecone |
| | | | Succineidae | *Succinea grosvenori* | Santa rita ambersnail |
| Arthropoda | Arachnida | Araneae | Araneidae | *Acacesia hamata* | Orbweaver |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Acanthepeira stellata* | Starbellied orbweaver |
| | | | | *Araneus cingulatus* | Orbweaver |
| | | | | *Araneus illaudatus* | Orbweaver |
| | | | | *Araneus miniatus* | Orbweaver |
| | | | | *Araneus pegnia* | Orbweaver |
| | | | | *Araneus trifolium* | Shamrock orbweaver |
| | | | | *Argiope aurantia* | Yellow garden spider |
| | | | | *Argiope trifasciata* | Banded garden spider |
| | | | | *Cyclosa turbinata* | Trashline orbweaver |
| Arthropoda | Arachnida | Araneae | Araneidae | *Eustala anastera* | Humpbacked orbweaver |
| | | | | *Eustala cepina* | Orbweaver |
| | | | | *Eustala emertoni* | Orbweaver |
| | | | | *Gea heptagon* | Orbweaver |
| | | | | *Hypsosinga funebris* | Orbweaver |
| | | | | *Hypsosinga rubens* | Orbweaver |
| | | | | *Larinia directa* | Orbweaver |
| | | | | *Larinioides cornutus* | Furrow orbweaver |
| | | | | *Larinioides patagiatus* | Orbweaver |
| | | | | *Mangora fascialata* | Orbweaver |
| | | | | *Mangora gibberosa* | Lined orbweaver |
| | | | | *Mangora maculata* | Greenlegged orbweaver |
| | | | | *Mangora placida* | Tuftlegged orbweaver |
| | | | | *Mecynogea lemniscata* | Basilica orbweaver |
| | | | | *Metepeira labyrinthea* | Labyrinth orbweaver |
| | | | | *Micrathena gracilis* | Spined micrathena |
| | | | | *Neoscona domiciliorum* | Spotted orbweaver |
| | | | | *Neoscona arabesca* | Arabesque orbweaver |
| | | | | *Neoscona crucifera* | Spotted orbweaver |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| Arthropoda | Arachnida | Araneae | Araneidae | *Neoscona oaxacensis* | Western spotted orbweaver |
| | | | | *Neoscona utahana* | Spotted orbweaver |
| | | | | *Singa keyserlingi* | Striped orbweaver |
| | | | Filistatidae | *Kukulcania hibernalis* | Southern house spider |
| | | | Diguetidae | *Diguetia canities* | Desertshrub spider |
| | | | Pholcidae | *Pholcus* | Cellar spider |
| | | | | *Physocyclus enaulus* | Daddylongl-eg spider |
| | | | | *Psilochorus imitatus* | Daddylongl-eg spider |
| | | | | *Psilochorus pullulus* | Daddylongl-eg spider |
| | | | | *Spermophora senoculata* | Shortbodied cellar spider |
| | | | Titanoecidae | *Titanoeca americana* | Titanoecid spider |
| | | | Uloboridae | *Uloborus glomosus* | Featherleg-ged orbweaver |
| | | | Pisauridae | *Dolomedes* | Fishing spider |
| | | | | *Dolomedes scriptus* | Fishing spider |
| | | | | *Dolomedes triton* | Fishing spider |
| | | | | *Dolomedes vittatus* | Fishing spider |
| | | | | *Pisaurina dubia* | Nursery web spider |
| Arthropoda | Arachnida | Araneae | Pisauridae | *Pisaurina mira* | Nursery web spider |
| | | | | *Pisaurina undulata* | Nursery web spider |
| | | | Theraphosidae | *Aphonopelma hentzi* | Texas brown tarantula |
| | | | | *Aphonopelma* | Tarantula |
| | | | Theridiidae | *Argyrodes elevatus* | Dewdrop spider |
| | | | | *Enoplognatha marmorata* | Marbled cobweb spider |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Euryopis lineatipes* | Cobweb weaver |
| | | | | *Euryopis texana* | Cobweb weaver |
| | | | | *Euryopis weesei* | Cobweb weaver |
| | | | | *Latrodectus mactans* | Southern black widow |
| | | | | *Latrodectus variolus* | Northern black widow |
| | | | | *Parasteatoda tepidariorum* | Common house spider |
| | | | | *Steatoda fulva* | Cobweb weaver |
| | | | | *Steatoda medialis* | Cobweb weaver |
| | | | | *Steatoda triangulosa* | Cobweb weaver |
| | | | | *Stemmops ornatus* | Cobweb weaver |
| | | | | *Theridion differens* | Cobweb weaver |
| | | | | *Theridion goodnightorum* | Cobweb weaver |
| Arthropoda | Arachnida | Araneae | Theridiidae | *Theridion murarium* | Cobweb weaver |
| | | | | *Theridion rabuni* | Cobweb weaver |
| | | | | *Thymoites marxi* | Cobweb weaver |
| | | | | *Thymoites pallidus* | Cobweb weaver |
| | | | | *Wamba crispulus* | Cobweb weaver |
| | | | Oceobiidae | *Oecobius cellariorum* | Flatmesh weaver |
| | | | Oxyopidae | *Oxyopes* | Lynx spider |
| | | | | *Oxyopes apollo* | Lynx spider |
| | | | | *Oxyopes salticus* | Striped lynx spider |
| | | | | *Oxyopes scalaris* | Western lynx spider |
| | | | | *Peucetia viridans* | Green lynx spider |
| | | | Lycosidae | *Allocosa funerea* | Wolf spider |
| | | | | *Allocosa noctuabunda* | Wolf spider |
| | | | | *Alopecosa kochi* | Wolf spider |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Arctosa littoralis* | Wolf spider |
| | | | | *Geolycosa missouriensis* | Burrowing wolf spider |
| | | | | *Gladicosa pulchra* | Wolf spider |
| | | | | *Hogna carolinensis* | Carolina wolf spider |
| | | | | *Hogna helluo* | Wolf spider |
| Arthropoda | Arachnida | Araneae | Lycosidae | *Pardosa delicatula* | Thinlegged wolf spider |
| | | | | *Pardosa mercurialis* | Thinlegged wolf spider |
| | | | | *Pardosa milvina* | Thinlegged wolf spider |
| | | | | *Pardosa pauxilla* | Thinlegged wolf spider |
| | | | | *Pardosa steva* | Thinlegged wolf spider |
| | | | | *Pirata apalacheus* | Pirate wolf spider |
| | | | | *Pirata insularis* | Pirate wolf spider |
| | | | | *Rabidosa punctulata* | Wolf spider |
| | | | | *Rabidosa rabida* | Rabid wolf spider |
| | | | | *Schizocosa avida* | Wolf spider |
| | | | | *Schizocosa bilineata* | Wolf spider |
| | | | | *Schizocosa mccooki* | Wolf spider |
| | | | | *Schizocosa ocreata* | Wolf spider |
| | | | | *Schizocosa perplexa* | Wolf spider |
| | | | | *Schizocosa retrorsa* | Wolf spider |
| | | | | *Schizocosa saltatrix* | Wolf spider |
| | | | | *Trochosa ruricola* | Wolf spider |
| | | | | *Trochosa terricola* | Wolf spider |
| | | | | *Varacosa avara* | Wolf spider |
| Arthropoda | Arachnida | Araneae | Lycosidae | *Varacosa shenandoa* | Wolf spider |
| | | | Ctenizidae | *Ummidia audouini* | Trapdoor spider |
| | | | Linyphiidae | *Bathyphantes* | Sheetweb spider |
| | | | | *Ceraticelus* | Sheetweb spider |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Ceratinella brunnea* | Dwarf and sheetweb weaver |
| | | | | *Erigone autumnalis* | Sheetweb spider |
| | | | | *Frontinella communis* | Bowl and doily weaver |
| | | | | *Grammonota vittata* | Dwarf and sheetweb weaver |
| | | | | *Idionella rugosus* | Sheetweb spider |
| | | | | *Meioneta dactylata* | Dwarf and sheetweb weaver |
| | | | | *Meioneta leucophora* | Dwarf and sheetweb weaver |
| | | | | *Mermessus albulus* | Dwarf and sheetweb weaver |
| | | | | *Mermessus denticulatus* | Dwarf and sheetweb weaver |
| | | | | *Mermessus maculatus* | Dwarf and sheetweb weaver |
| | | | | *Neriene radiata* | Filmy dome spider |
| | | | | *Wubana drassoides* | Sheetweb spider |
| Arthropoda | Arachnida | Araneae | Segestriidae | *Ariadna bicolor* | Tunnel spider |
| | | | Sicariidae | *Loxosceles reclusa* | Brown recluse |
| | | | Tetragnathid-ae | *Glenognatha foxi* | Longjawed orbweaver |
| | | | | *Leucauge venusta* | Orchard orbweaver |
| | | | | *Tetragnatha elongata* | Longjawed orbweaver |
| | | | | *Tetragnatha guatemalensis* | Longjawed orbweaver |
| | | | | *Tetragnatha laboriosa* | Longjawed orbweaver |
| | | | | *Tetragnatha pallescens* | Longjawed orbweaver |
| | | | Mimetidae | *Mimetus hesperus* | Pirate spider |
| | | | | *Mimetus puritanus* | Wolf spider |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | Amaurobiidae | *Coras lamellosus* | Hackledmesh weaver |
| | | | Agelenidae | *Agelenopsis emertoni* | Grass spider |
| | | | | *Agelenopsis naevia* | Grass spider |
| | | | | *Agelenopsis oklahoma* | Grass spider |
| | | | | *Tegenaria domestica* | Funnel-web spider |
| | | | Anyphaenidae | *Anyphaena fraterna* | Ghost spider |
| | | | | *Hibana gracilis* | Garden ghost spider |
| | | | Thomisidae | *Bassaniana versicolor* | Bark crab spider |
| Arthropoda | Arachnida | Araneae | Thomisidae | *Misumena vatia* | Goldenrod crab spider |
| | | | | *Misumenoides formosipes* | Whitebanded crab spider |
| | | | | *Misumenops* | Crab spider |
| | | | | *Misumenops asperatus* | Northern crab spider |
| | | | | *Misumenops celer* | Celer crab spider |
| | | | | *Misumenops dubius* | Crab spider |
| | | | | *Misumenops oblongus* | Crab spider |
| | | | | *Ozyptila monroensis* | Leaflitter crab spider |
| | | | | *Synema parvulum* | Crab spider |
| | | | | *Tmarus angulatus* | Crab spider |
| | | | | *Xysticus ampullatus* | Ground crab spider |
| | | | | *Xysticus apachecus* | Ground crab spider |
| | | | | *Xysticus auctificus* | Ground crab spider |
| | | | | *Xysticus elegans* | Elegant crab spider |
| | | | | *Xysticus ferox* | Crab spider |
| | | | | *Xysticus funestus* | Crab spider |
| | | | | *Xysticus gulosus* | Ground crab spider |
| | | | | *Xysticus pellax* | Ground crab spider |
| | | | | *Xysticus triguttatus* | Threebanded crab spider |
| Arthropoda | Arachnida | Araneae | Dictynidae | *Cicurina arizona* | Meshweaver |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Dictyna bellans* | Meshweaver |
| | | | | *Dictyna calcarata* | Meshweaver |
| | | | | *Dictyna foliacea* | Meshweaver |
| | | | | *Dictyna volucripes* | Meshweaver |
| | | | | *Emblyna consulta* | Meshweaver |
| | | | | *Emblyna sublata* | Meshweaver |
| | | | | *Lathys delicatula* | Meshweaver |
| | | | | *Phantyna segregata* | Apex meshweaver |
| | | | Cyrtauchenii-dae | *Myrmekiaphila comstocki* | Cyrtauchen-iid spider |
| | | | Gnaphosidae | *Callilepis imbecilla* | Stealthy ground spider |
| | | | | *Cesonia bilineata* | Stealthy ground spider |
| | | | | *Drassodes auriculoides* | Stealthy ground spider |
| | | | | *Drassodes gosiutus* | Stealthy ground spider |
| | | | | *Drassyllus aprilinus* | Stealthy ground spider |
| | | | | *Drassyllus dromeus* | Stealthy ground spider |
| Arthropoda | Arachnida | Araneae | Gnaphosidae | *Drassyllus lepidus* | Stealthy ground spider |
| | | | | *Gnaphosa fontinalis* | Stealthy ground spider |
| | | | | *Gnaphosa sericata* | Stealthy ground spider |
| | | | | *Haplodrassus chamberlini* | Stealthy ground spider |
| | | | | *Haplodrassus signifer* | Stealthy ground spider |
| | | | | *Herpyllus ecclesiastic-us* | Parson spider |
| | | | | *Micaria* | Stealthy ground spider |
| | | | | *Nodocion rufithoracic-us* | Stealthy ground spider |
| | | | | *Sergiolus capulatus* | Stealthy ground spider |
| | | | | *Talanites exlineae* | Stealthy ground spider |
| | | | | *Zelotes hentzi* | Stealthy ground spider |
| | | | | *Zelotes puritanus* | Stealthy ground spider |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | Hahniidae | *Hahnia flaviceps* | Hahniid spider |
| | | | Liocranidae | *Agroeca* | Liocranid spider |
| | | | Corinnidae | *Castianeira crocata* | Antmimic spider |
| Arthropoda | Arachnida | Araneae | Corinnidae | *Castianeira gertschi* | Gertsch antmimic |
| | | | | *Castianeira longipalpus* | Antmimic spider |
| | | | | *Castianeira trilineata* | Antmimic spider |
| | | | | *Phrurotimpus alarius* | Antmimic spider |
| | | | | *Phrurotimpus certus* | Antmimic spider |
| | | | | *Scotinella redempta* | Antmimic spider |
| | | | | *Trachelas tranquillus* | Antmimic spider |
| | | | Miturgidae | *Cheiracanthi-um inclusum* | Agrarian sac spider |
| | | | Clubionidae | *Clubiona abboti* | Leafcurling sac spider |
| | | | | *Clubiona pygmaea* | Leafcurling sac spider |
| | | | | *Elaver excepta* | Sac spider |
| | | | Philodromidae | *Apollophanes margareta* | Running crab spider |
| | | | | *Ebo punctatus* | Running crab spider |
| | | | | *Philodromus cespitum* | Running crab spider |
| | | | | *Philodromus imbecillus* | Running crab spider |
| | | | | *Philodromus keyserlingi* | Running crab spider |
| | | | | *Philodromus marxi* | Running crab spider |
| | | | | *Philodromus pratariae* | Running crab spider |
| | | | | *Philodromus rufus* | Running crab spider |
| Arthropoda | Arachnida | Araneae | Philodromidae | *Thanatus altimontis* | Running crab spider |
| | | | | *Thanatus formicinus* | Running crab spider |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Thanatus rubicellus* | Running crab spider |
| | | | | *Tibellus chamberlini* | Slender crab spider |
| | | | | *Tibellus duttoni* | Slender crab spider |
| | | | Salticidae | *Eris militaris* | Bronze jumper |
| | | | | *Habronattus coecatus* | Jumping spider |
| | | | | *Habronattus cognatus* | Jumping spider |
| | | | | *Habronattus jucundus* | Jumping spider |
| | | | | *Habronattus texanus* | Jumping spider |
| | | | | *Hentzia palmarum* | Jumping spider |
| | | | | *Maevia inclemens* | Dimorphic jumper |
| | | | | *Marpissa formosa* | Jumping spider |
| | | | | *Marpissa lineata* | Jumping spider |
| | | | | *Marpissa pikei* | Pike slender jumper |
| | | | | *Metacyrba taeniola* | Jumping spider |
| | | | | *Metaphidippus chera* | Jumping spider |
| | | | | *Naphrys pulex* | Jumping spider |
| Arthropoda | Arachnida | Araneae | Salticidae | *Paraphidippus aurantius* | Jumping spider |
| | | | | *Pelegrina galathea* | Peppered jumper |
| | | | | *Pelegrina peckhamorum* | Jumping spider |
| | | | | *Pelegrina pervaga* | Jumping spider |
| | | | | *Pelegrina proterva* | Jumping spider |
| | | | | *Pelegrina sabinema* | Jumping spider |
| | | | | *Pellenes limatus* | Jumping spider |
| | | | | *Phidippus apacheanus* | Jumping spider |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Phidippus ardens* | Jumping spider |
| | | | | *Phidippus audax* | Bold jumper |
| | | | | *Phidippus cardinalis* | Cardinal jumper |
| | | | | *Phidippus carolinensis* | Jumping spider |
| | | | | *Phidippus clarus* | Jumping spider |
| | | | | *Phidippus mystaceus* | Jumping spider |
| | | | | *Phidippus pius* | Jumping spider |
| | | | | *Phidippus princeps* | Jumping spider |
| | | | | *Phidippus texanus* | Jumping spider |
| | | | | *Phlegra fasciata* | Jumping spider |
| | | | | *Phlegra hentzi* | Jumping spider |
| Arthropoda | Arachnida | Araneae | Salticidae | *Platycryptus undatus* | Jumping spider |
| | | | | *Poultonella alboimmacula-ta* | Jumping spider |
| | | | | *Salticus austinensis* | Jumping spider |
| | | | | *Sassacus papenhoei* | Jumping spider |
| | | | | *Sassacus vitis* | Jumping spider |
| | | | | *Sitticus* | Jumping spider |
| | | | | *Synageles noxiosa* | Jumping spider |
| | | | | *Terralonus unicus* | Jumping spider |
| | | | | *Thiodina puerpera* | Jumping spider |
| | | | | *Thiodina sylvana* | Jumping spider |
| | | | | *Tutelina elegans* | Jumping spider |
| | | | | *Zygoballus rufipes* | Hammerjawed jumper |
| | | Ixodida | Ixodidae | *Amblyomma* | Hard tick |
| | | | | *Amblyomma americanum* | Lone star tick |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Amblyomma maculatum* | Gulf coast tick |
| | | | | *Dermacentor albipictus* | Winter tick |
| | | | | *Dermacentor variabilis* | Wood tick |
| | | | | *Ixodes scapularis* | Black-legged tick |
| | | Opiliones | Cosmetidae | *Vonones sayi* | Harvestman |
| Arthropoda | Arachnida | Opiliones | Sclerosomati-dae | *Eumesosoma roeweri* | Harvestman |
| | | | | *Leiobunum crassipalpe* | Harvestman |
| | | | | *Leiobunum leiopenis* | Harvestman |
| | | | | *Leiobunum politum* | Harvestman |
| | | | | *Leiobunum relictum* | Harvestman |
| | | | | *Leiobunum townsendi* | Harvestman |
| | | | | *Leiobunum vittatum* | Harvestman |
| | | Actinedida | Trombidiidae | *Trombidium* | Velvet mite |
| | | Scorpiones | Buthidae | *Centruroides vittatus* | Striped bark scorpion |
| | | Solifugae | Eremobatidae | *Eremobates simoni* | Straight-faced solifugid |
| | Chilopoda | Scolopendromo-rpha | Scolopendrid-ae | *Scolopendra heros* | Giant redheaded centipede |
| | Diplopoda | Spirobolida | Spirobolidae | *Narceus* | Millipede |
| | Branchiopoda | Cladocera | Daphniidae | *Daphnia* | Water flea |
| | | Diplostraca | Limnadiidae | *Eulimnadia* | Water flea |
| | | | | *Eulimnadia antlei* | Oklahoma clam shrimp |
| | Malacostraca | Amphipoda | Hyalellidae | *Hyalella* | Amphipod |
| | | | | *Hyalella azteca* | Amphipod |
| | | Decapoda | Cambaridae | *Orconectes* | Crayfish |
| | | | Palaemonidae | *Palaemonetes kadiakensis* | Mississippi grass shrimp |
| Arthropoda | Malacostraca | Decapoda | Cambaridae | *Procambarus* | Crayfish |
| | Maxillopoda | Calanoida | | | Copepods |
| | | Cyclopoida | | | Copepods |
| | Collembola | Entomobryomor-pha | Isotomidae | *Isotomurus palustris* | Springtail |
| | Insecta | Thysanura | Lepismatidae | *Lepisma saccharina* | Silverfish |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | Ephemeroptera | Ephemerellid-ae | *Ephemerella* | Mayfly |
| | | | Ephemeridae | *Hexagenia limbata* | Common burrower mayfly |
| | | | Heptageniidae | *Stenonema* | Mayfly |
| | | | | *Stenonema femorata* | Stream mayfly |
| | | | Baetidae | *Baetis* | Small minnow mayfly |
| | | | | *Baetis intercalaris* | Small minnow mayfly |
| | | | | *Callibaetis* | Small minnow mayfly |
| | | | | *Callibaetis floridanus* | Small minnow mayfly |
| | | | | *Callibaetis montanus* | Small minnow mayfly |
| | | | | *Fallceon quilleri* | Mayfly |
| | | | | *Plauditus dubius* | Mayfly |
| | | | | *Plauditus texanus* | Mayfly |
| | | | | *Pseudocloeon dardanum* | Mayfly |
| Arthropoda | Insecta | Ephemeroptera | Baetidae | *Pseudocloeon ephippiatus* | Mayfly |
| | | | Isonychiidae | *Isonychia rufa* | Brushlegged mayfly |
| | | | Leptophlebii-dae | *Neochoroterp-es oklahoma* | Mayfly |
| | | | Leptohyphidae | *Tricorythodes allectus* | Mayfly |
| | | | | *Tricorythodes explicatus* | Mayfly |
| | | | Polymitarcyi-dae | *Tortopus puella* | Mayfly |
| | | | Caenidae | *Caenis* | Small square-gilled mayfly |
| | | | | *Caenis amica* | Small square-gilled mayfly |
| | | | | *Caenis latipennis* | Small square-gilled mayfly |
| | | | | *Caenis punctata* | Small square-gilled mayfly |
| | | | | *Sparbarus lacustris* | Small square-gilled mayfly |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | Odonata | Coenagrionide | *Argia apicalis* | Blue-fronted dancer |
| | | | | *Argia fumipennis* | Variable dancer |
| | | | | *Argia immunda* | Kiowa dancer |
| | | | | *Argia moesta* | Powdered dancer |
| Arthropoda | Insecta | Odonata | Coenagrionid-ae | *Argia plana* | Springwater dancer |
| | | | | *Argia sedula* | Blue-ringed dancer |
| | | | | *Argia translata* | Dusky Dancer |
| | | | | *Argia nahuana* | Aztec dancer |
| | | | | *Coenagrion* | Eurasian bluet |
| | | | | *Enallagma* | Damselfly |
| | | | | *Enallagma aspersum* | Azure bluet |
| | | | | *Enallagma basidens* | Double-striped bluet |
| | | | | *Enallagma civile* | Familiar bluet |
| | | | | *Enallagma divagans* | Turquoise bluet |
| | | | | *Enallagma exsulans* | Stream bluet |
| | | | | *Enallagma geminatum* | Skimming bluet |
| | | | | *Enallagma signatum* | Orange bluet |
| | | | | *Enallagma traviatum* | Slender bluet |
| | | | | *Enallagma vesperum* | Vesper bluet |
| | | | | *Ischnura denticollis* | Black-fronted forktail |
| | | | | *Ischnura hastata* | Citrine forktail |
| | | | | *Ischnura posita* | Fragile forktail |
| Arthropoda | Insecta | Odonata | Coenagrionid-ae | *Ischnura ramburii* | Rambur's forktail |
| | | | | *Ischnura verticalis* | Eastern forktail |
| | | | | *Telebasis salva* | Desert firetail |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Calopteryx maculata* | Ebony jewelwing |
| | | | | *Hetaerina americana* | American rubyspot |
| | | | | *Hetaerina titia* | Smoky rubyspot |
| | | | Lestidae | *Lestes alacer* | Plateau spreadwing |
| | | | | *Lestes australis* | Southern spreadwing |
| | | | | *Lestes forcipatus* | Sweetflag spreadwing |
| | | | | *Archilestes grandis* | Great spreadwing |
| | | | Aeshnidae | *Anax junius* | Common green darner |
| | | | | *Basiaeschna janata* | Springtime darter |
| | | | | *Nasiaeschna pentacantha* | Cyrano darner |
| | | | | *Rhionaeschna multicolor* | Blue-eyed darner |
| | | | Gomphidae | *Arigomphus submedianus* | Jade clubtail |
| | | | | *Dromogomphus spinosus* | Black-shouldered spinyleg |
| | | | | *Dromogomphus spoliatus* | Flag-tailed spinyleg |
| | | | | *Erpetogomphus designatus* | Eastern ringtail |
| Arthropoda | Insecta | Odonata | Gomphidae | *Gomphus externus* | Plains clubtail |
| | | | | *Gomphus militaris* | Sulphur-tipped clubtail |
| | | | | *Gomphus ozarkensis* | Ozark clubtail |
| | | | | *Hagenius brevistylus* | Dragonhunt-er |
| | | | | *Phyllogompho-ides stigmatus* | Four-striped leaftail |
| | | | | *Progomphus obscurus* | Common sanddragon |
| | | | | *Stylurus plagiatus* | Russet-tipped clubtail |
| | | | Cordulegastr-idae | *Cordulegaster obliqua* | Arrowhead spiketail |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | Corduliidae | *Epitheca cynosura* | Common baskettail |
| | | | | *Epitheca petechialis* | Dot-winged baskettail |
| | | | | *Epitheca princeps* | Prince baskettail |
| | | | | *Epitheca semiaquea* | Mantled baskettail |
| | | | | *Macromia pacifica* | Gilded river cruiser |
| | | | | *Neocordulia xanthosoma* | Emerald |
| | | | | *Neurocordulia xanthosoma* | Orange shadowdrag-on |
| | | | | *Somatochlora* | Striped emerald |
| | | | | *Somatochlora linearis* | Mocha emerald |
| Arthropoda | Insecta | Odonata | Corduliidae | *Somatochlora ozarkensis* | Ozark emerald |
| | | | Libellulidae | *Amphiagrion intermediate* | Red damsel intermedia-te |
| | | | | *Brachymesia gravida* | Four-spotted pennant |
| | | | | *Brechmorhoga mendax* | Pale-faced clubskimmer |
| | | | | *Celithemis elisa* | Calico pennant |
| | | | | *Celithemis eponina* | Halloween pennant |
| | | | | *Celithemis fasciata* | Banded pennant |
| | | | | *Dythemis fugax* | Checkered setwing |
| | | | | *Dythemis velox* | Swift setwing |
| | | | | *Erythemis* | Common skimmer |
| | | | | *Erythemis simplicicoll-is* | Eastern pondhawk |
| | | | | *Erythemis vesiculosa* | Great pondhawk |
| | | | | *Erythrodiplax umbrata* | Band-winged dragonlet |
| | | | | *Ladona deplanata* | Blue corporal |
| | | | | *Libellula comanche* | Comanche skimmer |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Libellula croceipennis* | Neon skimmer |
| | | | | *Libellula incesta* | Slaty skimmer |
| | | | | *Libellula luctuosa* | Widow skimmer |
| Arthropoda | Insecta | Odonata | Libellulidae | *Libellula pulchella* | Twelve-spotted skimmer |
| | | | | *Libellula saturata* | Flame skimmer |
| | | | | *Libellula semifasciata* | Painted skimmer |
| | | | | *Libellula vibrans* | Great blue skimmer |
| | | | | *Macrodiplax balteata* | Marl pennant |
| | | | | *Orthemis ferruginea* | Roseate skimmer |
| | | | | *Pachydiplax longipennis* | Blue dasher |
| | | | | *Pantala* | Dragonfly |
| | | | | *Pantala flavescens* | Wandering glider |
| | | | | *Pantala hymenaea* | Spot-winged glider |
| | | | | *Perithemis tenera* | Eastern amberwing |
| | | | | *Plathemis lydia* | Common whitetail |
| | | | | *Sympetrum* | Meadowhaw k |
| | | | | *Sympetrum ambiguum* | Blue-faced meadowhawk |
| | | | | *Sympetrum corruptum* | Variegated meadowhawk |
| | | | | *Sympetrum illotum* | Cardinal meadowhawk |
| | | | | *Sympetrum vicinum* | Autumn meadowhawk |
| | | | | *Tramea lacerata* | Black saddlebag |
| | | | Macromiidae | *Didymops transversa* | Stream cruiser |
| Arthropoda | Insecta | Odonata | Macromiidae | *Macromia illinoiensis* | Swift river cruiser |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | Tettigoniidae | *Amblycorypha* | Round-headed katydid |
| | | | Rhaphidophor-idae | *Ceuthophilus* | Camel cricket |
| | | | Gryllidae | *Gryllus* | Cricket |
| | | | | *Nemobius* | Ground cricket |
| | | | | *Oecanthus* | Tree cricket |
| | | | Acrididae | *Acrolophitus hirtipes* | Green fool grasshopper |
| | | | | *Ageneotettix deorum* | White-whiskered grasshopper |
| | | | | *Arphia conspersa* | Speckle-winged rangeland grasshopper |
| | | | | *Arphia xanthoptera* | Autumn yellow-winged grasshopper |
| | | | | *Boopedon auriventris* | Slant-faced grasshopper |
| | | | | *Boopedon gracile* | Slant-faced grasshopper |
| | | | | *Campylacantha olivacea* | Fuzzy olive-green grasshopper |
| | | | | *Chortophaga viridifascia-ta* | Green-striped grasshopper |
| | | | | *Dactylotum bicolor* | Rainbow grasshopper |
| | | | | *Dendrotettix quercus* | Post oak grasshopper |
| Arthropoda | Insecta | Orthoptera | Acrididae | *Dissosteira carolinus* | Carolina grasshopper |
| | | | | *Encoptolophus costalis* | Band-winged grasshopper |
| | | | | *Hadrotettix trifasciatus* | Three-banded grasshopper |
| | | | | *Hesperotettix speciosus* | Spur-throated grasshopper |
| | | | | *Hesperotettix viridis pratensis* | Spur-throated grasshopper |
| | | | | *Hesperotettix viridis viridis* | Spur-throated grasshopper |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Hippiscus ocelote* | Wrinkled grasshopper |
| | | | | *Hypochlora alba* | Mugwort grasshopper |
| | | | | *Leptysma marginicollis* | Cattail toothpick grasshopper |
| | | | | *Melanoplus angularis* | Spur-throated grasshopper |
| | | | | *Melanoplus angustipennis* | Narrow-winged spur-throat grasshopper |
| | | | | *Melanoplus bispinosus* | Two-spined spur-throat grasshopper |
| | | | | *Melanoplus bivittatus* | Two-striped grasshopper |
| | | | | *Melanoplus confusus* | Pasture grasshopper |
| | | | | *Melanoplus differential-is nigricans* | Differenti-al grasshopper |
| Arthropoda | Insecta | Orthoptera | Acrididae | *Melanoplus femurrubrum* | Red-legged grasshopper |
| | | | | *Melanoplus foedus* | Striped sand grasshopper |
| | | | | *Melanoplus glaucipes* | Glaucus-legged spur-throat grasshopper |
| | | | | *Melanoplus keeleri* | Keeler's spur-throat grasshopper |
| | | | | *Melanoplus packardii* | Packard's grasshopper |
| | | | | *Melanoplus plebejus* | Spur-throated grasshopper |
| | | | | *Melanoplus ponderosus* | Ponderous spur-throat grasshopper |
| | | | | *Melanoplus sanguinipes* | Migratory grasshopper |
| | | | | *Melanoplus scudderi* | Scudder's spur-throat grasshopper |
| | | | | *Melanoplus splendidus* | Juniper grasshopper |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Melanoplus texanus* | Spur-throated grasshopper |
| | | | | *Mermiria bivittatua* | Two-striped mermiria |
| | | | | *Mermiria picta* | Lively mermiria |
| | | | | *Orphulella speciosus* | Slantfaced pasture grasshopper |
| | | | | *Paratylotrop-idia brunneri* | Spur-throated grasshopper |
| Arthropoda | Insecta | Orthoptera | Acrididae | *Pardalophora* | Band-winged grasshopper |
| | | | | *Pardalophora saussurei* | Band-winged grasshopper |
| | | | | *Phoetaliotes nebrascensis* | Largeheaded grasshopper |
| | | | | *Pseudopomala brachyptera* | Short-winged toothpick grasshopper |
| | | | | *Psoloessa texana* | Texas spotted range grasshopper |
| | | | | *Schistocerca alutacea* | Leather-colored bird grasshopper |
| | | | | *Schistocerca americana* | American bird grasshopper |
| | | | | *Schistocerca obscura* | Obscure bird grasshopper |
| | | | | *Spharagemon collare* | Mottled sand grasshopper |
| | | | | *Spharagemon equale* | Say's grasshopper |
| | | | | *Syrbula admirabilis* | Admirable grasshopper |
| | | | | *Trachyrhachys kiowa* | Kiowa grasshopper |
| | | | | *Trimerotropis maritima* | Seaside grasshopper |
| | | | | *Trimerotropis pallidipennis* | Pallid-winged grasshopper |
| | | | | *Xanthippus corallipes* | Red-shanked grasshopper |
| Arthropoda | Insecta | Orthoptera | Acrididae | *Opeia obscura* | Obscure grasshopper |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | Mantodea | Mantidae | *Tenodera* | Mantid |
| | | Isoptera | Rhinotermiti-dae | *Reticuliterm-es* | Subterrane-an termite |
| | | Plecoptera | Perlidae | *Neoperla choctaw* | Common stonefly |
| | | | | *Perlesta decipiens* | Common stonefly |
| | | | Perlodidae | *Hydroperla crosbyi* | Perlodid stonefly |
| | | | Taeniopteryg-idae | *Taeniopteryx burksi* | Winter stonefly |
| | | | Leuctridae | *Zealeuctra claasseni* | Common needlefly |
| | | | Capniidae | *Allocapnia granulata* | Small winter stonefly |
| | | Hemiptera | Corixidae | *Corisella edulis* | Water boatman |
| | | | | *Corixa* | Water boatman |
| | | | | *Hesperocorixa obliqua* | Water boatman |
| | | | | *Morphocorixa compacta* | Water boatman |
| | | | | *Palmacorixa nana walleyi* | Water boatman |
| | | | | *Sigara* | Water boatman |
| | | | | *Sigara alternata* | Water boatman |
| | | | | *Sigara modesta* | Water boatman |
| | | | | *Trichocorixa calva* | Water boatman |
| | | | | *Trichocorixa kanza* | Water boatman |
| Arthropoda | Insecta | Hemiptera | Gelastocorid-ae | *Gelastocoris* | Toad bug |
| | | | | *Gelastocoris oculatus* | Toad bug |
| | | | Notonectidae | *Buenoa confusa* | Backswimmer |
| | | | | *Buenoa margaritacea* | Backswimmer |
| | | | | *Buenoa scimitra* | Backswimmer |
| | | | | *Notonecta* | Backswimmer |
| | | | | *Notonecta indica* | Backswimmer |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Notonecta undulata* | Backswimmer |
| | | | Pleidae | *Neoplea striola* | Pygmy backswimmer |
| | | | Nepidae | *Ranatra nigra* | Water scorpion |
| | | | Belostomatid-ae | *Belostoma* | Giant water bug |
| | | | | *Belostoma flumineum* | Giant water bug |
| | | | Cercopidae | *Philaenus* | Spittlebug |
| | | | | *Prosapia* | Spittlebug |
| | | | Cicadidae | *Beameria venosa* | Cicada |
| | | | | *Cicadetta calliope* | Cicada |
| | | | | *Cicadetta kansa* | Cicada |
| | | | | *Diceroprocta azteca* | Cicada |
| | | | | *Neocicada* | Cicada |
| | | | | *Tibicen dorsata* | Western cicada |
| Arthropoda | Insecta | Hemiptera | Cicadellidae | *Draeculaceph-ala* | Sharp-shooter |
| | | | | *Graphocephala* | Leafhopper |
| | | | | *Gyponana* | Leafhopper |
| | | | | *Oncometopia* | Sharp-shooter |
| | | | Membracidae | *Glossonotus* | Treehopper |
| | | | | *Spissistilus* | Treehopper |
| | | | Acanaloniidae | *Acanalonia* | Planthopper |
| | | | Dictyopharid-ae | *Scolops* | Planthopper |
| | | | Fulgoridae | *Poblicia* | Planthopper |
| | | | Reduviidae | *Apiomerus* | Bee assassin |
| | | | | *Arilus* | Wheel bug |
| | | | | *Emesaya* | Assassin bug |
| | | | | *Melanolestes* | Assassin bug |
| | | | | *Phymata* | Assassin bug |
| | | | | *Pselliopus* | Assassin bug |
| | | | | *Rhiginia* | Assassin bug |
| | | | | *Zelus* | Assassin bug |
| | | | Hydrometridae | *Hydrometra* | Water measurer |
| | | | | *Hydrometra martini* | Water measurer |
| | | | Mesoveliidae | *Mesovelia mulsanti* | Water treader |
| | | | Gerridae | *Aquarius* | Water strider |
| Arthropoda | Insecta | Hemiptera | Gerridae | *Aquarius remigis* | Water strider |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Gerris* | Water strider |
| | | | | *Gerris marginatus* | Water strider |
| | | | | *Limnoporus* | Water strider |
| | | | | *Neogerris hesione* | Water strider |
| | | | | *Rheumatobates* | Water strider |
| | | | | *Trepobates* | Water strider |
| | | | | *Trepobates knighti* | Water strider |
| | | | | *Trepobates subnitidus* | Water strider |
| | | | Veliidae | *Microvelia* | Broad-shouldered water strider |
| | | | | *Microvelia paludicola* | Broad-shouldered water strider |
| | | | | *Rhagovelia choreutes* | Broad-shouldered water strider |
| | | | | *Rhagovelia knighti* | Broad-shouldered water strider |
| | | | Miridae | *Lopidea* | Plant bug |
| | | | | *Lygus* | Lygus bug |
| | | | | *Metriorrhync-homiris* | Plant bug |
| | | | | *Oncerometopus* | Plant bug |
| Arthropoda | Insecta | Hemiptera | Miridae | *Prepops* | Plant bug |
| | | | | *Stenotus* | Plant bug |
| | | | Coreidae | *Acanthocepha-la* | Leaf-footed bug |
| | | | | *Chelinidea vittiger* | Cactus bug |
| | | | | *Leptoglossus* | Leaf-footed bug |
| | | | Rhopalidae | *Boisea* | Boxelder bug |
| | | | | *Harmostes* | Scentless plant bug |
| | | | Lygaeidae | *Lygaeus kalmii* | Small milkweed bug |
| | | | | *Myodocha* | Seed bug |
| | | | | *Oncopeltus* | Milkweed bug |
| | | | Pentatomidae | *Acrosternum* | Stink bug |
| | | | | *Acrosternum hilaris* | Green stink bug |
| | | | | *Amaurochrous cinctipes* | Stink bug |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Andrallus spinidens* | Stink bug |
| | | | | *Apateticus cynicus* | Stink bug |
| | | | | *Banasa calva* | Stink bug |
| | | | | *Banasa euchlora* | Juniper stink bug |
| | | | | *Brochymena* | Stink bug |
| | | | | *Brochymena cariosa* | Stink bug |
| | | | | *Brochymena quadripustulastus* | Stink bug |
| Arthropoda | Insecta | Hemiptera | Pentatomidae | *Euschistus servus* | Brown stink bug |
| | | | | *Euschistus tristigmus* | Dusky stink bug |
| | | | | *Euschistus variolarius* | Stink bug |
| | | | | *Holcostethus limbolarius* | Stink bug |
| | | | | *Mecidea major* | Narrow stink bug |
| | | | | *Menecles inserta* | Stink bug |
| | | | | *Murgantia* | Stink bug |
| | | | | *Murgantia histrionica* | Harlequin bug |
| | | | | *Nezara* | Stink bug |
| | | | | *Oebalus pugnax* | Rice stink bug |
| | | | | *Parabrochyme-na arborea* | Stink bug |
| | | | | *Podisus maculiventris* | Predatory stink bug |
| | | | | *Prionosoma podopioides* | Stink bug |
| | | | | *Thyanta custator* | Red-shouldered stink bug |
| | | | | *Trichopepla semivittata* | Stink bug |
| | | | Cydnidae | *Cyrtomenus* | Burrowing bug |
| | | | Largidae | *Largus* | Bordered plant bug |
| | | | Nabidae | *Nabicula* | Damsel bug |
| | | Neuroptera | Chrysopidae | *Chrysopa* | Green lacewing |
| Arthropoda | Insecta | Neuroptera | Chrysopidae | *Chrysoperla* | Green lacewing |
| | | | Sisyridae | *Climacia areolaris* | Spongilla-fly |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Climacia chapini* | Spongilla-fly |
| | | | | *Sisyra vicaria* | Spongilla-fly |
| | | | Myrmeleontid-ae | *Myrmeleon* | Antlion |
| | | Megaloptera | Corydalidae | *Chauliodes rastricornis* | Spring fishfly |
| | | | | *Corydalus* | Dobsonfly |
| | | | | *Corydalus cornutus* | Eastern dobsonfly |
| | | | Sialidae | *Sialis itasca* | Nearctic alderfly |
| | | | | *Sialis mohri* | Nearctic alderfly |
| | | Coleoptera | Carabidae | *Acupalpus partiarius* | Ground beetle |
| | | | | *Acupalpus pauperculus* | Ground beetle |
| | | | | *Acupalpus testaceus* | Ground beetle |
| | | | | *Agonum* | Ground beetle |
| | | | | *Agonum decorum* | Ground beetle |
| | | | | *Agonum extensicolle* | Ground beetle |
| | | | | *Agonum pallipes* | Ground beetle |
| | | | | *Agonum punctiforme* | Ground beetle |
| | | | | *Amara fortis* | Ground beetle |
| Arthropoda | Insecta | Coleoptera | Carabidae | *Amara impuncticoll-is* | Ground beetle |
| | | | | *Amara pennsylvanica* | Ground beetle |
| | | | | *Amphasia sericea* | Ground beetle |
| | | | | *Anisodactylus dulcicollis* | Ground beetle |
| | | | | *Anisodactylus harpaloides* | Ground beetle |
| | | | | *Anisodactylus merula* | Ground beetle |
| | | | | *Anisodactylus opaculus* | Ground beetle |
| | | | | *Anisodactylus rusticus* | Ground beetle |
| | | | | *Ardistomis schaumi* | Ground beetle |

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|---|---|---|---|---|---|
| | | | | *Aspidoglossa subangulata* | Ground beetle |
| | | | | *Bembidion* | Ground beetle |
| | | | | *Bembidion americanum* | Ground beetle |
| | | | | *Bembidion chalceum* | Ground beetle |
| | | | | *Bembidion confusum* | Ground beetle |
| | | | | *Bembidion cordatum* | Ground beetle |
| | | | | *Bembidion coxendix* | Ground beetle |
| | | | | *Bembidion rapidum* | Ground beetle |
| | | | | *Bembidion texanum* | Ground beetle |
| Arthropoda | Insecta | Coleoptera | Carabidae | *Bembidion variegatum* | Ground beetle |
| | | | | *Brachinus* | Ground beetle |
| | | | | *Brachinus adustipennis* | Bombardier beetle |
| | | | | *Brachinus alternans* | Bombardier beetle |
| | | | | *Brachinus elongatulus* | Bombardier beetle |
| | | | | *Brachinus janthinipenn-is* | Bombardier beetle |
| | | | | *Brachinus kansanus* | Bombardier beetle |
| | | | | *Brachinus phaeocerus* | Bombardier beetle |
| | | | | *Brachinus tenuicollis* | Bombardier beetle |
| | | | | *Bradycellus neglectus* | Ground beetle |
| | | | | *Calathus opaculus* | Ground beetle |
| | | | | *Calosoma calidum* | Fiery hunter |
| | | | | *Calosoma macrum* | Ground beetle |
| | | | | *Calosoma marginale* | Ground beetle |
| | | | | *Calosoma scrutator* | Fiery searcher |

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|---|---|---|---|---|---|
| | | | | *Calosoma wilcoxi* | Ground beetle |
| | | | | *Carabus* | Ground beetle |
| | | | | *Chlaenius* | Ground beetle |
| Arthropoda | Insecta | Coleoptera | Carabidae | *Chlaenius brevilabris* | Ground beetle |
| | | | | *Cicindela obsoleta* | Large grassland tiger beetle |
| | | | | *Dicaelus* | Ground beetle |
| | | | | *Galerita* | Ground beetle |
| | | | | *Harpalus* | Ground beetle |
| | | | | *Lebia* | Ground beetle |
| | | | | *Omophron* | Ground beetle |
| | | | | *Pasimachus* | Ground beetle |
| | | | | *Scarites* | Ground beetle |
| | | | | *Stenolophus* | Ground beetle |
| | | | Dytiscidae | *Acilius fraternus* | Predaceous diving beetle |
| | | | | *Agabus* | Predaceous diving beetle |
| | | | | *Agabus disintegratus* | Predaceous diving beetle |
| | | | | *Agabus semivittatus* | Predaceous diving beetle |
| | | | | *Celina* | Predaceous diving beetle |
| | | | | *Celina hubbelli* | Predaceous diving beetle |
| Arthropoda | Insecta | Coleoptera | Dytiscidae | *Copelatus chevrolati renovatus* | Predaceous diving beetle |
| | | | | *Copelatus glyphicus* | Predaceous diving beetle |
| | | | | *Coptotomus* | Predaceous diving beetle |
| | | | | *Coptotomus loticus* | Predaceous diving beetle |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Coptotomus venustus* | Predaceous diving beetle |
| | | | | *Cybister fimbriolatus* | Predaceous diving beetle |
| | | | | *Deronectes* | Predaceous diving beetle |
| | | | | *Derovatellus* | Predaceous diving beetle |
| | | | | *Desmopachria dispersa* | Predaceous diving beetle |
| | | | | *Dytiscus* | Predaceous diving beetle |
| | | | | *Eretes explicitus* | Predaceous diving beetle |
| | | | | *Graphoderus liberus* | Predaceous diving beetle |
| | | | | *Heterosternu-ta diversicornis* | Predaceous diving beetle |
| | | | | *Hydaticus* | Predaceous diving beetle |
| Arthropoda | Insecta | Coleoptera | Dytiscidae | *Hydaticus bimarginatus* | Predaceous diving beetle |
| | | | | *Hydrovatus pustulatus* | Predaceous diving beetle |
| | | | | *Hygrotus acaroides* | Predaceous diving beetle |
| | | | | *Laccophilus* | Predaceous diving beetle |
| | | | | *Laccophilus fasciatus rufus* | Predaceous diving beetle |
| | | | | *Laccophilus pictus insignis* | Predaceous diving beetle |
| | | | | *Laccophilus proximus* | Predaceous diving beetle |
| | | | | *Laccophilus quadrilinea-tus quadrilinea-tus* | Predaceous diving beetle |
| | | | | *Liodessus* | Predaceous diving beetle |
| | | | | *Liodessus flavicollis* | Predaceous diving beetle |
| | | | | *Neobidessus pullus* | Predaceous diving beetle |
| | | | | *Neoporus dimidiatus* | Predaceous diving beetle |
| | | | | *Neoporus undulatus* | Predaceous diving beetle |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Thermonectes basillaris* | Predaceous diving beetle |
| Arthropoda | Insecta | Coleoptera | Dytiscidae | *Thermonectes ornaticollis* | Predaceous diving beetle |
| | | | | *Thermonectus* | Predaceous diving beetle |
| | | | | *Uvarus lacustris* | Predaceous diving beetle |
| | | | | *Uvarus texanus* | Predaceous diving beetle |
| | | | Gyrinidae | *Dineutus* | Whirligig beetle |
| | | | | *Dineutus assimilis* | Whirligig beetle |
| | | | | *Dineutus ciliatus* | Whirligig beetle |
| | | | | *Dineutus horni* | Whirligig beetle |
| | | | | *Gyretes parcus* | Whirligig beetle |
| | | | | *Gyretes sinuatus* | Whirligig beetle |
| | | | | *Gyretes woodruffi* | Whirligig beetle |
| | | | Haliplidae | *Haliplus deceptus* | Crawling water beetle |
| | | | | *Haliplus lewisii* | Crawling water beetle |
| | | | | *Haliplus tortilipenis* | Crawling water beetle |
| | | | | *Haliplus triopsis* | Crawling water beetle |
| | | | | *Peltodytes* | Crawling water beetle |
| Arthropoda | Insecta | Coleoptera | Haliplidae | *Peltodytes duodecimpunc-tatus* | Crawling water beetle |
| | | | | *Peltodytes litoralis* | Crawling water beetle |
| | | | | *Peltodytes sexmaculatus* | Crawling water beetle |
| | | | | *Haliplus fasciatus* | Crawling water beetle |
| | | | Cerambycidae | *Monochamus* | Long-horn beetle |
| | | | | *Rhagium* | Long-horn beetle |
| | | | Chrysomelidae | *Calligrapha* | Leaf beetle |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Diabrotica* | Leaf beetle |
| | | | | *Disonycha* | Leaf beetle |
| | | | | *Neochlamisus* | Leaf beetle |
| | | | | *Oulema* | Leaf beetle |
| | | | | *Synetra* | Leaf beetle |
| | | | | *Trirhabda* | Leaf beetle |
| | | | Coccinellidae | *Chilocorus* | Lady beetle |
| | | | | *Coleomegilla* | Lady beetle |
| | | | | *Harmonia axyridis* | Multicolor-ed asian lady beetle* |
| | | | | *Hippodamia* | Lady beetle |
| | | | Meloidae | *Epicautis* | Blister beetle |
| | | | | *Meloe* | Blister beetle |
| | | | Tenebrionidae | *Alobates* | Darkling beetle |
| Arthropoda | Insecta | Coleoptera | Tenebrionidae | *Eleodes* | Darkling beetle |
| | | | Buprestidae | *Acmaeodera* | Hairy yellow-marked buprestid |
| | | | Dryopidae | *Helichus suturalis* | Long-toe water beetle |
| | | | | *Pelonomus obscurus* | Long-toe water beetle |
| | | | Elmidae | *Stenelmis cheryl* | Riffle beetle |
| | | | | *Stenelmis occidentalis* | Riffle beetle |
| | | | | *Stenelmis sexlineata* | Riffle beetle |
| | | | Psephenidae | *Ectopria* | Water penny beetle |
| | | | Cantharidae | *Chauliognath-us* | Soldier beetle |
| | | | | *Chauliognath-us pennsylvanic-us* | Soldier beetle |
| | | | Elateridae | *Ctenicera* | Click beetle |
| | | | Lampyridae | *Photinus* | Firefly |
| | | | Passalidae | *Odontotaenius* | Bess beetle |
| | | | Scarabaeidae | *Ataenius* | Scarab beetle |
| | | | | *Bolbocerasoma* | Scarab beetle |
| | | | | *Canthon* | Scarab beetle |
| | | | | *Cotinis nitida* | Green june beetle |
| Arthropoda | Insecta | Coleoptera | Scarabaeidae | *Dichotimus* | Scarab beetle |
| | | | | *Euphoria* | Scarab beetle |
| | | | | *Onthophagus* | Scarab beetle |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Pelidnota* | Scarab beetle |
| | | | | *Phyllophaga* | Scarab beetle |
| | | | | *Popillia* | Scarab beetle |
| | | | | *Trigonopelta-stes* | Scarab beetle |
| | | | | *Xyloryctes* | Scarab beetle |
| | | | Hydrophilidae | *Berosus* | Water scavenger beetle |
| | | | | *Berosus exiguus* | Water scavenger beetle |
| | | | | *Berosus infuscatus* | Water scavenger beetle |
| | | | | *Berosus miles* | Water scavenger beetle |
| | | | | *Berosus pantherinus* | Water scavenger beetle |
| | | | | *Berosus stylifer* | Water scavenger beetle |
| | | | | *Chaetarthria bicolor* | Water scavenger beetle |
| | | | | *Cymbiodyta beckeri* | Water scavenger beetle |
| Arthropoda | Insecta | Coleoptera | Hydrophilidae | *Dibolocelus ovatus* | Water scavenger beetle |
| | | | | *Enochrus cinctus* | Water scavenger beetle |
| | | | | *Enochrus hamiltoni* | Water scavenger beetle |
| | | | | *Enochrus ochraceus* | Water scavenger beetle |
| | | | | *Enochrus pygmaeus* | Water scavenger beetle |
| | | | | *Enochrus sayi* | Water scavenger beetle |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Epimetopus costatus* | Water scavenger beetle |
| | | | | *Helochares maculicollis* | Water scavenger beetle |
| | | | | *Hydrochara leechi* | Water scavenger beetle |
| | | | | *Hydrochara occulta* | Water scavenger beetle |
| | | | | *Hydrochara soror* | Water scavenger beetle |
| | | | | *Hydrochara spangleri* | Water scavenger beetle |
| | | | | *Hydrochus* | Water scavenger beetle |
| | | | | *Hydrochus simplex* | Water scavenger beetle |
| Arthropoda | Insecta | Coleoptera | Hydrophilidae | *Hydrophilus* | Water scavenger beetle |
| | | | | *Hydrophilus triangularis* | Water scavenger beetle |
| | | | | *Laccobius* | Water scavenger beetle |
| | | | | *Laccobius minutoides* | Water scavenger beetle |
| | | | | *Laccobius teneralis* | Water scavenger beetle |
| | | | | *Paracymus confusus* | Water scavenger beetle |
| | | | | *Tropisternus* | Water scavenger beetle |
| | | | | *Tropisternus blatchleyi* | Water scavenger beetle |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Tropisternus collaris* | Water scavenger beetle |
| | | | | *Tropisternus ellipticus* | Water scavenger beetle |
| | | | | *Tropisternus lateralis nimbatus* | Water scavenger beetle |
| | | | | *Tropisternus natator* | Water scavenger beetle |
| | | | Staphylinidae | *Aleocharinae* | Rove beetle |
| | | | | *Oxyporinae* | Rove beetle |
| | | | | *Steninae* | Rove beetle |
| | | Mecoptera | Bittacidae | *Bittacus* | Hanging fly |
| Arthropoda | Insecta | Trichoptera | Hydroptilidae | *Hydroptila ajax* | Micro-caddisfly |
| | | | | *Hydroptila angusta* | Micro-caddisfly |
| | | | | *Hydroptila armata* | Micro-caddisfly |
| | | | | *Hydroptila consimilis* | Micro-caddisfly |
| | | | | *Hydroptila hamata* | Micro-caddisfly |
| | | | | *Hydroptila perdita* | Micro-caddisfly |
| | | | | *Hydroptila waubesiana* | Micro-caddisfly |
| | | | | *Ochrotrichia aegerfasciel-la* | Micro-caddisfly |
| | | | | *Ochrotrichia azteca* | Micro-caddisfly |
| | | | | *Ochrotrichia cristata* | Micro-caddisfly |
| | | | | *Ochrotrichia tarsalis* | Micro-caddisfly |
| | | | | *Oxyethira forcipata* | Caddisfly |
| | | | | *Oxyethira janella* | Micro-caddisfly |
| | | | | *Oxyethira pallida* | Micro-caddisfly |
| | | | | *Oxyethira zeronia* | Micro-caddisfly |
| | | | Polycentropo-didae | *Cernotina calcea* | Tube maker caddisfly |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Cernotina spicata* | Tube maker caddisfly |
| | | | | *Cyrnellus fraternus* | Tube maker caddisfly |
| Arthropoda | Insecta | Trichoptera | Polycentropo-didae | *Nyctiophylax affinis* | Tube maker caddisfly |
| | | | | *Nyctiophylax moestus* | Tube maker caddisfly |
| | | | | *Polycentropus* | Caddisfly |
| | | | | *Polycentropus centralis* | Tube maker caddisfly |
| | | | Philopotamid-ae | *Chimarra* | Finger-net caddisfly |
| | | | | *Chimarra angustipennis* | Finger-net caddisfly |
| | | | | *Chimarra feria* | Finger-net caddisfly |
| | | | | *Chimarra obscura* | Finger-net caddisfly |
| | | | Limnephilidae | *Pycnopsyche* | Northern caddisfly |
| | | | | *Pycnopsyche lepida* | Northern caddisfly |
| | | | Psychomyiidae | *Tinodes* | Caddisfly |
| | | | Hydropsychid-ae | *Cheumatopsyc-he* | Net-spinning caddisfly |
| | | | | *Cheumatopsyc-he analis* | Net-spinning caddisfly |
| | | | | *Cheumatopsyc-he campyla* | Net-spinning caddisfly |
| | | | | *Cheumatopsyc-he lasia* | Net-spinning caddisfly |
| | | | | *Cheumatopsyc-he pasella* | Net-spinning caddisfly |
| | | | | *Hydropsyche bidens* | Net-spinning caddisfly |
| Arthropoda | Insecta | Trichoptera | Hydropsychid-ae | *Hydropsyche orris* | Net-spinning caddisfly |
| | | | | *Hydropsyche rossi* | Net-spinning caddisfly |
| | | | | *Hydropsyche scalaris* | Net-spinning caddisfly |
| | | | | *Hydropsyche simulans* | Net-spinning caddisfly |
| | | | | *Smicridea fasciatella* | Net-spinning caddisfly |
| | | | | *Smicridea signata* | Net-spinning caddisfly |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Potamyia flava* | Net-spinning caddisfly |
| | | | Leptoceridae | *Ceraclea maculata* | Long-horn caddisfly |
| | | | | *Ceraclea punctata* | Long-horn caddisfly |
| | | | | *Leptocerus americanus* | Long-horn caddisfly |
| | | | | *Oecetis avara* | Long-horn caddisfly |
| | | | | *Oecetis cinerascens* | Long-horn caddisfly |
| | | | | *Oecetis ditissa* | Long-horn caddisfly |
| | | | | *Oecetis inconspicua* | Long-horn caddisfly |
| | | | | *Oecetis nocturna* | Long-horn caddisfly |
| | | | | *Oecetis persimilis* | Long-horn caddisfly |
| Arthropoda | Insecta | Trichoptera | Leptoceridae | *Mystacides* | Long-horn caddisfly |
| | | | | *Nectopsyche candida* | Long-horn caddisfly |
| | | | | *Nectopsyche pavida* | Long-horn caddisfly |
| | | | | *Setodes* | Long-horn caddisfly |
| | | | | *Triaenodes helo* | Long-horn caddisfly |
| | | | | *Triaenodes injustus* | Long-horn caddisfly |
| | | | | *Triaenodes marginatus* | Long-horn caddisfly |
| | | | | *Triaenodes perna* | Long-horn caddisfly |
| | | | | *Triaenodes tardus* | Long-horn caddisfly |
| | | | | *Ylodes frontalis* | Long-horn caddisfly |
| | | | Helicopsychi-dae | *Helicopsyche borealis* | Snail case caddisfly |
| | | | | *Helicopsyche limnella* | Snail case caddisfly |
| | | | | *Helicopsyche piroa* | Snail case caddisfly |
| | | | | *Heliocopsyche* | Snail case caddisfly |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | Diptera | Tipulidae | *Tipula* | Crane fly |
| | | | Chaoboridae | *Chaoborus punctipennis* | Phantom midge |
| | | | Culicidae | *Aedes vexans* | Inland floodwater mosquito |
| | | | | *Anopheles punctipennis* | Mosquito |
| | | | | *Culiseta* | Mosquito |
| Arthropoda | Insecta | Diptera | Ceratopogoni-dae | *Dasyhelea* | Biting midge |
| | | | Chironomidae | *Ablabesmyia annulata* | Midge |
| | | | | *Ablabesmyia ornata* | Midge |
| | | | | *Ablabesmyia parajanta* | Midge |
| | | | | *Ablabesmyia rhamphi* | Midge |
| | | | | *Chironomus* | Midge |
| | | | | *Cladotanytar-sus* | Non-biting midge |
| | | | | *Cricotopus* | Midge |
| | | | | *Endochironom-us* | Midge |
| | | | | *Glyptotendip-es* | Midge |
| | | | | *Microcricoto-pus* | Midge |
| | | | | *Parachironom-us* | Midge |
| | | | | *Parakiefferi-ella* | Midge |
| | | | Simuliidae | *Simulium* | Black fly |
| | | | Stratiomyidae | *Hermetia* | Soldier fly |
| | | | Tabanidae | *Chrysops* | Deer fly |
| | | | | *Tabanus* | Horse fly |
| | | | Asilidae | *Laphria* | Bee-like robber fly |
| | | | | *Promachus* | Giant robber fly |
| | | | Syrphidae | *Allograpta* | Syrphid fly |
| | | | | *Eristalis* | Syrphid fly |
| Arthropoda | Insecta | Diptera | Bombyliidae | *Poecilanthrax* | Bee fly |
| | | | Syrphidae | *Syrphus* | Syrphid fly |
| | | | Muscidae | *Musca domestica* | House fly |
| | | | | *Stomoxys* | House fly |
| | | | Calliphoridae | *Lucilia* | Blow fly |
| | | | Dolichopodid-ae | *Condylostylus* | Longlegged fly |
| | | Lepidoptera | Papilionidae | *Abaeis nicippe* | Sleepy orange |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Battus philenor* | Pipevine swallowtail |
| | | | | *Papilio cresphontes* | Giant swallowtail |
| | | | | *Papilio glaucus* | Eastern tiger swallowtail |
| | | | | *Papilio polyxenes* | Black swallowtail |
| | | | | *Papilio troilus* | Spicebush swallowtail |
| | | | | *Pyrisitia lisa* | Little yellow |
| | | | Pieridae | *Anthocharis midea* | Falcate orangetip |
| | | | | *Colias cesonia* | Southern dogface |
| | | | | *Colias eurytheme* | Orange sulphur |
| | | | | *Colias philodice* | Clouded sulphur |
| | | | | *Eurema daira* | Barred yellow |
| | | | | *Eurema mexicana* | Mexican yellow |
| Arthropoda | Insecta | Lepidoptera | Pieridae | *Kricogonia lyside* | Lyside sulphur |
| | | | | *Nathalis iole* | Dainty sulphur |
| | | | | *Phoebis sennae* | Cloudless sulphur |
| | | | | *Pieris rapae* | Cabbage white |
| | | | | *Pontia occidentalis* | Western white |
| | | | | *Pontia protodice* | Checkered white |
| | | | | *Zerene cesonia* | Southern dogface |
| | | | Lycaenidae | *Atlides halesus* | Great purple hairstreak |
| | | | | *Callophrys gryneus* | Juniper hairstreak |
| | | | | *Calycopis cecrops* | Red-banded hairstreak |
| | | | | *Cupido comyntas* | Eastern-tailed blue |
| | | | | *Echinargus isola* | Reakirt's blue |
| | | | | *Glaucopsyche lygdamus* | Silvery blue |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Leptotes marina* | Marine blue |
| | | | | *Lycaena dione* | Gray copper |
| | | | | *Phaeostrymon alcestis* | Soapberry hairstreak |
| | | | | *Satyrium calanus* | Banded hairstreak |
| | | | | *Satyrium favonius* | Oak hairstreak |
| | | | | *Satyrium titus* | Coral hairstreak |
| Arthropoda | Insecta | Lepidoptera | Lycaenidae | *Strymon melinus* | Gray hairstreak |
| | | | Nymphalidae | *Adelpha bredowii* | California sister |
| | | | | *Agraulis vanillae* | Gulf fritillary |
| | | | | *Anaea andria* | Goatweed leafwing |
| | | | | *Anthanassa texana* | Texas crescent |
| | | | | *Asterocampa celtis* | Hackberry emperor |
| | | | | *Asterocampa clyton* | Tawny emperor |
| | | | | *Cercyonis pegala* | Common wood-nymph |
| | | | | *Chlosyne gorgone* | Gorgone checkerspot |
| | | | | *Chlosyne nycteis* | Silvery checkerspot |
| | | | | *Chlosyne lacinia* | Bordered patch |
| | | | | *Cyllopsis gemma* | Gemmed satyr |
| | | | | *Enodia anthedon* | Northern pearly-eye |
| | | | | *Euphydryas chalcedona* | Variable checkerspot |
| | | | | *Euptoieta claudia* | Variegated fritillary |
| | | | | *Junonia coenia* | Common buckeye |
| | | | | *Libytheana carinenta* | American snout |
| | | | | *Limenitis archippus* | Viceroy |
| Arthropoda | Insecta | Lepidoptera | Nymphalidae | *Limenitis arthemis astyanax* | Red-spotted purple |
| | | | | *Megisto cymela* | Little wood satyr |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Megisto rubricata* | Red satyr |
| | | | | *Mestra amymone* | Common mestra |
| | | | | *Nymphalis antiopa* | Mourning cloak |
| | | | | *Phyciodes graphica* | Vesta crescent |
| | | | | *Phyciodes phaon* | Phaon crescent |
| | | | | *Phyciodes tharos* | Pearl crescent |
| | | | | *Polygonia interrogatio-nnis* | Question mark |
| | | | | *Vanessa atalanta* | Red admiral |
| | | | | *Vanessa cardui* | Painted lady |
| | | | | *Vanessa virginiensis* | American lady |
| | | | Danaidae | *Danaus gilippus* | Queen butterfly |
| | | | | *Danaus plexippus* | Monarch butterfly |
| | | | Hesperiidae | *Amblyscirtes aenus* | Bronze roadside-skipper |
| | | | | *Amblyscirtes belli* | Bell's roadside-skipper |
| | | | | *Amblyscirtes eos* | Dotted roadside-skipper |
| Arthropoda | Insecta | Lepidoptera | Hesperiidae | *Amblyscirtes nysa* | Nysa roadside-skipper |
| | | | | *Amblyscirtes vialis* | Common roadside skipper |
| | | | | *Anatrytone logan* | Delaware skipper |
| | | | | *Ancyloxypha numitor* | Least skipper |
| | | | | *Atalopedes campestris* | Sachem |
| | | | | *Atrytone arogos* | Arogos skipper |
| | | | | *Capaeodes aurantiacus* | Orange skipperling |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Celotes nessus* | Common streaky skipper |
| | | | | *Cogia outis* | Outis skipper |
| | | | | *Copaeodes aurantiacus* | Orange skipperling |
| | | | | *Epargyreus clarus* | Silver-spotted skipper |
| | | | | *Erynnis baptisiae* | Wild indigo duskywing |
| | | | | *Erynnis brizo* | Sleepy duskywing |
| | | | | *Erynnis funeralis* | Funereal duskywing |
| | | | | *Erynnis horatius* | Horace's duskywing |
| | | | | *Erynnis juvenalis* | Juvenal's duskywing |
| | | | | *Euphyes dion* | Dion skipper |
| Arthropoda | Insecta | Lepidoptera | Hesperiidae | *Euphyes vestris* | Dun skipper |
| | | | | *Hesperia attalus* | Dotted skipper |
| | | | | *Hesperia viridis* | Green skipper |
| | | | | *Hesperia metea* | Cobweb skipper |
| | | | | *Hylephila phyleus* | Fiery skipper |
| | | | | *Lerodea eufala* | Eufala skipper |
| | | | | *Pholisora catullus* | Common sootywing |
| | | | | *Poanes zabulon* | Zabulon skipper |
| | | | | *Pyrgus communis* | Common checkered skipper |
| | | | | *Staphylus hayhurstii* | Hayhurst's scallopwing |
| | | | | *Thorybes bathyllus* | Southern cloudywing |
| | | | | *Thorybes pylades* | Northern cloudywing |
| | | | | *Thorybes confusis* | Confused clodywing |
| | | | | *Wallengrenia egeremet* | Northern broken-dash |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | | *Wallengrenia otho* | Southern broken-dash |
| | | | Geometridae | *Archirhoe neomexicana* | Geometrid moth |
| | | | | *Calothysanis amaturaria* | Cross-lined wave |
| | | | | *Chlorochlamys chloroleucar-ia* | Blackberry looper moth |
| Arthropoda | Insecta | Lepidoptera | Geometridae | *Costaconvexa centrostriga-ria* | Bent-line carpet |
| | | | | *Cyclophora nanaria* | Geometrid moth |
| | | | | *Euacidalia sericearia* | Geometrid moth |
| | | | | *Eubaphe mendica* | Beggar |
| | | | | *Haematopis grataria* | Chickweed geometer |
| | | | | *Idaea demissaria* | Red-bordered wave moth |
| | | | | *Leptostales rubromargina-ria* | Dark-ribboned wave |
| | | | | *Lobocleta ossularia* | Drab brown wave |
| | | | | *Lobocleta plemyraria* | Straight-lined wave moth |
| | | | | *Scopula ancellata* | Angled wave |
| | | | | *Scopula inductata* | Soft-lined wave |
| | | | | *Scopula limboundata* | Large lace-border |
| | | | | *Semiothisa quadrinotaria* | Faint-spotted angle |
| | | | | *Synchlora aerata* | Wavy-lined emerald |
| | | | Notodontidae | *Datana* | Moth |
| | | | | *Heterocampa obliqua* | Oblique heterocampa |
| | | | | *Oligocentria lignicolor* | White-streaked prominent |
| Arthropoda | Insecta | Lepidoptera | Arctiidae | *Apantesis* | Moth |
| | | | | *Grammia arge* | Arge tiger moth |
| | | | | *Grammia oithona* | Tiger moth |
| | | | | *Hypoprepia fucosa* | Painted lichen moth |

| Phylum | Class | Order | Family | Scientific Name | Common Name |
|---|---|---|---|---|---|
| | | | Noctuidae | *Argyrostrotis anilis* | Short-lined chocolate |
| | | | | *Caenargina* | Moth |
| | | | | *Catocala* | Underwing |
| | | | | *Feralia* | Moth |
| | | | | *Nedra ramosula* | Gray half-spot |
| | | | | *Plusiodonta compressipal-pis* | Moonseed moth |
| | | | | *Ptichodis herbarum* | Common ptichodis |
| | | | | *Stiria rugifrons* | Yellow sunflower moth |
| | | | | *Thioptera nigrofimbria* | Black-bordered lemon moth |
| | | | Crambidae | *Desmia funeralis* | Grape leaffolder moth |
| | | | Limacodidae | *Euclea delphinii* | Spiny oak slug moth |
| | | | Tortricidae | *Eumarozia malachitana* | Sculptured moth |
| | | Hymenoptera | Ichneumonidae | *Ophion* | Wasp |
| | | | Cynipidae | *Loxalus* | Gall wasp |
| | | | Formicidae | *Camponotus* | Carpenter ant |
| Arthropoda | Insecta | Hymenoptera | Formicidae | *Crematogaster* | Ant |
| | | | | *Hypoponera* | Ant |
| | | | | *Lasius* | Common black garden ant |
| | | | | *Monomorium* | Ant |
| | | | | *Pheidole* | Ant |
| | | | | *Pogonomyrmex* | Harvester ant |
| | | | | *Solenopsis* | Stinging ant |
| | | | Sphecidae | *Ammophila* | Burrowing wasp |
| | | | | *Chalybion* | Wasp |

**Plants** (A single asterisk (*) denotes that the species is non-native)

| | | | | |
|---|---|---|---|---|
| Streptophyta | Charophyceae | Characeae | *Chara vulgaris* | Common stonewort |
| Lycopodiophyta | Isoetopsida | Selaginellaceae | *Selaginella peruviana* | Sheldon selaginella |
| | | | *Selaginella rupestris* | Rock selaginella |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | Isoetaceae | *Isoetes butleri* | Butler quillwort |
| | | | *Isoetes melanopoda* | Blackfoot quillwort |
| Pteridophytes | Equisetopsida | Equisetacae | *Equisetum laevigatum* | Kansas horsetail |
| | Polypodiopsida | Dryopteridaceae | *Dryoptreris marginalis* | Leather woodfern |
| | | | *Woodsia obtusa* | Woodsia |
| | | Aspleniaceae | *Asplenium trichomanes* | Spleenwort |
| | | Pteridaceae | *Cheilanthes eatoni* | Eaton lipfern |
| Pteridophytes | Polypodiopsida | Pteridaceae | *Cheilanthes fendleri* | Fendler Lipfern |
| | | | *Cheilanthes lanosa* | Hairy lipfern |
| | | | *Cheilanthes lindheimeri* | Lindheimer lipfern |
| | | | *Cheilanthes tomentosa* | Wooly lipfern |
| | | | *Cheilanthes wootoni* | Wooton lipfern |
| | | | *Notholaena standleyi* | Standley's lipfern |
| | | | *Pellaea atropurpurea* | Purple cliffbrake |
| | | | *Pellaea ternifolia* | Trans-Pecos cliffbrake |
| | | | *Pellaea wrightiana* | Wright's cliffbrake |
| | Pteridopsida | Marsileaceae | *Marsilea vestita* | Hairy waterclover |
| | | | *Pilularia americana* | American pillwort |
| Gymnosperms | Pinopsida | Cupressaceae | *Juniperus virginiana* | Eastern red cedar |
| Angiosperms | Dicotyledon | Aristolochiaceae | *Aristolochia tomentosa* | Woolly dutchmanpipe |
| | | Nelumbonaceae | *Nelumbo lutea* | American lotus |
| | | Ceratophyllaceae | *Ceratophyllum demersum* | Coontail |
| | | Ranunculaceae | *Anemone berlandieri* | Tenpetal thimbleweed |
| | | | *Anemone caroliniana* | Carolina anemone |
| | | | *Clematis pitcheri* | Pitcher clematis |
| | | | *Delphinium carolinianum vimineum* | Blue larkspur |
| Angiosperms | Dicotyledon | Ranunculaceae | *Delphinium carolinianum virescens* | Plains larkspur |
| | | | *Myosurus minimus* | Tiny mousetail |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | Berberidaceae | *Mahonia aquifolium* | Hollyleaved barberry |
| | | Menispermaceae | *Cocculus carolinus* | Carolina snailseed |
| | | | *Menispermum canadense* | Moonseed |
| | | Papaveraceae | *Argemone polyanthemos* | Crested prickle poppy |
| | | Fumariaceae | *Corydalis curvisiliqua occidentalis* | Golden corydalis |
| | | Ulmaceae | *Celtis laevigata* | Sugar hackberry |
| | | | *Celtis laevigata reticulata* | Netleaf hackberry |
| | | | *Celtis occidentalis* | Hackberry |
| | | | *Ulmus americana* | American elm |
| | | | *Ulmus rubra* | Slippery elm |
| | | Moraceae | *Maclura pomifera* | Osage orange* |
| | | | *Morus microphylla* | Texas mulberry |
| | | | *Morus rubra* | Red mulberry |
| | | Urticaceae | *Boehmeria cylindrica* | Smallspike falsenettle |
| | | | *Parietaria pensylvanica* | Pennsylvania pellitory |
| | | Juglandaceae | *Carya cordiformis* | Bitternut hickory |
| | | | *Carya illinoinensis* | Pecan |
| | | | *Juglans major* | River walnut |
| | | | *Juglans nigra* | Black walnut |
| Angiosperms | Dicotyledon | Fagaceae | *Quercus buckleyi* | Buckley oak |
| | | | *Quercus falcata* | Southern red oak |
| | | | *Quercus havardii* | Havard oak |
| | | | *Quercus macrocarpa* | Bur oak |
| | | | *Quercus marilandica* | Blackjack oak |
| | | | *Quercus mohriana* | Mohrs oak |
| | | | *Quercus muehlenbergii* | Chinquapin oak |
| | | | *Quercus rubra ambigua* | Northern red oak |
| | | | *Quercus shumardii schneckii* | Schneck's oak |
| | | | *Quercus shumardii shumardii* | Shumard's oak |
| | | | *Quercus stellata* | Post oak |
| | | | *Quercus velutina* | Black oak |
| | | | *Quercus virginiana* | Live oak |
| | | Phytolaccaceae | *Phytolacca americana* | Pokeberry |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | Nyctaginaceae | *Mirabilis albida* | White four o'clock |
| | | | *Mirabilis glabra* | Smooth four o'clock |
| | | | *Mirabilis hirsuta* | Hairy four o'clock |
| | | | *Mirabilis linearis* | Narrowleaf four o'clock |
| | | | *Mirabilis nyctaginea* | Heartleaf four o'clock |
| | | Aizoaceae | *Mollugo verticillata* | Green carpetweed |
| | | Cactaceae | *Echinocereus reichenbachii* | Lace echinocereus |
| Angiosperms | Dicotyledon | Cactaceae | *Echinocereus reichenbachii baileyi* | Wichita pin cushion |
| | | | *Escobaria vivipara radiosa* | Pincushion cactus |
| | | | *Opuntia engelmannii engelmannii* | Cactus apple |
| | | | *Opuntia fragilis* | Brittle pricklypear |
| | | | *Opuntia macrorhiza* | Prickly pear |
| | | Chenopodiaceae | *Chenopodium album* | Lambsquarters |
| | | | *Chenopodium leptophyllum* | Slimleaf goosefoot |
| | | | *Chenopodium simplex* | Mapleleaf goosefoot |
| | | | *Chenopodium standleyanum* | Standley goosefoot |
| | | | *Monolepis nuttalliana* | Nuttall's povertyweed |
| | | | *Salsola tragus* | Prickly Russian thistle* |
| | | Amaranthaceae | *Alternanthera caracasana* | Washerwomen* |
| | | | *Amaranthus albus* | Tumbleweed* |
| | | | *Amaranthus hybridus* | Slim amaranth |
| | | | *Amaranthus palmeri* | Palmer amaranth |
| | | | *Amaranthus retroflexus* | Redroot amaranth |
| | | | *Amaranthus rudis* | Roughfruit amaranth |
| | | | *Amaranthus tuberculatus* | Waterhemp |
| | | | *Froelichia floridana* | Florida snakecotton |
| Angiosperms | Dicotyledon | Amaranthaceae | *Froelichia gracilis* | Slender snakecotton |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Gossypianthus lanuginosus tenuiflorus* | Lanceleaf cottonflower |
| | | | *Guilleminea densa densa* | Small matweed |
| | | Portulacaceae | *Claytonia virginica* | Virginia spring beauty |
| | | | *Phemeranthus calycinus* | Largeflower fameflower |
| | | | *Phemeranthus parviflorus* | Sunbright |
| | | | *Phemeranthus rugospermus* | Prairie fameflower |
| | | | *Portulaca halimoides* | Silkcotton purslane |
| | | | *Portulaca oleracea* | Little hogweed* |
| | | | *Portulaca pilosa* | Kiss me quick |
| | | | *Portulaca umbraticola* | Wingpod purslane |
| | | Caryophyllaceae | *Cerastium brachypodum* | Shortstalk chickweed |
| | | | *Minuartia michauxii texana* | Texas stitchwort |
| | | | *Minuartia patula* | Pitcher's stitchwort |
| | | | *Paronychia jamesii* | James nailwort |
| | | | *Paronychia virginica* | Virginia nailwort |
| | | | *Sagina decumbens* | Trailing pearlwort |
| | | | *Silene antirrhina* | Sleepy catchfly |
| | | Polygonaceae | *Eriogonum annuum* | Annual wild buckwheat |
| Angiosperms | Dicotyledon | Polygonaceae | *Eriogonum longifolium* | Longleaf wild buckwheat |
| | | | *Polygonum amphibium emersum* | Longroot smartweed |
| | | | *Polygonum aviculare* | Prostrate knotweed* |
| | | | *Polygonum convolvulus* | Dullseed cornbind* |
| | | | *Polygonum hydropiper* | Marshpepper smartweed* |
| | | | *Polygonum hydropiperoides* | Swamp smartweed |
| | | | *Polygonum lapathifolium* | Curlytop smartweed |
| | | | *Polygonum pensylvanicum* | Pennsylvania smartweed |
| | | | *Polygonum punctatum* | Dotted smartweed |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Polygonum ramosissimum* | Bushy knotweed |
| | | | *Polygonum scandens* | Climbing false buckwheat |
| | | | *Polygonum tenue* | Plantleaf knotweed |
| | | | *Rumex altissimus* | Pale dockweed |
| | | | *Rumex crispus* | Curly dock* |
| | | Clusiaceae | *Hypericum drummondii* | Nits and lice |
| | | | *Hypericum mutilum* | Dwarf St. John's wort |
| | | Malvaceae | *Callirhoe involucrata* | Low poppymallow |
| | | | *Callirhoe leiocarpa* | Tall poppymallow |
| | | | *Sphaeralcea coccinea* | Scarlet mallow |
| Angiosperms | Dicotyledon | Cistaceae | *Lechea tenuifolia* | Narrowleaf pinwheel |
| | | Violaceae | *Hybanthus verticillatus* | Whorled nodviolet |
| | | | *Viola bicolor* | Field pansy |
| | | | *Viola missouriensis* | Missouri violet |
| | | | *Viola sororia* | Common blue violet |
| | | Tamaricaceae | *Tamarix chinensis* | Chinese salt cedar* |
| | | Cucurbitaceae | *Cucurbita foetidissima* | Buffalo gourd |
| | | | *Cyclanthera dissecta* | Cutleaf cyclantherra |
| | | | *Ibervillea lindheimeri* | Lindheimer globeberry |
| | | | *Melothria pendula* | Drooping melonette |
| | | Loasaceae | *Mentzelia nuda stricta* | Bractless blazingstar |
| | | | *Mentzelia oligosperma* | Chickenthief |
| | | Salicaceae | *Populus alba* | White popular* |
| | | | *Populus deltoides* | Cottonwood |
| | | | *Salix amygdaloides* | Peachleaf willow |
| | | | *Salix caroliniana* | Ward's willow |
| | | | *Salix interior* | Sandbar willow |
| | | | *Salix nigra* | Black willow |
| | | Capparaceae | *Cleome serrulata* | Bee spider flower |
| | | | *Cleomella angustifolia* | Narrowleaf rhombopod |
| | | | *Polanisia dodecandra* | Roughseed clammywort |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| Angiosperms | Dicotyledon | Brassicaceae | *Arabis missouriensis* | Green rockcress |
| | | | *Capsella bursa-pastoris* | Shepherdspurse* |
| | | | *Descurainia pinnata* | Pinnatetanseymustard |
| | | | *Dimorphocarpa wislizeni* | Wislizen's spectacle pod |
| | | | *Draba brachycarpa* | Shortpod draba |
| | | | *Draba cuneifolia* | Wedgeleaf draba |
| | | | *Draba reptans* | Carolina draba |
| | | | *Erysimum capitatum* | Plains erysimum |
| | | | *Lepidium oblongum* | Veiny pepperwort |
| | | | *Lepidium virginicum* | Virginia pepperrwort |
| | | | *Lesquerella auriculata* | Earleaf bladderpod |
| | | | *Lesquerella engelmannii* | Engelmann's bladderpod |
| | | | *Lesquerella gordonii* | Gordon bladderpod |
| | | | *Lesquerella gracilis* | Lax bladderpod |
| | | | *Lesquerella ovalifolia alba* | Roundleaf bladderpod |
| | | | *Nasturtium officinale* | Watercress* |
| | | | *Rorippa islandica* | Northern marsh yellowcress |
| | | | *Rorippa palustris* | Bog yellowcress |
| | | Brassicaceae | *Rorippa sessiliflora* | Stalkless yellowcress |
| | | | *Sibara virginica* | Virginia rockcress |
| Angiosperms | Dicotyledon | Sapotaceae | *Sideroxylon lanuginosum* | Gum bully |
| | | Ebenaceae | *Diospyros virginiana* | Persimmon |
| | | Primulaceae | *Androsace occidentalis* | Western rockjasmine |
| | | | *Dodecatheon meadia* | Shooting star |
| | | | *Samolus valerandi parviflorus* | Seaside brookweed |
| | | Grossulariaceae | *Ribes aureum villosum* | Golden current |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | Crassulaceae | *Sedum nuttallianum* | Yellow stonecrop |
| | | | *Sedum pulchellum* | Widowscross |
| | | Rosaceae | *Agrimonia parviflora* | Mayflower grovebur |
| | | | *Amelanchier arborea* | Common service berry |
| | | | *Crataegus crus-galli* | Cockspur hawthorn |
| | | | *Crataegus engelmannii* | Engelmann hawthorn |
| | | | *Crataegus reverchonii* | Reverchon hawthorn |
| | | | *Crataegus viridis* | Green hawthorn |
| | | | *Geum aleppicum* | Yellow avens |
| | | | *Geum canadense* | White avens |
| | | | *Geum virginianum* | Bristly avens |
| | | | *Potentilla arguta* | Cinquefoil |
| | | | *Prunus americana* | American plum |
| | | | *Prunus angustifolia* | Chicksaw plum |
| Angiosperms | Dicotyledon | Rosaceae | *Prunus gracilis* | Oklahoma plum |
| | | | *Prunus mexicana* | Mexican plum |
| | | | *Prunus persica* | Peach* |
| | | | *Prunus virginiana* | Chokecherry |
| | | | *Rosa foliolosa* | Leafy rose |
| | | | *Rosa multiflora* | Multiflora rose* |
| | | | *Rubus aboriginum* | Northern dewberry |
| | | | *Rubus argutus* | Sawtooth blackberry |
| | | | *Rubus idaeus* | Red raspberry |
| | | | *Rubus occidentalis* | Black raspberry |
| | | | *Rubus trivialis* | Lowbush blackberry |
| | | | *Spiraea arguta* | Garland spiraea |
| | | Fabaceae | *Acacia angustissima* | Prairie acacia |
| | | | *Albizia julibrissin* | Mimosa* |
| | | | *Amorpha canescens* | Leadplant |
| | | | *Amorpha fruticosa* | Indigobush amorpha |
| | | | *Amorpha nana* | Fragrant false indigo |
| | | | *Apios americana* | Groundnut |
| | | | *Astragalus crassicarpus* | Groundplum milkvetch |
| | | | *Astragalus lindheimeri* | Lindheimer milkvetch |
| | | | *Astragalus plattensis* | Platte milkvetch |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Baptisia australis minor* | Blue wild indigo |
| Angiosperms | Dicotyledon | Fabaceae | *Baptisia bracteata* | Longbract wild indigo |
| | | | *Baptisia sphaerocarpa* | Golden wild indigo |
| | | | *Cercis canadensis* | Redbud |
| | | | *Chamaecrista fasciculata fasciculata* | Partridge pea |
| | | | *Clitoria mariana* | Atlantic pigeonwings |
| | | | *Crotalaria sagittalis* | Arrow crotalaria |
| | | | *Dalea aurea* | Siltop aurea |
| | | | *Dalea candida candida* | White prairie clover |
| | | | *Dalea enneandra* | Bigtop dalea |
| | | | *Dalea multiflora* | Roundhead prairie clover |
| | | | *Dalea purpurea* | Purple prairie clover |
| | | | *Dalea tenu ifolia* | Slimleaf prairie clover |
| | | | *Dalea tenuis* | Pinkglobe prairie clover |
| | | | *Desmanthus illinoensis* | Illinois bundleflower |
| | | | *Desmanthus leptolobus* | Slenderlobe bundleflower |
| | | | *Desmodium ciliare* | Littleleaf tickclover |
| | | | *Desmodium glutinosum* | Sticky tickclover |
| | | | *Desmodium nudiflorum* | Barestem tickclover |
| | | | *Desmodium paniculatum* | Panicled tickclover |
| Angiosperms | Dicotyledon | Fabaceae | *Desmodium sessilifolium* | Sessile tickclover |
| | | | *Galactia volubilis* | Downy milkpea |
| | | | *Gleditsia triacanthos* | Honeylocust |
| | | | *Glycyrrhiza lepidota* | American licorice |
| | | | *Gymnocladus dioicus* | Kentucky coffee tree |
| | | | *Hoffmannseggia glauca* | Indian rushpea |
| | | | *Indigofera miniata leptosepala* | Coast indigo |
| | | | *Lespedeza capitata* | Roundhead lespedeza |
| | | | *Lespedeza cuneata* | Sericea lespedeza* |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Lespedeza frutescens* | Intermediate lespedeza |
| | | | *Lespedeza procumbens* | Trailing lespedeza |
| | | | *Lespedeza virginica* | Slender lespedeza |
| | | | *Lotus unifoliolatus unifoliolatus* | American bird's-foot trefoil |
| | | | *Medicago lupulina* | Black medick* |
| | | | *Melilotus alba* | White sweet clover* |
| | | | *Melilotus officianalis* | Yellow sweet clover* |
| | | | *Mimosa microphylla* | Little leaf sensitive-briar |
| | | | *Mimosa nuttallii* | Nuttall's sensitive-briar |
| | | | *Neptunia lutea* | Yellow neptunea |
| Angiosperms | Dicotyledon | Fabaceae | *Oxytropis lambertii* | Stemless loco |
| | | | *Pediomelum cuspidatum* | Largebract Indian breadroot |
| | | | *Pediomelum esculentum* | Large Indian breadroot |
| | | | *Pediomelum linearifolium* | Narrowleaf Indian breadroot |
| | | | *Prosopis glandulosa glandulosa* | Honey mesquite* |
| | | | *Psoralidium tenuiflorum* | Slimflower scurfpea |
| | | | *Robinia pseudoacacia* | Black locust |
| | | | *Senna marilandica* | Wild Senna |
| | | | *Strophostyles helvola* | Trailing wildbean |
| | | | *Strophostyles leiosperma* | Slickseed wildbean |
| | | | *Strophostyles umbellata* | Pink fuzzybean |
| | | | *Stylosanthes biflora* | Sidebeak pencilflower |
| | | | *Trifolium reflexum* | Buffalo clover |
| | | | *Vicia americana minor* | Mat vetch |
| | | | *Vicia ludoviciana* | Louisiana vetch |
| | | | *Vicia minutiflora* | Pygmyflower vetch |
| | | Haloragaceae | *Myriophyllum aquaticum* | Parrot feather watermilfoil* |
| | | | *Myriophyllum pinnatum* | Cutleaf watermilfoil |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Myriophyllum sibiricum* | Shortspike watermilfoil |
| Angiosperms | Dicotyledon | Haloragaceae | *Myriophyllum spicatum* | Eurasian watermilfoil* |
| | | Lythraceae | *Ammannia auriculata* | Earleaf ammannia |
| | | | *Ammannia coccinea* | Purple ammannia |
| | | | *Lythrum alatum* | Winged lythrum |
| | | Onagraceae | *Calylophus serrulatus* | Yellow sundrops |
| | | | *Gaura biennis* | Pitcher guara |
| | | | *Gaura coccinea* | Scarlet guara |
| | | | *Gaura mollis* | Smallflower guara |
| | | | *Gaura sinuata* | Wavyleaf guara |
| | | | *Gaura suffulta* | Roadside guara |
| | | | *Gaura triangulata* | Three petal guara |
| | | | *Ludwigia alternifolia* | Bushy boxseed |
| | | | *Ludwigia decurrens* | Wingleaf water primrose |
| | | | *Ludwigia palustris* | Marsh boxseed |
| | | | *Ludwigia peploides peploides* | Smooth water primrose |
| | | | *Ludwigia repens* | Creeping primrose-willow |
| | | | *Oenothera biennis* | Evening primrose |
| | | | *Oenothera brachycarpa* | Shortfruit evening primrose |
| | | | *Oenothera grandis* | Showy evening primrose |
| | | | *Oenothera heterophylla* | Variableleaf evening primrose |
| Angiosperms | Dicotyledon | Onagraceae | *Oenothera jamesii* | Trumpet evening primrose |
| | | | *Oenothera laciniata laciniata* | Cutleaf evening primrose |
| | | | *Oenothera linifolia* | Threadleaf sundrops |
| | | | *Oenothera macrocarpa incana* | Gray sundrops |
| | | | *Oenothera macrocarpa macrocarpa* | Bigfruit evening primrose |
| | | | *Oenothera speciosa* | Showy sundrops |
| | | | *Oenothera triloba* | Stemless evening primrose |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Stenosiphon linifolius* | False guara |
| | | Cornaceae | *Cornus drummondii* | Roughleaf dogwood |
| | | Santalaceae | *Comandra umbellata pallida* | Western comandra |
| | | Viscaceae | *Phoradendron leucarpum* | Oak mistletoe |
| | | Celastraceae | *Celastrus scandens* | American bittersweet |
| | | | *Euonymus atropurpureus* | Eastern wahoo |
| | | Euphorbiaceae | *Acalypha gracilens* | Slender copperleaf |
| | | | *Acalypha ostryifolia* | Hophornbeam copperleaf |
| | | | *Chamaesyce glyptosperma* | Ridgeseed euphorbia |
| | | | *Chamaesyce maculata* | Milk purslane |
| | | | *Chamaesyce missurica* | Prairie sandmat |
| Angiosperms | Dicotyledon | Euphorbiaceae | *Chamaesyce nutans* | Spotted euphorbia |
| | | | *Chamaesyce prostrata* | Prostrate euphorbia |
| | | | *Croton capitatus* | Woolly croton |
| | | | *Croton glandulosus* | Tropic croton |
| | | | *Croton lindheimerianus* | Threeseed croton |
| | | | *Croton monanthogynus* | Oneseed croton |
| | | | *Croton texensis* | Texas croton |
| | | | *Euphorbia bellidiastrum* | Tinted euphorbia |
| | | | *Euphorbia commutata* | Tinted woodland spurge |
| | | | *Euphorbia corollata* | Flowering spurge |
| | | | *Euphorbia dentata* | Toothed euphorbia |
| | | | *Euphorbia hexagona* | Six-angle euphorbia |
| | | | *Euphorbia marginata* | Snow-on-the-mountain |
| | | | *Euphorbia spathulata* | Warty euphorbia |
| | | | *Phyllanthus caroliniensis* | Carolina leafflower |
| | | | *Phyllanthus polygonoides* | Knotweed leafflower |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Stillingia sylvatica* | Queen's delight |
| | | | *Tragia ramosa* | Branching noseburn |
| | | Rhamnaceae | *Ceanothus americanus* | New Jersey tea |
| Angiosperms | Dicotyledon | Rhamnaceae | *Ceanothus herbaceus pubescens* | Fuzzy ceanothus |
| | | | *Paliurus spina-christi* | Jeruselem thorn* |
| | | Vitaceae | *Ampelopsis cordata* | Heartleaf ampelopsis |
| | | | *Cissus trifoliata* | Ivy treebine |
| | | | *Parthenocissus quinquefolia* | Virginia creeper |
| | | | *Vitis aestivalis* | Summer grape |
| | | | *Vitis cinerea* | Sweet grape |
| | | | *Vitis palmata* | Catbird grape |
| | | | *Vitis rotundifolia* | Muscadine grape |
| | | | *Vitis rupestris* | Sand grape |
| | | | *Vitis vulpina* | Riverbank grape |
| | | Linaceae | *Linum berlandieri* | Stiffstem flax |
| | | | *Linum hudsonioides* | Texas flax |
| | | | *Linum imbricatum* | Tufted flax |
| | | | *Linum sulcatum* | Grooved flax |
| | | Polygalaceae | *Polygala alba* | White milkwort |
| | | | *Polygala verticillata* | Whorled milkwort |
| | | Krameriaceae | *Krameria lanceolata* | Trailing ratany |
| | | Sapindaceae | *Sapindus saponaria drummondii* | Western soapberry |
| | | Aceraceae | *Acer grandidentatum* | Bigtooth maple |
| | | | *Acer saccharinum* | Silver maple |
| Angiosperms | Dicotyledon | Aceraceae | *Acer saccharum* | Sugar maple |
| | | Anacardiaceae | *Rhus copallinum* | Flameleaf sumac |
| | | | *Rhus glabra* | Smooth sumac |
| | | | *Rhus lanceolata* | Prairie sumac |
| | | | *Rhus trilobata* | Skunkbush |
| | | | *Toxicodendron radicans* | Eastern poison ivy |
| | | Simaroubaceae | *Ailanthus altissima* | Tree-of-heaven* |
| | | Rutaceae | *Ptelea trifoliata* | Wafer ash |
| | | Zygophyllaceae | *Kallstroemia californica* | California caltrop |
| | | | *Tribulus terrestris* | Puncturevine* |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | Oxalidaceae | *Oxalis corniculata* | Creeping woodsorrel |
| | | | *Oxalis stricta* | Oxalis |
| | | | *Oxalis violaceae* | Violet woodsorrel |
| | | Geraniaceae | *Erodium cicutarium* | Storksbill* |
| | | | *Geranium carolinianum* | Carolina geranium |
| | | Araliaceae | *Hedera helix* | English ivy* |
| | | Apiaceae | *Ammoselinum butleri* | Butler's sandparsley |
| | | | *Ammoselinum popei* | Plains sandparsley |
| | | | *Chaerophyllum tainturieri dasycarpum* | Hairyfruit chervil |
| | | | *Cicuta maculata* | Spotted water hemlock |
| | | | *Daucus pusillus* | Southwestern carrot |
| Angiosperms | Dicotyledon | Apiaceae | *Eryngium diffusum* | Bushy eryngo |
| | | | *Eryngium leavenworthii* | Leavenworth eryngo |
| | | | *Limnosciadium pinnatum* | Arkansas dogshade |
| | | | *Lomatium daucifolium* | Carrotleaf lomatium |
| | | | *Lomatium foeniculaceum* | Desert biscuitroot |
| | | | *Polytaenia nuttallii* | Prairie parsley |
| | | | *Ptilimnium nuttallii* | Nuttall mockbishop |
| | | | *Sanicula canadensis* | Canada sanicle |
| | | | *Spermolepis divaricata* | Forked scaleseed |
| | | | *Spermolepis echinata* | Bristly scaleseed |
| | | Gentianaceae | *Sabatia angularis* | Rosepink |
| | | | *Sabatia campestris* | Prairie rosegentian |
| | | Apocynaceae | *Amsonia ciliata* | Fringed bluestar |
| | | | *Amsonia tabernaemontana* | Willow slimpod |
| | | | *Apocynum cannabinum* | Indianhemp |
| | | Asclepiadaceae | *Asclepias asperula* | Spider milkweed |
| | | | *Asclepias asperula capicornu* | Antelopehorns |
| | | | *Asclepias asperula decumbens* | Trailing milkweed |
| | | | *Asclepias latifolia* | Broadleaf milkweed |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| Angiosperms | Dicotyledon | Asclepiadaceae | *Asclepias pumila* | Plains milkweed |
| | | | *Asclepias stenophylla* | Slimleaf milkweed |
| | | | *Asclepias sullivantii* | Sullivant milkweed |
| | | | *Asclepias tuberosa* | Butterfly milkweed |
| | | | *Asclepias verticillata* | Whorled milkweed |
| | | | *Asclepias viridiflora* | Green acerates |
| | | | *Asclepias viridis* | Green antelopehorn |
| | | Solanaceae | *Physalis cinerascens cinerascens* | Smallflower groundcherry |
| | | | *Physalis longifolia longifolia* | Longleaf groundcherry |
| | | | *Physalis mollis mollis* | Field groundcherry |
| | | | *Quincula lobata* | Chinese lantern |
| | | | *Solanum carolinense* | Carolina horsenettle |
| | | | *Solanum citrullifolium* | Watermelon leaved solanum |
| | | | *Solanum dimidiatum* | Western horsenettle |
| | | | *Solanum elaeagnifolium* | Silverleaf nightshade |
| | | | *Solanum ptycanthum* | Black nightshade |
| | | | *Solanum rostratum* | Buffalobur |
| | | Convolvulaceae | *Convolvulus arvensis* | Field bindweed* |
| | | | *Evolvulus nuttallianus* | Silver evolvulus |
| Angiosperms | Dicotyledon | Convolvulaceae | *Ipomoea shumardiana* | Narrowleaf morning glory |
| | | Cuscutaceae | *Cuscuta attenuata* | Waterfall dodder |
| | | | *Cuscuta coryli* | Hazel dodder |
| | | | *Cuscuta cuspidata* | Cusp dodder |
| | | | *Cuscuta gronovii* | Gronovius dodder |
| | | | *Cuscuta indecora* | Showy dodder |
| | | Polemoniaceae | *Gilia rubra* | Texas plume |
| | | | *Ipomopsis rubra* | Texas plume |
| | | | *Phlox pilosa* | Downy phlox |
| | | Hydrophyllaceae | *Nama hispidum* | Rough nama |
| | | | *Phacelia congesta* | Spike phacelia |
| | | | *Phacelia hirsuta* | Fuzzy phacelia |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | Boraginaceae | *Buglossoides arvensis* | Corn gromwell* |
| | | | *Lithospermum incisum* | Narrowleaf gromwell |
| | | | *Myosotis macrosperma* | Largeseed Forget-me-not |
| | | | *Myosotis verna* | Forget-me-not |
| | | | *Onosmodium bejariense berjariense* | Marbleseed |
| | | Verbenaceae | *Glandularia bipinnatifida bipinnatifida* | Dakota mock vervain |
| | | | *Glandularia canadensis* | Rose mock vervain |
| | | | *Glandularia pumila* | Pink mock vervain |
| | | | *Phryma leptostachya* | Lopseed |
| Angiosperms | Dicotyledon | Verbenaceae | *Phyla cuneifolia* | Wedgeleaf |
| | | | *Phyla nodiflora* | Turkey tangle fogfruit |
| | | | *Verbena bipinnatifida* | Dakota verbena |
| | | | *Verbena bracteata* | Bigbract verbena |
| | | | *Verbena stricta* | Woolly verbena |
| | | | *Verbena urticifolia* | White verbena |
| | | | *Vitex angus-castus* | Hemp tree* |
| | | Lamiaceae | *Hedeoma drummondii* | Drummond hedeoma |
| | | | *Hedeoma hispida* | Rough hedeoma |
| | | | *Lamium amplexicaule* | Henbit* |
| | | | *Lycopus americanus* | American bugleweed |
| | | | *Monarda citriodora* | Lemon beebalm |
| | | | *Monarda clinopodioides* | Basil beebalm |
| | | | *Monarda fistulosa* | Shrubby beebalm |
| | | | *Monarda pectinata* | Pony beebalm |
| | | | *Monarda punctata* | Spotted beebalm |
| | | | *Nepeta cataria* | Catnip* |
| | | | *Salvia azurea grandiflora* | Azure sage |
| | | | *Salvia reflexa* | Lanceleaf sage |
| | | | *Scutellaria drummondii* | Drummond skullcap |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Scutellaria resinosa* | Resindot skullcap |
| Angiosperms | Dicotyledon | Lamiaceae | *Scutellaria wrightii* | Wright skullcap |
| | | | *Teucrium canadense* | American germander |
| | | | *Teucrium laciniatum* | Cutleaf germander |
| | | | *Trichostema brachiatum* | Fluxweed |
| | | Hippocastanaceae | *Aesculus glabra* | Ohio buckeye |
| | | Plantaginaceae | *Callitriche heterophylla* | Larger waterstar wort |
| | | | *Plantago aristata* | Bottlebrush plantain |
| | | | *Plantago elongata* | Elongate plantain |
| | | | *Plantago heterophylla* | Slender plantain |
| | | | *Plantago patagonica* | Woolly plantain |
| | | | *Plantago rhodosperma* | Redseed plantain |
| | | | *Plantago virginica* | Paleseed plantain |
| | | | *Plantago wrightiana* | Wright plantain |
| | | Oleaceae | *Fraxinus americana* | White ash |
| | | | *Fraxinus pennsylvanica* | Green ash |
| | | | *Fraxinus velutina* | Arizona ash |
| | | | *Ligustrum sinense* | Chinese privet* |
| | | Scrophulariaceae | *Agalinis fasciculata* | Beach false foxglove |
| | | | *Bacopa rotundifolia* | Disc waterhyssop |
| Angiosperms | Dicotyledon | Scrophulariaceae | *Castilleja purpurea citrina* | Citron paintbrush |
| | | | *Castilleja sessiliflora* | Downy paintbrush |
| | | | *Collinsia violacea* | Violet collinsia |
| | | | *Gratiola virginiana* | Virginia hedgehyssop |
| | | | *Leucospora multifida* | Narrowleaf conobea |
| | | | *Lindernia dubia anagallidea* | Yellowseed false pimpernel |
| | | | *Nuttallanthus texanus* | Texas toadflax |
| | | | *Penstemon albidus* | White penstemon |
| | | | *Penstemon cobaea* | Cobaea penstemon |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Penstemon oklahomensis* | Oklahoma penstemon |
| | | | *Penstemon tubiflorus* | Tube penstemon |
| | | | *Scrophularia lanceolata* | Narrowleaf figwort |
| | | | *Verbascum thapsus* | Common mullein* |
| | | | *Veronica arvensis* | Speedwell* |
| | | | *Veronica peregrina* | Purslane speedwell |
| | | Acanthaceae | *Justicia americana* | Justicia |
| | | | *Ruellia caroliniensis* | Carolina wild petunia |
| | | | *Ruellia humilis* | Low ruellia |
| | | | *Ruellia pedunculata* | Stalked wild petunia |
| Angiosperms | Dicotyledon | Acanthaceae | *Ruellia strepens* | Limestone wild petunia |
| | | Pedaliaceae | *Proboscidea louisianica* | Unicorn plant |
| | | Bignoniaceae | *Catalpa speciosa* | Catalpa* |
| | | | *Chilopsis linearis* | Desert willow |
| | | Lentibulariaceae | *Utricularia gibba* | Humped bladderwort |
| | | | *Utricularia macrorhiza* | Common bladderwort |
| | | Campanulaceae | *Lobelia appendiculata* | Earflower lobelia |
| | | | *Lobelia cardinalis* | Cardinal flower |
| | | | *Lobelia spicata* | Palespike lobelia |
| | | | *Triodanis biflora* | Small venus looking-glass |
| | | | *Triodanis leptocarpa* | Slimpod venus looking-glass |
| | | | *Triodanis perfoliata* | Clasping venus looking-glass |
| | | Rubiaceae | *Cephalanthus occidentalis* | Buttonbush |
| | | | *Diodia teres setifera* | Rough buttonweed |
| | | | *Galium aparine* | Catchweed bedstraw |
| | | | *Galium pilosum* | Hairy bedstraw |
| | | | *Galium texense* | Texas bedstraw |
| | | | *Galium triflorum* | Fragrant bedstraw |
| | | | *Galium virgatum* | Southwest bedstraw |
| | | | *Hedyotis crassifolia* | Tiny bluet |
| | | | *Houstonia caerulea* | Azure bluet |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| Angiosperms | Dicotyledon | Rubiaceae | *Houstonia longifolia* | Purple bluet |
| | | | *Houstonia pusilla* | Tiny bluet |
| | | | *Stenaria nigricans nigricans* | Diamondflowers |
| | | Caprifoliaceae | *Lonicera japonica* | Japanese honeysuckle* |
| | | | *Symphoricarpos orbiculatus* | Buckberry |
| | | | *Viburnum rufidulum* | Rusty blackhaw |
| | | Valerianaceae | *Valerianella radiata parviflora* | Narrowcell cornsalad |
| | | | *Valerianella radiata radiata* | Beaked cornsalad |
| | | Asteraceae | *Achillea millefolium* | Common yarrow |
| | | | *Achillea millefolium occidentalis* | Western yarrow |
| | | | *Ambrosia artemisiifolia* | Ragweed |
| | | | *Ambrosia psilostachys* | Western ragweed |
| | | | *Ambrosia trifida* | Giant ragweed |
| | | | *Amphiachyris dracunculoides* | Broomweed |
| | | | *Antennaria parlinii* | Parlin's pussytoes |
| | | | *Antennaria plantaginifolia* | Plantain-leaf pussytoes |
| | | | *Aphanostephus pilosus* | Hairy dozedaisy |
| | | | *Aphanostephus ramosissimus* | Plains dozedaisy |
| Angiosperms | Dicotyledon | Asteraceae | *Aphanostephus skirrhobasis* | Arkansas dozedaisy |
| | | | *Artemisia carruthii* | Carruth sagewort |
| | | | *Artemisia dracunculus* | Tarragon |
| | | | *Artemisia filifolia* | Figleaf sagewort |
| | | | *Artemisia longifolia* | Longleaf wormwood |
| | | | *Artemisia ludoviciana ludoviciana* | Louisiana sagewort |
| | | | *Artemisia ludoviciana mexicana* | American sagewort |
| | | | *Artemisia serrata* | Sawtooth sagewort |
| | | | *Baccharis salicina* | Willow groundsel-tree |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Berlandiera betonicifolia* | Small Texas greeneyes |
| | | | *Bidens cernua* | Nodding beggarticks |
| | | | *Bidens frondosa* | Devil's beggarticks |
| | | | *Brickellia eupatorioides chlorolepis* | False boneset |
| | | | *Centaurea americana* | Basketflower |
| | | | *Chaetopappa asteroides* | Least daisy |
| | | | *Chrysopsis pilosa* | Soft goldenaster |
| | | | *Cirsium ochrocentrum* | Yellowspine thistle |
| | | | *Cirsium undulatum* | Wavyleaf thistle |
| | | | *Conyza canadensis* | Horseweed fleabane |
| Angiosperms | Dicotyledon | Asteraceae | *Conyza ramosissima* | Conyza |
| | | | *Coreopsis grandiflora longipes* | Bigflower coreopsis |
| | | | *Coreopsis lanceolata* | Lanceleaf coreopsis |
| | | | *Coreopsis tinctoria* | Plains coreopsis |
| | | | *Dyssodia tagetoides* | Marigold dogweed |
| | | | *Echinacea angustifolia* | Black samson |
| | | | *Echinacea pallida* | Pale purple coneflower |
| | | | *Eclipta prostrata* | Yerba de tajo |
| | | | *Engelmannia peristenia* | Englemann's daisy |
| | | | *Erigeron bellidiastrum* | Western fleabane |
| | | | *Erigeron divergens* | Spreading fleabane |
| | | | *Erigeron strigosus* | Prairie fleabane |
| | | | *Eupatorium serotinum* | Late eupatorium |
| | | | *Evax prolifera* | Bighead evax |
| | | | *Evax verna verna* | Manystem evax |
| | | | *Gaillardia aestivalis* | Lanceleaf blanketflower |
| | | | *Gaillardia pulchella* | Indian blanket |
| | | | *Gaillardia suavis* | Sweet gaillardia |
| | | | *Gamochaeta purpurea* | Purple cudweed |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| Angiosperms | Dicotyledon | Asteraceae | *Gnaphalium chilense* | Cottonbattin cudweed |
| | | | *Grindelia nuda nuda* | Curlytop gumweed |
| | | | *Grindelia papposa* | Spanish gold |
| | | | *Grindelia squarrosus* | Curlycup gumweed |
| | | | *Gutierrezia dracunculoides* | Prairie broomweed |
| | | | *Gutierrezia sarothrae* | Broom snakeweed |
| | | | *Helenium amarum amarum* | Bitter sneezeweed |
| | | | *Helenium amarum badium* | Basin sneezeweed |
| | | | *Helenium autumnale* | Sneezeweed |
| | | | *Helenium flexuosum* | Flexuous sneezeweed |
| | | | *Helenium microcephalum* | Smallhead sneezeweed |
| | | | *Helianthus annuus* | Annual sunflower |
| | | | *Helianthus hirsutus* | Hairy sunflower |
| | | | *Helianthus maximiliani* | Maximilian sunflower |
| | | | *Helianthus pauciflorus pauciflorus* | Stiff sunflower |
| | | | *Helianthus petiolaris* | Prairie sunflower |
| | | | *Heterotheca canescens* | Hairy golden aster |
| | | | *Heterotheca stenophylla* | Narrowleaf goldaster |
| | | | *Heterotheca villosa* | Hairy false golden aster |
| Angiosperms | Dicotyledon | Asteraceae | *Hieracium longipilum* | Longbeard hawkseed |
| | | | *Hymenopappus scabiosaeus* | Flattop woollywhite |
| | | | *Hymenopappus tenuifolius* | Chalkhill woollywhite |
| | | | *Iva annua annua* | Seacoast sumpweed |
| | | | *Krigia caespitosa* | Weedy dwarf dandelion |
| | | | *Krigia dandelion* | Tuber dwarf dandelion |
| | | | *Lactuca canadensis* | Canadalettuce |
| | | | *Lactuca serriola* | Prickly lettuce* |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Lactuca tatarica pulchella* | Chickory lettuce |
| | | | *Liatris aspera* | Rough gayfeather |
| | | | *Liatris punctata* | Dotted gayfeather |
| | | | *Liatris scariosa* | Tall gayfeather |
| | | | *Machaeranthera pinnatifida pinnatifida* | Cutleaf goldonweed |
| | | | *Nothocalais cuspidata* | Sharppoint prairie-dandelion |
| | | | *Packera plattensis* | Prairie groundsel |
| | | | *Palafoxia sphacelata* | Othake |
| | | | *Palafoxia texana* | Texas palafoxia |
| | | | *Pluchea camphorata* | Camphor pluchea |
| | | | *Pseudognaphalium canescens canescens* | Wright cudweed |
| | | | *Pseudognaphalium stramineum* | Cottonbattin cudweed |
| Angiosperms | Dicotyledon | Asteraceae | *Pyrrhopappus carolinianus* | Carolina false-dandelion |
| | | | *Pyrrhopappus grandiflorus* | Tuberous desert-chicory |
| | | | *Ratibida columnifera* | Upright prairie coneflower |
| | | | *Rayjacksonia phyllocephala* | Camphor daisy* |
| | | | *Rudbeckia hirta* | Blackeyed susan |
| | | | *Senecio riddellii* | Riddell's ragwort |
| | | | *Silphium asteriscus* | Sand rosinweed |
| | | | *Silphium laciniatum* | Compass plant |
| | | | *Silphium radula* | Roughstem rosinweed |
| | | | *Solidago arguta boottii* | Boott's goldenrod |
| | | | *Solidago gigantea* | Giant goldenrod |
| | | | *Solidago missouriensis fasciculata* | Missouri goldenrod |
| | | | *Solidago mollis* | Ashy goldenrod |
| | | | *Solidago petiolaris* | Downy goldenrod |
| | | | *Solidago radula* | Western rough goldenrod |
| | | | *Sonchus oleraceus* | Common sowthistle* |
| | | | *Symphyotrichum ericoides* | White heath aster |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Symphyotrichum falcaltum* | White prairie aster |
| | | | *Symphyotrichum fendleri* | Fendler's aster |
| Angiosperms | Dicotyledon | Asteraceae | *Symphyotrichum oblongifolium* | Aromatic aster |
| | | | *Symphyotrichum patens patens* | Late purple aster |
| | | | *Symphyotrichum subulatum* | Eastern annual saltmarsh aster |
| | | | *Taraxacum officinale* | Common dandelion |
| | | | *Tetraneuris linearifolia linearifolia* | Fineleaf fournerved daisy |
| | | | *Tetraneuris scaposa linearis* | Stemmy four-nerve daisy |
| | | | *Thelesperma ambiguum* | Colorado greenthread |
| | | | *Thelesperma filifolium* | Plains greenthread |
| | | | *Thelesperma megapotamicum* | Hopi tea greenthread |
| | | | *Townsendia exscapa* | Stemless townsendia |
| | | | *Tragopogon dubius* | Yellow goat's beard* |
| | | | *Verbesina virginica* | White crownbeard |
| | | | *Vernonia baldwinii* | Baldwin ironweed |
| | | | *Vernonia missurica* | Missouri ironweed |
| | | | *Xanthisma texanum* | Texas sleepydaisy |
| | | | *Xanthium strumarium* | Cocklebur |
| | | | *Xanthocephalum dracunculoides* | Broom weed |
| | Monocotyledon | Alismataceae | *Echinodorus berteroi* | Upright burhead |
| | | | *Echinodorus cordifolius* | Erect burhead |
| Angiosperms | Monocotyledon | Alismataceae | *Sagittaria calycina* | Longlobe arrowhead |
| | | | *Sagittaria latifolia* | Arrowhead |
| | | | *Sagittaria montevidensis* | Giant arrowhead* |
| | | | *Sagittaria platyphylla* | Delta arrowhead |
| | | Hydrocharitaceae | *Egeria densa* | Brazilian waterweed* |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | Potamogetonaceae | *Potamogeton amplifolius* | Largeleaf pondweed |
| | | | *Potamogeton crispus* | Curlyleaf pondweed* |
| | | | *Potamogeton diversifolius* | Waterthread pondweed |
| | | | *Potamogeton nodosus* | Longleaf pondweed |
| | | | *Potamogeton pusillus* | Baby pondweed |
| | | Najadaceae | *Najas guadalupensis* | Southern naiad |
| | | Araceae | *Arisaema dracontium* | Dragonroot |
| | | Lemnaceae | *Lemna minor* | Duckweed |
| | | Commelinaceae | *Commelina erecta* | Whitemouth dayflower |
| | | | *Commelina virginica* | Virginia dayflower |
| | | | *Tradescantia hirsutiflora* | Hairyflower spiderwort |
| | | | *Tradescantia occidentalis* | Prairie spiderwort |
| | | | *Tradescantia ohiensis* | Smoothstalk spiderwort |
| | | | *Tradescantia tharpii* | Tharp spiderwort |
| | | Juncaceae | *Juncus acuminatus* | Knotleaf rush |
| Angiosperms | Monocotyledon | Juncaceae | *Juncus arcticus littoralis* | Mountain rush |
| | | | *Juncus dudleyi* | Dudley's rush |
| | | | *Juncus interior* | Inland rush |
| | | | *Juncus marginatus* | Grassleaf rush |
| | | | *Juncus torreyi* | Torrey's rush |
| | | Cyperaceae | *Bulbostylis capillaris* | Hairsedge |
| | | | *Carex amphibola* | Narrowleaf sedge |
| | | | *Carex annectens* | Yellowfruit sedge |
| | | | *Carex austrina* | Southern sedge |
| | | | *Carex blanda* | Woodland sedge |
| | | | *Carex emoryi* | Emory's sedge |
| | | | *Carex festucacea* | Fescue sedge |
| | | | *Carex frankii* | Frank sedge |
| | | | *Carex gravida lunelliana* | Lunell sedge |
| | | | *Carex grisea* | Inflated narrow-leaf sedge |
| | | | *Carex joori* | Hummock sedge |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Carex microrhyncha* | Littlesnout sedge |
| | | | *Carex muehlenbergii* | Muhlenberg's sedge |
| | | | *Carex praegracilis* | Slender sedge |
| | | | *Carex vulpinoidea* | Fox sedge |
| | | | *Cyperus acuminatus* | Taperleaf flatsedge |
| | | | *Cyperus echinatus* | Globe flatsedge |
| Angiosperms | Monocotyledon | Cyperaceae | *Cyperus erythrorhizos* | Redroot flatsedge |
| | | | *Cyperus esculentus* | Chufa |
| | | | *Cyperus lupulinus* | Slender flatsedge |
| | | | *Cyperus odoratus* | Fragrant flatsedge |
| | | | *Cyperus pseudovegetus* | Marsh flatsedge |
| | | | *Cyperus schweinitzii* | Schweinitz flatsedge |
| | | | *Cyperus setigerus* | Bristled flatsedge |
| | | | *Cyperus squarrosus* | Bearded flatsedge |
| | | | *Cyperus strigosus* | False nut sedge |
| | | | *Cyperus virens* | Green flatsedge |
| | | | *Eleocharis atropurpurea* | Purple spikerush |
| | | | *Eleocharis compressa* | Flatstem spikesedge |
| | | | *Eleocharis compressa acutisquamata* | Sharpscale spikerush |
| | | | *Eleocharis engelmannii* | Englemann spikerush |
| | | | *Eleocharis macrostachya* | Longspike spikesedge |
| | | | *Eleocharis montevidensis* | Sand spikesedge |
| | | | *Eleocharis obtusa* | Blunt spikesedge |
| | | | *Eleocharis palustris* | Common spikerush |
| | | | *Eleocharis parvula* | Dwarf spikerush |
| Angiosperms | Monocotyledon | Cyperaceae | *Eleocharis quadrangulata* | Squarestem spikerush |
| | | | *Eleocharis tenuis* | Slender spikerush |
| | | | *Eleocharis wolfii* | Wolf's spikerush |
| | | | *Fimbristylis puberula* | Hairy fimbry |
| | | | *Fimbristylis spadicea* | Plains fimbry* |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Fimbristylis vahlii* | Vahl fimbry |
| | | | *Fuirena simplex* | Western umbrella sedge |
| | | | *Lipocarpha micrantha* | Hemicarpha |
| | | | *Schoenoplectus acutus acutus* | Hardstem bulrush |
| | | | *Schoenoplectus americanus* | Chairmaker's bulrush |
| | | | *Schoenoplectus hallii* | Hall's bulrush |
| | | | *Schoenoplectus maritimus* | Cosmopolitan bulrush |
| | | | *Schoenoplectus pungens* | Common threesquare |
| | | | *Schoenoplectus saximontanus* | Rocky Mountain bulrush |
| | | | *Schoenoplectus tabernaemontani* | Softstem bulrush |
| | | | *Scirpus atrovirens* | Green bulrush |
| | | | *Scirpus lineatus* | Rusty bulrush |
| | | | *Scirpus pendulus* | Rufous bulrush |
| | | | *Scleria pauciflora* | Fewflower nutrush |
| Angiosperms | Monocotyledon | Poaceae | *Aegilops cylindrica* | Jointed goatgrass* |
| | | | *Agrostis elliottiana* | Elliott's bentgrass |
| | | | *Agrostis hymenalis* | Winter bentgrass |
| | | | *Alopecurus carolinianus* | Carolina foxtail |
| | | | *Andropogon gerardii* | Big bluestem |
| | | | *Andropogon virginicus* | Broomsedge bluestem |
| | | | *Aristida dichotoma* | Churchmousse threeawn |
| | | | *Aristida dichotoma curtissii* | Curtis threeawn |
| | | | *Aristida longespica* | Slimspike threeawn |
| | | | *Aristida oligantha* | Oldfield threeawn |
| | | | *Aristida purpurea longiseta* | Red threeawn |
| | | | *Aristida purpurea purpurea* | Purple threeawn |
| | | | *Aristida purpurea wrightii* | Wright threeawn |
| | | | *Bothriochloa barbinodis* | Cane bluestem |
| | | | *Bothriochloa ishaemum* | Old World bluestem* |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Bothriochloa laguroides* | Silver bluestem |
| | | | *Bouteloua curtipendula* | Sideoats grama |
| | | | *Bouteloua dactyloides* | Buffalograss |
| Angiosperms | Monocotyledon | Poaceae | *Bouteloua gracilis* | Blue grama |
| | | | *Bouteloua hirsuta* | Hairy grama |
| | | | *Bouteloua rigidiseta* | Texas grama |
| | | | *Bromus arvensis* | Field brome* |
| | | | *Bromus catharticus* | Rescuegrass* |
| | | | *Bromus pubescens* | Canada brome |
| | | | *Bromus racemosus* | Meadow brome* |
| | | | *Bromus tectorum* | Cheatgrass* |
| | | | *Cenchrus spinifex* | Mat sandbur |
| | | | *Chasmanthium latifolium* | Broadleaf uniola |
| | | | *Chloris verticillata* | Tumble windmillgrass |
| | | | *Chloris virgata* | Showy chloris |
| | | | *Coelorachis cylindrica* | Cylinder jointtail grass |
| | | | *Cynodon dactylon* | Bermuda grass* |
| | | | *Dactylis glomerata* | Orchardgrass* |
| | | | *Dichanthelium acuminatum fasciculatum* | Western panicgrass |
| | | | *Dichanthelium depauperatum* | Starved panicgrass |
| | | | *Dichanthelium linearifolium* | Slimleaf panicgrass |
| | | | *Dichanthelium malacophyllum* | Softleaf rosette grass |
| | | | *Dichanthelium oligosanthes scribnerianu* | Scribner panicum |
| Angiosperms | Monocotyledon | Poaceae | *Dichanthelium scoparium* | Velvet panicum |
| | | | *Digitaria californica* | Arizona cottontop |
| | | | *Digitaria ciliaris* | Hairy crabgrass |
| | | | *Digitaria cognata* | Fall witchgrass |
| | | | *Echinochloa crus-galli* | Barnyard grass* |
| | | | *Eleusine indica* | Goosegrass* |
| | | | *Elymus canadensis* | Canada wildrye |
| | | | *Elymus virginicus* | Virginia wildrye |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Eragrostis capillaris* | Lacegrass |
| | | | *Eragrostis cilianensis* | Stinkgrass* |
| | | | *Eragrostis curtipedicellata* | Gummy lovegrass |
| | | | *Eragrostis hypnoides intermedia* | Teal lovegrass |
| | | | *Eragrostis intermedia* | Plains lovegrass |
| | | | *Eragrostis pectinacea* | Carolina lovegrass |
| | | | *Eragrostis pilosa* | Indian lovegrass |
| | | | *Eragrostis secundiflora* | Wichita lovegrass |
| | | | *Eragrostis secundiflora oxylepis* | Red lovegrass |
| | | | *Eragrostis sessilispica* | Tumble lovegrass |
| | | | *Eragrostis spectabilis* | Purple lovegrass |
| Angiosperms | Monocotyledon | Poaceae | *Eragrostis trichodes* | Sand lovegrass |
| | | | *Eriochloa contracta* | Prairie cutgrass |
| | | | *Erioneuron pilosum* | Hairy woollygrass |
| | | | *Festuca versuta* | Texas fescue |
| | | | *Hordeum pusillum* | Little barley |
| | | | *Leersia oryzoides* | Rice grass |
| | | | *Leptochloa dubia* | Green sprangletop |
| | | | *Leptochloa fusca* | Bearded sprangletop |
| | | | *Limnodea arkansana* | Ozark grass |
| | | | *Melica nitens* | Threeflower melic |
| | | | *Muhlenbergia capillaris* | Hairawn muhly |
| | | | *Muhlenbergia frondosa* | Wirestem muhly |
| | | | *Muhlenbergia mexicana* | Mexican muhly |
| | | | *Muhlenbergia racemosa* | Green muhly |
| | | | *Neeragrostis reptans* | Creeping lovegrass |
| | | | *Panicum anceps* | Beaked panicum |
| | | | *Panicum capillare* | Witchgrass |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Panicum dichotomiflorum* | Fall panicum |
| | | | *Panicum obtusum* | Vine-mesquite |
| | | | *Panicum philadelphicum* | Philadelphia panicgrass |
| | | | *Panicum rigidulum rigidulum* | Redtop panicgrass |
| Angiosperms | Monocotyledon | Poaceae | *Panicum virgatum* | Switch grass |
| | | | *Pascopyrum smithii* | Western wheatgrass |
| | | | *Paspalidium geminatum geminatum* | Egyptian panicgrass |
| | | | *Paspalum dilatatum* | Dallisgrass* |
| | | | *Paspalum pubiflorum glabrum* | Smoothseed paspalum |
| | | | *Paspalum pubiflorum pubiflorum* | Hairyseed paspalum |
| | | | *Paspalum setaceum* | Fringeleaf paspalum |
| | | | *Phalaris caroliniana* | Carolina canary grass |
| | | | *Poa annua* | Annual bluegrass* |
| | | | *Poa arachnifera* | Texas bluegrass |
| | | | *Poa compressa* | Canada bluegrass* |
| | | | *Schedonnardus paniculatus* | Tumblegrass |
| | | | *Schedonorus pratensis* | Suiter fescue* |
| | | | *Schizachyrium scoparium* | Little bluestem |
| | | | *Setaria parviflora* | Marsh bristlegrass |
| | | | *Setaria viridis* | Green bristlegrass* |
| | | | *Sorghastrum nutans* | Indiangrass |
| | | | *Sorghum halapense* | Johnson grass* |
| | | | *Spartina pectinata* | Prairie cordgrass |
| Angiosperms | Monocotyledon | Poaceae | *Sphenopholis obtusata* | Prairie wedgescale |
| | | | *Sporobolus airoides* | Alkali sacaton |
| | | | *Sporobolus clandestinus* | Rough dropseed |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Sporobolus compositus compositus* | Composite dropseed |
| | | | *Sporobolus cryptandrus* | Sand dropseed |
| | | | *Sporobolus neglectus* | Puffsheath dropseed |
| | | | *Sporobolus pyramidatus* | Madagascar dropseed |
| | | | *Sporobolus vaginiflorus vaginiflorus* | Poverty dropseed |
| | | | *Steinchisma hians* | Gaping grass |
| | | | *Tridens albescens* | White tridens |
| | | | *Tridens flavus* | Purpletop |
| | | | *Tridens muticus* | Slim tridens |
| | | | *Tridens muticus elongatus* | Rough tridens |
| | | | *Tridens strictus* | Longspike tridens |
| | | | *Tripsacum dactyloides* | Eastern gamagrass |
| | | | *Vulpia octoflora* | Sixweeks fescue |
| | | Typhaceae | *Typha angustifolia* | Narrow leaf cattail* |
| | | | *Typha domingensis* | Southern cattail |
| | | | *Typha latifolia* | Broadleaf cattail |
| | | Pontederiaceae | *Heteranthera limosa* | Blue mudplantain |
| Angiosperms | Monocotyledon | Liliaceae | *Allium canadense* | Canada garlic |
| | | | *Allium drummondii* | Drummond onion |
| | | | *Allium stellatum* | Prairie onion |
| | | | *Androstephium coeruleum* | Blue funnel-lily |
| | | | *Camassia scilloides* | Atlantic camass |
| | | | *Cooperia drummondii* | Evening rain lilly |
| | | | *Erythronium americanum* | Fawn lilly |
| | | | *Nothoscordum bivalve* | Yellow false garlic |
| | | Iridaceae | *Nemastylis geminiflora* | Prairie iris |
| | | | *Sisyrinchium angustifolium* | Blueeyed grass |
| | | Agavaceae | *Manfreda virginica* | False aloe |
| | | | *Yucca glauca* | Small soapweed |
| | | Amaryllidaceae | *Agave lata* | Agave |

| Division | Group | Family | Scientific Name | Common Name |
|---|---|---|---|---|
| | | | *Zephyranthes brazosensis* | Evening star |
| | | Smilacaceae | *Smilax bona-nox* | Saw greenbrier |
| | | | *Smilax herbacea* | Smooth carrionflower |
| | | | *Smilax pseudochina* | Bamboo vine* |
| | | | *Smilax rotundifolia* | Roundleaf greenbrier |
| | | | *Smilax tamnoides* | Bristly greenbrier |
| | | Orchidaceae | *Spiranthes cernua* | Nodding lady's tresses |
| | | | *Spiranthes vernalis* | Spring lady's tresses |

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# C. Intra-Service Section 7 Biological Evaluation

**Originating Person:** **Walter Munsterman, Supervisory Wildlife Biologist**
Telephone Number: 580-429-2128
Date: March 7, 2012

**I. Region:** Southwest

**II. Service Activity (Program):** Refuges: Implementation of a Comprehensive Conservation Plan (CCP) for Wichita Mountains Wildlife Refuge (WMWR).

**III. Pertinent Species and Habitat:**

**A. Species/Critical Habitat description:**

Wichita Mountains Wildlife Refuge—Comanche County

Black-capped vireo *(Vireo atricapillus)*, Endangered (54 FR 37420; October 6, 1987) /critical habitat has not been designated.

Whooping crane *(Grus americana)*, Endangered (32 FR 4001, March 11, 1967; 35 FR 8495, June 2, 1970) /critical habitat has been designated but none occurs on the Wichita Mountains Wildlife Refuge (43 FR 20938, May 15, 1978).

Interior least tern *(Sterna antillarum)*, Endangered (50 FR 21784; May 28, 1985) /critical habitat has not been designated.

Piping plover *(Charadrius melolus)*, Threatened (50 FR 50726; December 11, 1985) /critical habitat has not been designated.

**B. Proposed species and/or proposed critical habitat within the action area:**
None

**C. Candidate species within the action area:**
The Refuge is within the historic range of the lesser prairie chicken; however, none currently occur there.

D. Include species/habitat occurrence on a map: See 'Crosstimbers Oak Forest-Woodland' habitat on CCP map Figure 3.7.

**IV.** **Geographic area or station name and action:**

The proposed action is to implement a Comprehensive Conservation Plan for Wichita Mountains Wildlife Refuge, Comanche County, Oklahoma.

**V.** **Location:** See attached draft CCP

**A.** **Ecoregion Name:**
Central Mixed-Grass Prairie (see CCP Figure 3.2)

**B.** **County and State:**
Comanche County, Oklahoma

C. **Latitude and Longitude:**
Refuge Headquarters: 34° 43' 58.16" N
-98° 42'46.85" W

**D.** **Distance (miles) and direction to nearest town:**
Approximately 11.5 miles northwest of Cache, Oklahoma

**E.** **Species/habitat occurrence:**
Historically black-capped vireos are believed to have bred in a strip from south-central Kansas broadly through central Oklahoma south through the central Texas Plateau , then south to central Coahuila (Mexico) and west to the Big Bend National Park (Graber 1957) and (American Ornithologists' Union 1983). Vireos also are known to have bred in Nuevo Leon and Tamaulipas, Mexico (Marshall et. all. 1984). The current known breeding range includes two colonies in Oklahoma; a small colony of about 12 pairs in Blaine County and approximately 4,300 pairs in Wichita Mountains Wildlife Refuge. In Texas, populations are present in a number of localities particularly on the Lampasas Cut Plains and the Edwards Plateau. The eastern and southern edges of the range follow the Balcones Escarpment closely from Waco (McLennan County) to Brackettville (Kenny County). The range is discontinuous across the Llano Uplift (Sexton et. all, unpub:Ms), and deterioration of these populations may be extensive, particularly from north-central Texas broadly to the San Antonio (Bexar County) Region. On the Wichita Mountains Wildlife Refuge the preferred nesting habitat is almost exclusively located in the Boulder Ridge Savannah ecological site type (USDA 2007), of which there are approximately 24,000 acres. Ecological sites are the product of all the environmental factors (soil, relief, climate, etc.) discussed in the CCP and are sufficiently uniform enough to produce a distinct natural plant community.

Whooping crane: Whooping cranes occasionally migrate over, or adjacent to, the Refuge; however no documented records exist of them utilizing the Refuge. No suitable foraging, resting, or roosting habitat exists on the Refuge. Additional information relevant to life history, population dynamics, and status and distribution

are located in USFWS species profile (2003) and in a report by Austin and Richert (2001).

Interior least tern: Interior least terns occasionally migrate over and may utilize some of the Refuge lakes for resting and foraging areas; however there are no records of their occurrence on the Refuge. Although within their general range, suitable least tern nesting habitat does not occur on the Refuge. Additional information relevant to life history, population dynamics and status and distribution are located in USFWS species profile (1991), a report by Guilfoyle (2004), and Birdlife International (2007).

Piping plover: Although within their general range, suitable piping plover habitat does not occur on the Refuge and no individuals of this species have been documented on the Refuge. Additional information relevant to life history, population dynamics and status and distribution are located in USFWS species profile (1992) and Birdlife International (2007).

Lesser prairie chicken: Lesser prairie chicken occurrence in the area of the Refuge was negligible after the early 1900s (Jacobs 1959). Between 1927 and 1940, at least four unsuccessful attempts were made to reintroduce lesser prairie chickens to the Refuge. An undated report (possibly from 1942, Refuge files) suggests that Refuge habitat does not appear to be suitable for the lesser prairie chicken, lacking adequate open areas within the dense grasslands. Lesser prairie chickens do not occur on the Refuge and the CCP does not propose to revisit any reintroduction efforts. Additional information relevant to life history, population dynamics, and distribution are located in USFWS species profile (2003), a report by Jamison et. al. (2002) and Birdlife International (2007).

## VI. Description of proposed action:

The proposed action is to implement the Comprehensive Conservation Plan (CCP) for Wichita Mountains Wildlife Refuge over the next 15 years. The CCP will emphasize habitat protection, enhancement, and restoration, as well as native, non-native and invasive species management.

The CCP is divided into a series of goals, objectives, and strategies that will be implemented throughout the 15-year term of this Plan. Specific goals associated with the CCP are: 1) to protect, restore, and maintain a diversity of native wildlife with special emphasis on Federal trust species and other species of management concern; 2) to protect, restore, and maintain the prominent features within the Central Mixed-Grass Prairie Ecoregion, which include Crosstimbers oak forest and woodland, rocklands, and grasslands on and near the Refuge while controlling the spread of invasive or exotic species; and 3) to provide quality, wildlife-dependent recreational and environmental education opportunities to a diverse audience and increase Refuge System support by promoting an understanding and appreciation for the unique wildlife, fish, habitats, and cultural history of the Wichita Mountains Wildlife Refuge.

Implementation of the CCP is consistent with the goals of the Refuge, the Refuge System, and ecosystem and other landscape-level plans and initiatives.

The overall management of the Refuge will focus on protecting and restoring native habitats; protecting and providing habitat for bison, Texas longhorn cattle, elk, white-tailed deer, waterfowl, migratory birds, federally listed species, and providing opportunities for public use, environmental education, and interpretation. Based on an ecosystem approach, the wildlife and habitat goals and objectives focus more on providing viable and healthy habitats whereby wildlife can naturally flourish. For detailed descriptions of CCP goals and proposed actions (objectives and strategies), please refer to Chapter 5 of the attached CCP.

## VII. Determination of Effects:

### A. Explanation of effects of the action on species and critical habitat in item III A:

Refuge management activities, as described in the CCP and analyzed below, are only expected to impact the black-capped vireo. The whooping crane, piping plover, interior least tern, and lesser prairie chicken are not expected to be impacted by the proposed action because they do not have suitable habitat on the Refuge and/or are only occasional visitors (as described in Section E of this assessment).

*Wildlife and Habitat Management*

Specific activities of the CCP that may affect (black-capped vireo include prescribed burning and invasive species management. Invasive species management includes direct control of feral hogs and spot treatments of invasive plants such as Old World bluestem (*Bothriochloa ischaemum*), Sericea Lespedeza (*Lespedeza cuneata*), Johnson Grass (*Sorghum halepense*), Common Mullcin (*Verbascum thapsas*), and Silk Mimosa (*Albizia julibrissin*), using mechanical removal and approved herbicides. On average, the Refuge annually treats approximately 500 acres with herbicide to control the invasive plants. In addition, during the black-capped vireo nesting season, brown-headed cow birds are aggressively controlled to reduce nest parasitism. All management activities are implemented in accordance with the approved recovery plan. For more information on CCP objectives and strategies related to habitat management activities, please see Chapter 5 of the CCP.

Many of the specific actions proposed in the CCP have been previously addressed via prior Endangered Species Act consultations. Please reference the Tracking and Integrated Logging System (TAILS) database for all Intra-Service consultation numbers for Wichita Mountains Wildlife Refuge. Some of the more recent consultations include prescribed burning on various units on the Refuge. All habitat management activities proposed in the CCP are specifically geared to benefit endangered and threatened species, as well as other Federal trust resources. CCP wildlife and habitat goals, objectives, and strategies are also aimed at protecting, increasing, and enhancing Refuge habitats in a holistic, ecosystem-based approach.

Black-capped vireo: Black-capped vireos utilize the Refuge and its associated habitat for nesting from about April 15th until August 15th. The proposed action will likely affect black-capped vireos and their nesting habitat. All prescribed burns will be conducted after August 1st and before April 15th to minimize impacts to nesting black-capped vireos. Depending on the intensity of the burn, some nesting habitat can be expected to be temporarily set back or lost, but periodic fires are required to maintain suitable nesting habitat. Considering the successive stage of the area, there is not a sufficient quantity of fine fuels to carry a hot fire which would adversely affect a major portion of the available nesting habitat. What habitat is affected will be expected to return to acceptable habitat within a two year time frame. It is expected that this unit will require a minimum of three burn rotations, moderate and intense, to achieve a stage where regularly scheduled maintenance burns can maintain it at objective levels desired. The proposed fire and habitat management actions in the CCP are intended to improve black-capped vireo nesting habitat.

*Public Use*

The CCP proposes to maintain visitation at or near the ten year average of 1.5 million visitors a year. The Refuge will also continue to provide all six wildlife-dependent recreational uses: hunting (for deer and elk), fishing (on 12 lakes), wildlife observation, photography, interpretation, and environmental education. Wildlife-dependent recreational activities such as hunting, fishing, wildlife observation, and photography will occur in already established public use areas. We will also continue to manage other outdoor recreational activities, such as hiking, camping, and rock climbing, to avoid or minimize potential impacts on black-capped vireos. The CCP does not propose opening up any new areas to new public uses. Thus, we expect proposed recreational management actions in the CCP to render minimal, if any, impacts on the vireos.

*Facilities and Access Management*

The proposed action includes maintenance and/or upgrading access roads, buildings, trails, visitor parking areas and other improvements, but these are not proposed in areas that would adversely affect listed species or critical or other listed species habitats.

**B. Explanation of actions to be implemented to reduce adverse effects:**

In order to reduce adverse affects, none of the activities in the CCP are proposed to be carried out within the black-capped vireo prime nesting season. Any prescribed burns, mechanical vegetation disturbance, invasive or exotic species control, or use of chemicals to treat invasive plant species will follow specific guidance established in the specific consultations and guidelines for those actions. All adverse effects related to prescribed burns and control of wildfires would be temporary and are addressed in a programmatic formal consultation completed in 2009. Burns are necessary to manage and enhance black-capped vireo habitat and minor adverse effects related to burns and wildfires are unavoidable. All adverse effects and potential take are

addressed in the 2009 programmatic biological opinion for the refuge's prescribed fire program. Regardless, surveys will be undertaken to determine the presence of listed species potentially occurring on the Refuge in areas planned for prescribed burns or vegetation disturbance activities related to actions proposed in this CCP. If listed species are found, the Refuge will change or alter management activities so as not to disturb or affect the species, or consult with the Tulsa Ecological Services Field Office (ESFO) prior to undertaking such actions to determine the appropriate course of action in order to adequately address any listed species concerns. Public use activities, such as hunting, fishing, and wildlife observation, will only be allowed in established pre-designated areas, seasons, and times.

The Refuge is working to develop a thorough updated database of the flora and fauna of the Refuge's biotic communities through baseline surveys. These updates should augment the Refuge's sensitive species mandates to provide timely management and protections if, in the future, additional listed species are documented on the Refuge.

As a working document, modifications to the objectives and strategies are anticipated. If modifications result in changes to the effects analysis, or include actions that are not considered in this document, the Refuge will re-initiate consultation or consult with the Tulsa ESFO over a particular action that may affect federally listed species and/or critical habitat.

## VIII. Effect determination and response requested: [* = optional]

**A. Listed species/designated critical habitat:**

| Determination | Response Requested |
|---|---|
| No effect on species/critical habitat (species: whooping crane, piping plover, interior least tern) | __X__ Concurrence |
| May affect, but is not likely to adversely affect species /critical habitat (species: black-capped vireo) | _____Concurrence |
| May affect, is likely to adversely affect species /critical habitat (species: black-capped vireo) but all adverse effects and potential take have been addressed in an existing formal consultation (2009 biological opinion) | __X__Concurrence |

**B. Proposed species/proposed critical habitat:**

| Determination | Response Requested |
|---|---|
| No effect on proposed species/critical habitat (species: n/a) | ____ Concurrence |
| Is not likely to jeopardize proposed species/ adversely modify proposed critical habitat (species: n/a) | _____ Concurrence |
| Is likely to jeopardize proposed species/ adversely modify proposed critical habitat (species: n/a) | ____ Conference |

**C. Candidate species:**

| Determination | Response Requested |
|---|---|
| No effect on candidate species (species: lesser prairie chicken) | __X__ Concurrence |
| Is not likely to jeopardize candidate species (species: n/a) | ____ Concurrence |
| Is likely to jeopardize candidate species (species: n/a) | _____Conference |

Tony Booth
*Refuge Manager, Wichita Mountains Wildlife Refuge*

March 8, 2012
Date

**IX. Reviewing ESO Evaluation:**

**A. Concurrence** X **Non-Concurrence**_____

**B. Formal Consultation Required**_____

**C. Conference Required**_____

Luke Bell 4/16/12

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# D. Wichita Mountains Wildlife Refuge Invasive Species

## AQUATIC PLANTS

### Brazilian Waterweed (*Egeria densa*)

Description: On the Refuge, Brazilian waterweed, or Brazilian elodea, has been reported in Rush Lake. Brazilian waterweed fragments easily, and roots or stems can develop where double nodes have formed. This native of South America can choke and clog waterways with large mats of vegetation (Diggs et al. 1999). Brazilian waterweed reproduces primarily through vegetative means in the United States (United States Department of Agriculture 1971). Brazilian waterweed has finely serrated leaves that are usually less than one inch long and occur in whorls of three to six. The flowers, which bloom above the surface of the water, are white with three petals. Often confused with hydrilla *(Hydrilla verticillata),* Brazilian waterweed has a smooth midrib on the underside of the leaf, whereas hydrilla has small teeth on the underside. Brazilian waterweed invades both still and flowing water ecosystems, including lakes, ponds, ditches, and rivers. It can form dense stands that crowd out native vegetation and reduce the area's value as fish habitat. It can also interfere with recreational activities such as fishing and swimming. Brazilian waterweed was first introduced into the United States in the late 1800s as an aquarium plant (National Vegetation Classification Standard 2008).

### Parrotfeather Watermilfoil (*Myriophyllum aquaticum*)

Description: Also known as Brazilian watermilfoil, parrotfeather watermilfoil originated in South America. Parrotfeather watermilfoil is an herbaceous, rooted, submerged/emergent plant that invades aquatic habitats throughout much of the United States. Stems are stout and blue-green in color. Leaves are abundant, whorled, pinnately compound, and finely dissected. Submersed leaves are 0.6-1.4 inches long and have 20 to 30 divisions per leaf. Emergent leaves are 0.8-2 inches long, less divided and greener than the submersed leaves. As only female plants occur in North America, reproduction occurs vegetatively. Inconspicuous flowers are formed in the axils of the emergent leaves in the spring (sometimes fall). Parrotfeather watermilfoil is found in lakes, ponds, and slow moving streams where it can form dense mats of vegetation. Parrotfeather watermilfoil was first introduced into the United States in the Washington D.C. area around 1890 as an aquarium and aquatic garden plant (National Vegetation Classification Standard 2008). Infestations of this plant can choke streams and cause flooding of nearby lands. The brittle nature of the stems results in many stem fragments that root easily in moist soil and establish new colonies. It is easily spread by boats and equipment and through water flow (Madsen and Wersal 2010).This plant is found throughout many of the Refuge’s lakes and ponds in the public use area.

### Eurasian Watermilfoil (*Myriophyllum spicatum*)

Description: Eurasian watermilfoil is a submersed aquatic plant that invades lakes, ponds, and other aquatic environments throughout the United States. The plants are rooted, and the stems grow up to the water surface, usually reaching 3 to 10 feet in length; however, they can be as much as 30 feet long. Eurasian watermilfoil forms dense mats of bright green, finely dissected, whorled leaves. The delicate leaflets give this plant a feathery appearance. Eurasian watermilfoil requires stagnant to slowly moving water and can tolerate brackish conditions. Once established,

the dense mats of leaves restrict light availability, leading to a decline in the diversity and abundance of native macrophytes. In addition, Eurasian watermilfoil displaces the native species of watermilfoil and reduces habitats for fish spawning and feeding. This plant impedes water traffic and prevents light penetration, which is necessary for the survival of other aquatic plants. A relatively new invader, Eurasian watermilfoil was introduced in the 1940s from Eurasia and Africa (National Vegetation Classification Standard 2008). Most reproduction occurs vegetatively through rhizomes and fragmented stems (Remaley 2005). On the Refuge, this plant is found in some of lakes in the public use area.

### Curlyleaf Pondweed (*Potamogeton crispus*)

Description: Curlyleaf pondweed, curly cabbage, or crisp pondweed is a rhizomatous perennial herb producing a flattened, branching stem up to three feet long. The plant originated in Eurasia and reproduces through seed production and vegetatively. The leaves are linear or oblong in shape and are distinctive for their ruffled or wavy, serrated edges (resembling lasagna noodles). The inflorescence is a short spike of flowers emerging above the water surface (Rose 1981). Flowering occurs in the summer to early fall, when emergent flowers develop. Flowers are brown, inconspicuous, and wind pollinated. Fruits are flat with a pointed beak and are 0.2 inches long. In the mid-summer, plants form turions (vegetative buds), from which new growth starts in fall or winter. Curlyleaf pondweed tolerates fresh or slightly brackish water and can grow in shallow, deep, still, or flowing water. Plants can grow in clear or turbid water but are mostly shade intolerant. Plants were introduced to the United States, possibly as a hitchhiker on boats, in the mid-1800s (National Vegetation Classification Standard 2008). Buds and seeds are a common feed for waterfowl, which speeds up the spread of this invasive. On the Refuge, curlyleaf pondweed occurs in the Lost, French, and chain-of-lakes.

## FORBS

### Storksbill (*Erodium cicutarium*)

Description: Storksbill, or redstem filaree, is an annual plant that reproduces by seeds. This plant originated in Eurasia but is found worldwide (Whitson et al. 2001).Stems can be upright or trailing and grow from one to six feet long. Stems are reddish in color and have many fine hairs. Leaves are hairy, divided into feathery lobes or toothed segments, and can grow to one foot long. Seedlings have three-lobed cotyledons. Flowers have five petals, and their color ranges from pink to purple. Flowers (usually two or more) are borne on umbrella-like clusters at the end of long, slender stalks. Plant ovaries have long (one- to two-inch) styles (‘beaks’ or ‘stork’s bills’) that coil at maturity and envelope the seed at their base. The styles uncoil in moist weather, driving the seed into the ground (Alberta Invasive Plant Council 2010). On the Refuge, this plant is found in disturbed and highly developed areas.

### Prickly Lettuce (*Lactuca serriola*)

Description: Prickly lettuce is found throughout southwest Oklahoma, usually in roadside ditches. This plant reproduces from seed, usually flowering from July to September (Stubbendieck et al. 1995). The principal stem is one to five feet tall, with cauline leaves (on the stem) alternate, and is 2-14 inches long. Leaves have a conspicuous, white midvein, with the underside of the vein covered with many prickles. In the mid-to-late summer, one-half inch wide, yellow flowers develop in a branched inflorescence at the apex of the stem. Flowers produce

dandelion-like seeds. Prickly lettuce is native to the Mediterranean region and was accidentally introduced into North America in the late 1890s, possibly as a contaminant in seed (National Vegetation Classification Standard 2008). This plant is found sparingly on Refuge lands along roadsides, the Holy City, Mt. Scott, and Lake Elmer Thomas.

**Henbit (*Lamium amplexicaule*)**

Description: Henbit is a common lawn pest that has purplish-pink flowers that are tubular and five-lobed. This plant flowers from March to May and reproduces by seed. The leaves are opposite with simple blades, orbicular to broadly ovate, margins crenate and lobed, surfaces variously pubescent, venation palmate, lower blades petilate, upper blades sessile and clasping, often purplish in color. Henbit can grow to a height of 15 inches (Stubbendieck et al. 1995). The stems of henbit are decumbent, with numerous ascending branches, frequently rooting at the lower nodes (United States Department of Agriculture 1971). This invasive plant occurs in disturbed areas of the Refuge around facilities or developed areas.

**Sericea Lespedeza (*Lespedeza cuneata*)**

Description: Sericea lespedeza is also known as Chinese lespedeza, although ironically it was introduced from Japan (Miller et al. 2010). This highly invasive plant is a leguminous, nitrogen-fixing plant that is a high priority for treatment in the Refuge. Sericea lespedeza is an upright semi-woody forb reaching three to six feet in height with one to many slender stems. Leaves are thin, alternate, abundant, and three-parted. Leaflets have wedge-shaped bases and are 0.5-1 inches long and hairy. Flowering occurs from mid-summer to fall, when small, creamy-white flowers with purple throats develop in clusters of two to four (National Vegetation Classification Standard 2008). Sericea lespedeza does resemble a native plant, slender lespedeza (*Lespedeza virginica*); though sericea lespedeza occurs in large infestations, while slender lespedeza occurs as individual plants. Once established, sericea lespedeza is very difficult to remove due to the seed bank, which may remain viable for decades. Sericea lespedeza has been widely planted for erosion control, mine reclamation, and wildlife habitat. Sericea lespedeza is found in several areas of the Refuge, mainly in the Public Use Area.

**Black Medic (*Medicago lupulina*)**

Description: Black medic is an annual legume that reproduces entirely by seed and produces small, bright yellow flowers (Whitson et al. 2001). This plant is said to be entirely naturalized throughout the United States (United States Department of Agriculture 1971). Black medic is constructed as multi-branched, slender, prostrate, slightly hairy stems spreading one to two feet. It has a deep tap root and spreads low to the ground, but it does not root from nodes on the stems. The leaf is similar to clover and other legumes, having three leaflets. Black medic's center leaflet is on a separate petiole. Each black medic plant is capable of producing very large amounts of seed. The cotyledon is oblong and measures one-half to one inch long. This is the first true leaf found on a single stalk, followed by leaves that consist of three leaflets that arise from a common point. The stems of a mature black medic plant are prostrate and hairy, and they radiate out from the taproot. Compound leaves are alternate, with wedge to oval-shaped leaflets. Leaflets have toothed margins, are widest at the apex, and have a projecting tip in the center of the leaf. Stipules are present at the base of the petioles. The fruit of black medic is kidney-shaped, one-seeded black pod, one-quarter inch long and hairy (Schulke 2009). On the Refuge, black medic has been reported near Quanah Parker Lake and on roadsides.

### Yellow Sweetclover (*Meliotus officinalis*)

Description: Yellow sweetclover is an annual to short-lived perennial herb native to Eurasia. Plants can grow to approximately 6.5 feet and can sometimes be woody at the base. Leaves are ovate to oblong, entire, stipulate, and 0.4-1 inches long. Flowering occurs from April to September, when yellow, pea-like flowers develop in a branched inflorescence at the tips of the flowering stems. Flowers are less than one-quarter inch long. Fruits are small, circular, and wrinkled; light brown pods usually contain one seed. Plants occur along roadsides and in open fields, pastures, and other disturbed areas. Yellow sweetclover was introduced into North America as a forage crop in the 1900s (National Vegetation Classification Standard 2008). Yellow sweetclover reproduces by seeds and occurs on the roadside in Mt. Scott canyon, near Headquarters, and on Meers road. Yellow sweetclover is almost identical to white sweetclover (*Meliotus alba*), with the exception of the color of the flowers, seed pods, and size (Stubbendieck et al. 1995). This species is known to have caused sweetclover poisoning in cattle (Diggs et al. 1999).

### White Sweetclover (*Meliotus alba*)

Description: White sweetclover is of taller stature than the closely related yellow sweetclover (*Meliotus officinalis*) and has dark brown or black legumes (Stubbendieck et al. 1995, Tyrl et al. 2008). White sweetclover has an erect, branched, glabrous or glabrate stem, three to nine feet high, with serrated, narrowly obovate to oblong leaflets that are truncate or emarginate. It is the only white-flowered sweetclover in the Midwest and Great Plains. The corolla is long; the fruit is one inch long and somewhat reticulate (Eckardt 2004). On the Refuge, both yellow and white sweetclover usually invade the same roadside areas near Headquarters and the Mt. Scott canyon. White sweetclover is also known to cause sweetclover poisoning in cattle (Diggs et al. 1999).

### Catnip (*Nepeta cataria*)

Description: Catnip is a native of Europe and is found scarcely within disturbed areas of the Refuge. The leaves of catnip are opposite, simple, and heart-shaped, margins coarsely serrate, with the lower surface more densely hairy than the upper surface. The stems are erect to ascending, one to several, branches ascending, grayish to white pubescent to subtomentose. Catnip can grow to a height of three feet. The flower is white with a pinkish tinge and reddish-violet to purple markings that are one-half inch long, with the tips gradually tapering to a point. When the leaves are crushed, leaf glands produce a volatile oil with a minty odor that cats find irresistible (Stubbendieck et al. 1995).

### Prostrate Knotweed (*Polygonum aviculare*)

Description: This member of the buckwheat family grows from one to three feet tall with wiry corrugated stems that are enlarged at each joint and grow along the ground. Leaves are hairless, alternate, and lance-shaped to oblong, .5-2.5 inches long and one-eighth to one-third inch wide with silvery papery sheaths at each node (Whitson et al. 2001). Prostate knotweed reproduces by seeds and flowers from July to November (United States Department of Agriculture 1971). The flowers are small and pink, occurring in clusters along the flower stems at leaf axils (Whitson et al. 2001). This European plant is found in highly developed areas of the Refuge.

### Dullseed Cornbind (*Polygonum convolvulus*)

Description: Dullseed cornbind is also known as black bindweed or wild buckwheat. Dullseed cornbind flowers from June to September as a greenish-white perianth and reproduces by seed (Stubbendieck et al. 1995). This plant grows from a hard, black, triangular seed about one-eighth of an inch long. The cotyledons are narrow with a rounded tip and base. The plant has long, slender, creeping stems that trail along the ground or climb any plants or objects they contact. The leaves are alternate, heart- or arrowhead-shaped, pointed at the tip, and have widely separated lobes at the base. Flowers are located in short-stemmed clusters in the axils of the leaves or at the end of stems. Like other smartweeds, dullseed cornbind possesses an ocrea (thin membrane) around the stem at each node (Angvick and Schat 2009). This invasive plant of European descent occurs sparingly on Refuge lands, mainly along roadsides.

### Curly Dock (*Rumex crispus*)

Description: Curly dock occurs in marginally disturbed areas, usually along roadsides throughout the Refuge, and can be classified as naturalized in Oklahoma. This perennial plant of Eurasian descent can grow from two to five feet tall (Whitson et al. 2001). Curly dock reproduces vegetatively and through seed production. Flowers are green, becoming reddish-brown with maturity with a calyx of six sepals, three inner sepals enlarged and heart-shaped. The leaves are alternate, mostly basal, blades simple, oblong-lanceolate to linear-lancelolate or nearly heart-shaped 6 to 12 inches long. The leaf tips are pointed, margins wavy-curled (crisped), and surfaces hairless and smooth, with a single prominent midvein. The stem of curly dock can be single or in groups and is unbranched (Stubbendieck et al. 1995).

### Prickly Russian Thistle (*Salsola tragus*)

Description: Prickly Russian thistle, or tumbleweed, was first introduced in the late 1800s from Russia. Prickly Russian thistle is an annual herb that can grow up to four feet tall. Leaves are alternate and narrow. Upper leaves have a sharp point at the apex and are 1.3-2 inches long. Flowering occurs from mid-summer to fall, when small, pink to greenish flowers develop from the leaf axils. Each flower is subtended by three, spine-tipped leaves (National Vegetation Classification Standard 2008). Prickly Russian thistle is known for its ability to break off at ground level and distribute seeds as the plant is blown by the wind. This plant is much more problematic in drier regions and only occurs on the Refuge in a few areas (Whitson et al. 2001).

### Yellow Goat's Beard (*Tragopogon dubius*)

Description: Yellow goat's beard or yellow salsify is native to Eurasia and occurs along roadsides in the Refuge. This plant grows from one to three feet tall and has a seed head that resembles a large dandelion (Whitson et al. 2001). Yellow goat's beard reproduces by seeds, flowering from May to July (Stubbendieck et al. 1995). Yellow goat's beard grows most commonly as a biennial dicot plant but is occasionally found as an annual or perennial. A mature yellow goat's beard is anchored by a long fleshy taproot from which a multi-branched stem arises. This multi-branched stem gives the plant a bushy appearance. Branches terminate in one or more distinctive yellow flowers with long narrow bracts extending beyond the ray flowers. The flower is supported by a hollow, conical peduncle. As flowers mature, they produce a large plume of seeds. Leaves are grass-like, long, narrow, and glabrous. Cotyledons are light green in color and mostly glabrous except for a few short hairs on the margin and soft long hairs at the

base of the leaves. The first season of growth produces only a rosette. As yellow goat's beard grows the following spring, leaves grow in an alternate arrangement; they are stalkless, hairless, and clasp the stem. Leaves are tapered from base to tip and are up to one foot long. Flower heads are relatively large and yellow in color (Erikson 2009).

### Common Mullein (*Verbascum thapsus*)

Description: Common or flannel mullein is a biennial forb that produces a rosette the first year and a single stem from two to seven feet tall in the second year of growth. Basal leaves are 4-12 inches long, one to five inches wide, and covered with woolly hairs. Flowering occurs in June to August, when five-petaled, yellow flowers develop at the apex of the shoot. Cauline (stem) leaves are decurrent, alternate, and decrease in size towards the apex. The fruit is an ovoid capsule that splits, releasing many seeds that germinate in water. Common mullein is native to Eurasia and Africa and was introduced to North America in the mid-1700s as a fish poison (National Vegetation Classification Standard 2008). On the Refuge, common mullein occurs near the Comanche and Grama lakes, chain-of-lakes, and around Quanah Parker Lake. This plant reproduces through seed production (Whitson et al. 2001).

### Speedwell (*Veronica arvensis*)

Description: Speedwell, or corn speedwell, is an annual forb with light blue to violet flowers. The plant originated in Eurasia and reproduces through seed production. The leaves are opposite, blades simple, lower blades broadly-ovate, rounded at the tip, two to four blunt teeth on each side, palmately veined, pubescent, lower leaves on short petioles, upper leaves sessile (Stubbendieck et al. 1995). The stems of this plant are prostrate, creeping along the ground and rooting at nodes (United States Department of Agriculture 1971). On the Refuge, speedwell occurs in highly disturbed areas near the corrals.

## GRASSES

### Jointed Goatgrass (*Aegilops cylindrical*)

Description: Jointed goatgrass is a winter annual which closely resembles winter wheat (*Triticum aestivum*). This plant was brought into the United States in the late 19$^{th}$ century. Jointed goatgrass can reach four feet in height with alternate leaves up to one-half inch wide with thin hairs along the margins, sheath openings, and auricles. The ligule is short and membranous. Flowering occurs in May to June, when the plants produce red (when mature) or straw-colored spikes. Spikes are cylindrical and contain 2-12 spikelets per spike. The uppermost spikelets have extremely long awns. Jointed goatgrass is native to southern Europe and western Asia (National Vegetation Classification Standard 2008). Under typical field conditions with adequate moisture, one plant can produce about 130 seeds, but isolated plants can produce as many as 3,000 seeds. Seed can remain viable under field conditions for three to five years, with viability declining rapidly in moist soils due to increased microbial degradation. Soil compaction appears to enhance germination and emergence. Some seed can survive ingestion by cattle (Donald and Ogg 1991, North American Plant Protection Organization 2003). On the Refuge, jointed goatgrass is usually observed on dirt roadways and in disturbed sites of heavy livestock traffic near the corrals.

### Old World Bluestem (*Bothriochloa ischaemum*)

Description: Old World bluestem, also known as plains bluestem, yellow bluestem, or King Ranch bluestem, may be the most hazardous invasive plant on the Refuge. Old World bluestem is native to Asia, although several varieties have been produced for forage production. Evidence suggests that that this plant will competitively exclude other grass species (Schmidt et al. 2008). This perennial grass has cauline leaves, with blades flat or slightly revolute and upper and lower surfaces glaberous. Old world bluestem can be readily recognized by its yellowish color, and the arrangement of rames that spread that give a fan-shaped inflorescence at maturity (Tyrl et al. 2008). The seedheads are less hairy than native bluestems. Old World bluestem initiates growth in late spring and reproduces through seeds, tillers, and occasionally stolons and rhizomes (Hatch and Pluhar 1993). The bulk of Old World bluestem infestation is on roadsides throughout the public use portion of the Refuge. However, there has been a noticeable migration from the roadside to otherwise intact prairies along the roadways. The treatment of this plant is very difficult because it outcompetes native plants following a disturbance event.

### Field Brome (*Bromus arvensis*)

Description: Field brome is also known as Japanese brome or chess. Field brome is recognized by its one-sided, nodding panicles and its glabrous lemmas (Tyrl et al. 2008). A close relative to field brome includes cheatgrass (*Bromus secalinus*), which also occurs on the Refuge. These closely related grasses may be difficult to distinguish in the field because they often hybridize. Field brome originated in Europe and has one of the largest distributions on the Refuge. However, this winter annual is short lived and usually sparsely populates mixed-grass prairies (Stubbendieck et al. 1995).

### Rescuegrass (*Bromus catharticus*)

Description: Rescuegrass, or prairiegrass, was introduced from South America. Rescuegrass is one of the first brome grasses to flower in the spring (Tyrl et al. 2008). This plant earned its common name for coming to the rancher’s rescue following winter or drought. The seedheads of this plant droop and are flattened. Leaves are basal and cauline, sheaths glabrous to puberulent, margins fused, blades 3/16 to 5/16 inches in width and glabrous to puberulent (Hatch and Pluhar 1993). Rescuegrass is found in areas of frequent soil disturbance on the Refuge.

### Bald Brome (*Bromus racemosus*)

Description: Bald or meadow brome is an annual grass that occurs in a few places on the Refuge. Bald brome grows from one to two feet tall, with racemes composed of long spikelets. The stem is erect or decumbent at the base. Leaf blades are sparsely to densely pubescent or short-pilose; the hairs usually retrorse. This plant hybridizes with cheatgrass and field brome, which may make it difficult to identify (United States Department of Agriculture 1971). Bald brome was introduced to the United States from Europe, Northwest Africa, and Southwest Asia (Hitchcock 1971). This grass has also been known as *Bromus commutatus* or hairy chess.

### Cheatgrass (*Bromus tectorum*)

Description: Cheatgrass originated from Eurasia and was first introduced into the United States accidentally in the mid 1800s. It is also known as downy brome, wild oats, and military grass, and it is a common contaminant of commercially available seed. Cheatgrass reaches a height of 4

to 30 inches (Whitson et al. 2001). The leaves and sheaths are covered in short, soft hairs. The flowers occur as drooping, open, terminal clusters that can have a greenish, red, or purple hue. Flowering occurs in the early summer. These annual plants will germinate in fall or spring (fall is more common), and senescence usually occurs in summer. Cheatgrass invades rangelands, pastures, prairies, and other open areas. Cheatgrass has the potential to completely alter the ecosystems it invades. It can completely replace native vegetation and change fire regimes. It occurs throughout the United States and Canada but is most problematic in areas of the western United States with lower precipitation levels (National Vegetation Classification Standard 2008). Cheatgrass can cause injury or illness in livestock and pets due to sharp, barbed, mature seeds that penetrate skin and travel through the body, causing infection. A condition known as lumpy jaw occurs in cattle grazing on mature cheatgrass, and severe eye injuries also are caused by cheatgrass seeds (Stubbendieck et al. 1995). Mature cheatgrass is very flammable and has caused increased fire size and frequency in western states. It has broad ecological amplitude and is able to thrive in dry areas (Whitson et al. 2001). Cheatgrass occurs in association with field brome (*Bromus arvensis*) and is widespread across the Refuge.

**Bermudagrass (*Cynodon dactylon*)**

Description: Bermudagrass is known as a popular turf grass, but the same qualities that make it a good choice for lawns can make it detrimental to the natural environment. Bermudagrass is a wiry perennial with long, slender, creeping rhizomes and stolons (Whitson et al. 2001). Bermudagrass is a perennial grass that occurs on almost all soil types. This grass spreads by above ground and underground runners. Leaves are gray-green and 1.5-5.9 inches long. The ligule has a ring of white hairs. Flowering occurs in late summer; flowers occur on one- to three-inch spikes. Bermudagrass is native to eastern Africa and prefers moist and warm climates with high light (National Vegetation Classification Standard 2008). Whether introduced accidentally or deliberately, Bermudagrass is found in the Refuge's developed areas, roadsides, and earthen dams.

**Orchardgrass (*Dactylis glomerata*)**

Description: Orchardgrass is a cool season perennial grass native to Europe and Asia that grows up to four feet tall (Stubbendieck et al. 1995). The leaves of orchardgrass are 4-16 inches long and one-tenth to one-half inch wide with a bluish hue. The flowers occur in a panicle with spikelets in a compact cluster on one side of the rachilla. Orchardgrass was first introduced to the United States in the late 1700s (National Vegetation Classification Standard 2008). This grass prefers shaded, fertile sites and is preferred by livestock (Coffey and Stevens 2004). This invasive grass reproduces by seed (Hitchcock 1971) and occurs in highly disturbed areas of the Refuge.

**Barnyardgrass (*Echinochloa crus-galli*)**

Description: Barnyardgrass is a summer annual that propagates by seed and grows from one to three feet tall. This native of Europe inhabits areas of disturbance in the Refuge, mainly in the public use area. The inflorescense consists of a panicle, upright or nodding, consisting of 5-12 raceme-like branches from the main branch, with spikelets arranged on one side of each branch. The leaf blades are flat and 4-16 inches long, without hair but rough to the touch, margins often saw-toothed and veins prominent (Stubbendieck et al. 1995). The Latin name "*Echinochloa"*

means hedgehog-grass and refers to the seeds of barnyardgrass, which are covered with bulbous-based hairs and resemble a hedgehog (Hatch and Pluhar 1993).

**Stinkgrass (*Eragrostis cilianensis*)**

Description: Stinkgrass, or Stines grass, is an annual grass from Eurasia. It flowers from July to September and produces abundant seeds (Whitson et al. 2001). Stinkgrass is low growing and has an ovate shaped inflorescence with ascending branches (Coffey and Stevens 2004). Each spikelet in the panicle contains many florets. Hairs occur at the throat of the sheath; otherwise the leaves are usually hairless. The leaf blade is up to eight inches long and flat to somewhat involute with warty glands on margins and backsides (Stubbendieck et al. 1995). This odorous grass occurs in the Refuge in areas with frequent soil disturbance.

**Dallisgrass (*Paspalum dilatatum*)**

Description: Dallisgrass is a warm season perennial grass that was introduced to the United States from South America. This plant has flower stems branched with spikelets arranged on one side and reproduces primary through seed production (Stubbendieck et al. 1995, Whitson et al. 2001). Dallisgrass possess a decumbent graminoid growth habit and is strongly tufted, leafy, and deep-rooted. Dallisgrass is a bunch-type grass that contains ascending to sub-erect culms that range in height from one to three feet tall. Numerous basal leaves emerge from a knotted base that is composed of very short rhizomes. Leaves are rolled in the bud. Leaf blades are flat, prostrate or ascending, and are 4 to 10 inches long. They are glabrous except for limited pubescence at the collar. Mature sheaths are normally overlapping, strongly compressed, and glabrous, and they contain a prominent midvein. The collar is broad, continuous, and often contains long hairs at the edges. Seedling leaves are narrow and rolled in the bud. They contain large, membranous ligules with rounded tips. First leaves may be softly hairy, but most are glabrous except at the collar. First leaf sheaths are compressed with a prominent midvein and are softly hairy. Mature plants produce short rhizomes, but their vegetative spread rate is slow. Dallisgrass is dormant during winter months. However, plants regrow earlier in spring and persist later in the fall than most other warm season perennial grass species (Abernathy 2009). Dallisgrass occurs in developed areas of the Refuge.

**Canada Bluegrass (*Poa compressa*)**

Description: Also known as clammy weed, Canada bluegrass is a perennial that is closely related to Kentucky bluegrass (*Poa pratensis*) (Stubbendieck et al. 1995). This European native has been cultivated for pastures with poor soil (Hitchcock 1971). Maximum height at maturity is two feet tall. The leaf blade is one to five inches long and up to a one-quarter inch wide. The ligule can be either membranous or truncate up to one-quarter inch long. The sheath is strongly compressed and keeled. It has a panicle inflorescence with a narrow panicle, one to three inches long and up to 1.5 inches wide. The spikelet is often subsessile or pedicelled and up to one-quarter inch long. All plants have disarticulation above the glumes and between the florets. The glumes are five-nerved, softly hairy on the keel and marginal nerves, along with long crinkled hairs at the base. Canada bluegrass is well adapted to acidic, droughty, infertile soils. It reproduces with rhizomes and seed germination (Smith 2010). This weed occurs sparingly in a few disturbed areas in the Refuge.

### Meadow Fescue (*Schedonorus pratensis*)

Description: Meadow or suiter fescue can grow up to 3.5 feet tall. This European plant reproduces by seeds. Meadow fescue contains glabrous auricles and solitary panicle branches that distinguish it from tall fescue (*Schedonorus arundinaceus*) (Tyrl et al. 2008). Meadow fescue is a loosely to densely tufted perennial grass (Knobel 1980). Culms are 12 to 47 inches long and may be erect or spreading. Leaf blades are flat and up to 18 inches long. The panicle is four to eight inches long with one-half to one-inch spikelets. The fruit is a caryopsis. Seeds usually lack awns (Stone 2011). This grass species occurs in the Refuge sparingly along roadsides and disturbed areas.

### Green Bristlegrass (*Setaria viridis*)

Description: Green bristlegrass is also known as green foxtail or bottlegrass. This plant was introduced from Europe and occurs in disturbed areas of the Refuge. This annual plant has a characteristic seed head that resembles a bushy fox's tail (United States Department of Agriculture 1971). Green bristlegrass grows from one to three feet tall (Whitson et al. 2001). This introduced grass branches at the base to form a small tuft of leafy culms. In open areas, the slender culms are erect, ascending, or widely spreading; they are 1.5-2 feet long, terete, light green, and hairless. The blades of the alternate leaves are up to six inches long and one-half inch across; they are light to medium dull green and hairless. Their margins are usually flat and entire, occasionally curving upward and becoming minutely wavy. The open sheaths are light to medium green like the leaves, but slightly shinier; they wrap around the culms loosely. Each culm terminates in a spike-like panicle of florets about two to four inches long and one-half inch across. The light green panicle has a dense and cylindrical appearance; it is either straight or slightly nodding. The exterior of each panicle is surrounded with ascending bristles that are light green or purple. The blooming period can occur from late spring to early fall, but lasts only one to three weeks for each plant (Hilty 2010).

### Johnson grass (*Sorghum halepense*)

Description: Johnson grass is a vigorous perennial grass with stems reaching up to 10 feet high, introduced from the Mediterranean region as a hay or forage crop. It thrives in disturbed soils and spreads by seed or creeping rhizomes. The 2 foot long, lanceolate leaves are arranged alternately along a stout, hairless, somewhat upward branching stem and have distinct, white midribs. Flowers occur in a loose, spreading, purplish panicle. The prolific seed production, extensive rhizome system, sprouting ability of fragmented rhizomes, and ability to grow in a wide range of environments make Johnson grass difficult to control (Whitson et al. 2001). Johnson grass is adapted to a wide variety of habitats, including open forests, old fields, ditches, and wetlands. It spreads aggressively and can form dense colonies that displace native vegetation and restrict tree seedling establishment. Johnson grass was first introduced into the United States in the early 1800s as a forage crop (National Vegetation Classification Standard 2008). Johnson grass occurs in the Refuge along roadsides and boundary fences and in disturbed areas near creeks.

## SHRUBS

### Multiflora Rose (*Rosa multiflora*)

Description: Multiflora rose is a multi-stemmed, thorny, perennial shrub that grows up to 15 feet tall, forming small to large infestations that often climb into trees. The stems are arching canes that are round in cross section and have stiff, curved thorns. Small, white to pinkish, five-petaled flowers occur abundantly in clusters on the plant in the spring. Fruit are small, red, rose hips that remain on the plant throughout the winter. Leaves are pinnately compound with seven to nine leaflets. Leaflets are oblong, 1-1.5 inches long, with serrated edges. The fringed petioles of multiflora rose usually distinguish it from most other rose species. Multiflora rose forms impenetrable thickets in pastures, fields, and forest edges. It restricts human, livestock, and wildlife movement and displaces native vegetation. Multiflora rose is native to Asia and was first introduced to North America in 1866 as rootstock for ornamental roses. During the mid 1900s, it was widely planted as a "living fence" for livestock control (National Vegetation Classification Standard 2008). This species spreads primary by animal dispersed seeds and colonizes by prolific sprouting and stems that root (Miller et al. 2010). On the Refuge, multiflora rose occurs near Headquarters area, along the chain-of-lakes, and near Holy City.

## TREES

### Tree-of-heaven (*Ailanthus altissima*)

Description: Tree-of-heaven, also known as ailanthus or Chinese sumac, is a deciduous tree that originated in China. This tree has large, compound leaves that are one to four feet in length, alternate, and composed of 10-41 smaller leaflets. Tree-of-heaven can grow up to 80 feet and quickly outcompete native species. Tree-of-heaven flowers in early summer, when large clusters of yellow flowers develop above the leaves. Fruit produced on female plants are tan to reddish, single winged, and wind- and water-dispersed. Tree-of-heaven resembles sumacs and hickories but is easily distinguished by the glandular, notched base on each leaflet and large leaf scars on the twigs. It is extremely tolerant of poor soil conditions and can even grow in cement cracks. Trees are not shade tolerant but thrive in disturbed forests or edges. Dense clonal thickets displace native species and can rapidly take over fields, meadows, and harvested forests. Tree-of-heaven was first introduced into North America in 1748 by a Pennsylvania gardener. It was widely planted in cities because of its ability to grow in poor conditions (National Vegetation Classification Standard 2008). This invasive reproduces through prolific seed production (up to 325,000 per tree per year) and vegetative sprouting (Swearington and Pannill 2009, Miller et al. 2010). On the Refuge, tree-of-heaven occurs in Hollis canyon and Holy City.

### Mimosa (*Albizia julibrissin*)

Description: Mimosa is a small tree that is 10 to 50 feet in height, often having multiple trunks. It has delicate looking, bi-pinnately compound leaves that resemble ferns. Flowering occurs in early summer when very showy, fragrant, pink flowers develop in groups at the ends of the branches. Fruit are flat, six-inch-long seed pods that develop in the late summer. Mimosa invades any type of disturbed habitat. It is commonly found in old fields, stream banks, and roadsides. Once established, mimosa is difficult to remove due to the long lived seeds and its ability to re-sprout vigorously (Miller et al. 2010). Mimosa is native to Asia and was first introduced into the United States in 1745 as an ornamental (National Vegetation Classification Standard 2008). On

the Refuge, mimosa occurs as small clusters of plants in Mt. Scott canyon and near French Lake, Holy City, and Treasure Lake Job Corps.

### Eastern Red Cedar (*Juniperus virginiana*)

Description: Eastern red cedar is a small evergreen tree, commonly 10 to 40 feet. Its bark is reddish brown, soft, fibrous, and shreddy. Leaves of adult branchlets are tightly appressed, broadly deltoid, obtuse or subacute, entire, and are up to three-quarters of an inch long. The berrylike cones are dark purple and glaucous when mature; they are one- or two-seeded and 0.25-0.4 inches in diameter. Eastern red cedar grows on a wide variety of soils, is drought tolerant, and has few natural pests. Its thin bark and oil-rich foliage ignites easily and is, therefore, not fire tolerant. Although it historically occurs in the Wichita Mountains, it can act as an invasive in poorly managed or extensively grazed pastures and rangelands, especially those with neutral pH soils. In some areas of the Refuge, this tree is actively invading prairie habitats, especially when fires are less frequent (Stubbendieck et al. 1995). Eastern red cedar occurs throughout the Refuge and was planted in the early 1900s for fence post material.

### Honey Mesquite (*Prosopis glandulosa*)

Description: Honey mesquite can be a shrub or tree ranging from 12 to 20 feet tall. It is typically found on plains and dry ranges. It is characterized by eight-inch, bean-like pods and three-inch spines occurring at large nodes on branches. The trunk may be up to 12 inches in diameter, with a taproot that can exceed the diameter of the trunk. Mesquite has smooth, brown bark that roughens with age. Narrow, bi-pinnately compound leaves two to three inches long are sharply pointed. They are yellowish green in color with oblong leaflets one-eighth inch wide and 1.25 inches long. Mesquite blooms in May, displaying one-quarter-inch-long fragrant, creamy yellow flowers in narrow three-inch clusters. The fruit is a flat, narrow, yellow-green pod up to eight inches long and ending in a point. Honey mesquite has spread throughout the southwestern United States as a result of overgrazing, and it is highly invasive. This plant may become invasive in some regions or habitats and may displace desirable vegetation if not properly managed. It is highly adapted to fire, and, following top-kill by fire, sprouts arise from underground buds that are dormant on an underground stem (Whitson et al. 2001). Honey mesquite can outcompete other native plants because it is capable of reaching water supplies far below the surface (Hatch and Pluhar 1993). Honey mesquite occurs throughout the Refuge.

### Black Locust (*Robinia pseudoacacia*)

Description: Black locust is a fast growing tree that can reach 40 to 100 feet in height at maturity. While the bark of young saplings is smooth and green, mature trees can be distinguished by bark that is dark brown and deeply furrowed with flat-topped ridges. Seedlings and sprouts grow rapidly and are easily identified by long paired thorns. Leaves of black locust alternate along stems and are composed of 7-21 smaller leaf segments called leaflets. Leaflets are oval to rounded in outline, dark green above and pale beneath. Fragrant white flowers appear in drooping clusters in May and June and have a yellow blotch on the uppermost petal. Fruit pods are smooth, two to four inches long, and contain four to eight seeds (Wiesler 2005). Black locust is native to the southeastern United States and eastern Oklahoma. It is generally not native to any part of the Wichita Mountains Wildlife Refuge. On the Refuge, this species was extensively planted after the Dust Bowl era because of its nitrogen fixing properties and as a shelterbelt

species. Black locust has spread from areas where it was planted onto prairie grassland (Tyrl et al. 2008). Black locust occurs throughout the Refuge.

**Saltcedar (*Tamarix chinensis*)**

Description: Saltcedar, or five stamen tamarisk, is a deciduous or evergreen shrub or small tree that may attain a height of 20 feet (Tyrl et al. 2008). Leaves are small, scale-like, gray-green in color, and overlap along the stem. The bark is smooth and reddish on younger plants, turning brown and furrowed with age. It typically grows along stream banks, irrigation ditches, and reservoirs. A single large plant can produce up to 500,000 seeds per year. These seeds are small and easily dispersed by wind. This species has one of the highest evapotranspiration rates of any groundwater dependent plant. As the infestation progresses, this species removes the water from the site, causing once-moist sites to become dry (Whitson et al. 2001). It can replace or displace native woody species such as cottonwood, willow, and mesquite that occupy similar habitats, especially when timing and amount of peak water discharge, salinity, temperature, and substrate texture have been altered by human activities. Saltcedar is a facultative phreatophyte, meaning that it can draw water from underground sources, but it can survive without access to groundwater once established. On the Refuge, saltcedar has been found on the boundary with Ft. Sill, near Quetone Point, and as a washed up individual plant in Charons Garden Wilderness Area.

**VINES**

**Field Bindweed (*Convolvulus arvensis*)**

Description: Field bindweed is a persistent, perennial vine of the morning-glory family, which spreads by rhizome and seed. Leaves are round to arrow-shaped, 1-2.25 inches long, and alternate. Flowering occurs in the mid-summer, when white to pale pink, funnel-shaped flowers develop. Flowers are approximately three-quarters to one inch across and are subtended by small bracts. Fruit are light brown and rounded. Each fruit contains two seeds that are eaten by birds and can remain viable in the soil for decades. Stems can grow to five feet or longer, and its underground rhizomes may reach 10 feet long. Field bindweed begins growing in the late spring or early summer and may persist until the first frost (Lyons 1998). Plants typically inhabit roadsides and grasslands and also grow along streams (National Vegetation Classification Standard 2008). Field bindweed was introduced into North America as a contaminant in crop seed as early as 1739 (Whitson et al. 2001). Field bindweed was introduced from Europe and occurs mainly along road shoulders on the Refuge and occasionally in other areas of soil disturbance.

**Japanese Honeysuckle (*Lonicera japonica*)**

Description: Japanese honeysuckle is a semi-evergreen woody vine that can climb up to 80 feet long. This vine was introduced from Japan through England in the early 1800s (Miller et al. 2010). Leaves are opposite, sessile, pubescent, oval and 1-2.5 inches long. Flowering occurs from April to July; when showy, fragrant, tubular, whitish-pink to yellow flowers develop in the axils of the leaves. Fruits develop in the fall and are small, shiny black berries. Japanese honeysuckle reproduces through seeds and underground rhizomes, with stems freely rooting at the nodes (United States Department of Agriculture 1971). Japanese honeysuckle invades a variety of habitats, including forest floors, canopies, roadsides, wetlands, and disturbed areas.

Japanese honeysuckle can girdle small saplings by twining around them, and it can form dense mats in the canopies of trees, shading everything below. Japanese honeysuckle has been planted widely throughout the United States as an ornamental, for erosion control, and for wildlife habitat (National Vegetation Classification Standard 2008). On the Refuge, Japanese honeysuckle occurs in an area near the Holy City.

**Puncturevine (*Tribulus terrestris*)**

Description: Puncturevine, also called goathead, grows prostrate branches from the base and forms mats. Leaves are opposite, hairy, one to three inches long, and divided into 8-18 oblong leaflets. Flowering occurs from mid-summer to frost, when five-petaled, yellow, one-half inch wide flowers develop singly in the axils of the leaves. Fruit are circular, spiny burs that split into five sections (National Vegetation Classification Standard 2008). As the name suggests, this plant contains burs that can cause injury to bicycle tires, bare feet, and even small truck tires (Stubbendieck et al. 1995). Plants invade roadsides, pastures, fields, and other disturbed areas. Plants are toxic to sheep and other grazers. Puncturevine was introduced from Europe and reproduces through seeds. It occurs on the Refuge in areas with frequent ground disturbance (United States Department of Agriculture 1971) such as dirt roads.

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# E. Wichita Mountains Wildlife Refuge Wilderness Review

## E.1 Introduction

Wilderness Reviews (Reviews) are a required element of comprehensive conservation plans (CCPs), and each refuge must follow the Review process outlined in 602 FW 1-3 and 610 FW 1-4. The process includes interagency and tribal coordination, public involvement, and National Environmental Policy Act (NEPA) compliance (610 FW 4.4 A). The purpose of the Review is to identify lands and waters that merit inclusion in the National Wilderness Preservation System (NWPS) and recommend suitable lands for Congressional designation (610 FW 4.4 A).

There are three phases to the Review process: (1) inventory; (2) study; and (3) recommendation. During the inventory phase, we identify lands and waters that meet the minimum criteria for Wilderness designation (610 FW 4.4 B). Lands and waters that meet the minimum criteria for designation are called Wilderness Study Areas (WSAs). In the study phase, we assess a range of management alternatives to determine if a WSA is suitable for Wilderness designation and corresponding management or if management under an alternate set of goals and objectives is more appropriate (610 FW 4.12 A). The findings of the study phase determine whether we will recommend a WSA for designation in the final CCP. If we determine that the Refuge contains lands and/or waters that are suitable for Wilderness designation, we report the recommendation from the Director through the Secretary and the President to Congress in a subsequent Wilderness Study Report (610 FW 4.4).

## E.2 Wilderness Inventory

Section 2 (c) of the Wilderness Act states that Wilderness is an area that is “untrammeled by man, where man himself is a visitor who does not remain.” The act identifies the minimum criteria that an area must meet to be eligible for Wilderness. U.S. Fish and Wildlife Service policy states that we use the act’s minimum criteria to identify potential Wilderness areas. These criteria include size, apparent naturalness, and outstanding opportunities for solitude or primitive recreation. Supplemental values are evaluated and documented but are not required for a WSA. Wichita Mountain Wildlife Refuge’s CCP Core Team met on April 14, 2010, to perform the inventory phase of the Review.

### E.2.1 Identification of Lands that Meet the Size Criteria

First, the team identified lands that meet the size criteria outlined by 610 FW 4.8 and described as follows:

- An area with more than 5,000 contiguous acres. State and private lands are not included in making this acreage determination.
- A roadless island of any size. A roadless island is defined as an area surrounded by permanent waters or that is markedly distinguished from the surrounding lands by topographical or ecological features (610 FW 1.5 Z).
- An area of less than 5,000 contiguous acres that is of sufficient size as to make practicable its preservation and use in an unimpaired condition and that is of a size suitable for wilderness management.

- An area of less than 5,000 contiguous Federal acres that is contiguous with a designated Wilderness, recommended Wilderness, or area under Wilderness Review by another Federal wilderness managing agency such as the U.S. Forest Service, the National Park Service, or the Bureau of Land Management.

Lands and waters that meet any of these four size criteria are identified as inventory units during the Review process. Wichita Mountains Wildlife Refuge contains 21 inventory units that meet the size criteria. These lands and waters are identified in the Figure E-1, and each inventory unit is evaluated for Wilderness criteria in Table E-1.

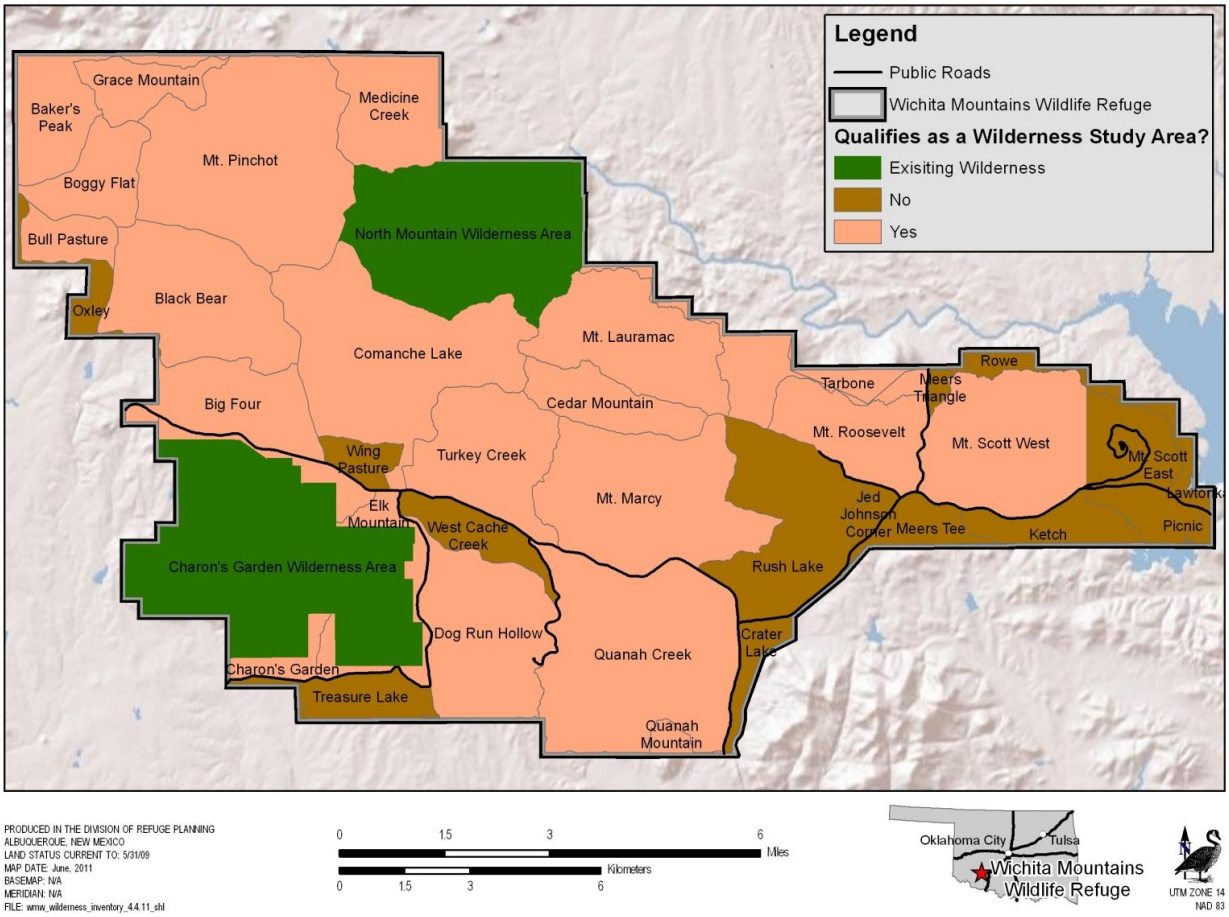

Figure E-1. Wilderness Inventory Units

## E.2.2 Evaluation of the Naturalness Criteria

Section 2 (c) of the Wilderness Act defines Wilderness as an area that "…generally appears to have been affected primarily by the forces of nature with the imprint of man's work substantially unnoticeable." In addition to the size criteria, Service policy states that an inventory unit must meet the naturalness criteria to qualify as a WSA. Although the area must appear natural to the average visitor, policy does not require that the land is in a pristine historic state (610 FW 4.9 A). During the inventory phase, the team evaluated each inventory unit for the naturalness criteria and noted their findings in Table E-1. The area of the Refuge that lies within the existing 35,000-acre Special Use Area has received a high level of protection, which has kept the majority of this

area in an apparent natural condition; therefore, many of these inventory units meet the naturalness criteria.

### E.2.3 Evaluation of Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

In addition to meeting the size and naturalness criteria, an inventory unit must provide outstanding opportunities for solitude or primitive recreation to qualify as a WSA. The Wilderness Act does not define what was intended by solitude or a primitive and unconfined type of recreation. The Service, however, defines solitude as "a state of mind, a mental freedom that emerges from settings where visitors experience nature essentially free of the reminders of society, its inventions, and conventions; privacy and isolation are important components, but solitude is enhanced by the absence of distractions, such as large groups, mechanization, unnatural noise and light, unnecessary managerial presence (such as signs), and other modern artifacts (610 FW 1.5 AA)." The Service defines primitive and unconfined recreation as "activities that provide dispersed, undeveloped recreation and do not generally require permanent facilities (610 FW 1.5 R)." According to 610 FW 4.10, an area does not need to have outstanding opportunities for both solitude and primitive recreation, nor does the area need to have outstanding opportunities on every acre.

During the inventory process, the CCP Core Team evaluated each inventory unit for opportunities for solitude or primitive and unconfined recreation and documented the results in Table E-1. Again, due to the Special Use Area's sheer size and its heightened level of protection, the majority of inventory units within this area offer outstanding opportunities for solitude or primitive and unconfined recreation, as shown in Table E-1.

### E.2.4 Supplemental Values

Although the presence of supplemental values is not required for an inventory unit to qualify as a Wilderness Study Area, 610 FW 4.11 recommends that the team document their presence if they exist. Supplemental values may include any ecological, geological, or other features of scientific, educational, scenic, or historic value. Any supplemental values within each inventory unit are illustrated in Table E-1.

Table E-1. Wilderness Inventory

| Inventory Unit | | Minimum Criteria for Wilderness[1] | | | | Parcel qualifies as a Wilderness Study Area (meets criteria 1, 2, and 3) |
|---|---|---|---|---|---|---|
| **Name** | **Size (acres)** | **Size criteria** | **Naturalness criteria** | **Outstanding opportunities for solitude or primitive and unconfined recreation** | **Supplemental values** | |
| **Special Use Area** | | | | | | |
| Mt. Pinchot | 4,615.9 | Yes | Yes. Due to the enhanced preservation of lands within the limited access Special Use Area, these inventory units prevail in their apparent natural and historic state. Each inventory unit is separated by administrative (primitive) access roads. | Yes. The Special Use Area is a vast landscape with a mosaic of mixed-grass prairies and Crosstimbers ecosystems that offer visitors excellent opportunities for both solitude and primitive and unconfined recreation. | Yes. Ecological, geological (contains the highest point on the Refuge), or other features of scientific, education, scenic, or historic value exist. | Yes |
| Medicine Creek | 1,440.4 | Yes | | | Yes. Ecological, geological, or other features of scientific, education, scenic, or historic value exist. | Yes |
| Black Bear | 2,674.9 | Yes | | | Yes. Ecological, geological, or other features of scientific, education, scenic, or historic value exist. | Yes |
| Grace Mountain | 879.6 | Yes | | | | Yes |
| Baker's Peak | 1,108.0 | Yes | | | | Yes |
| Boggy Flat | 1,015.0 | Yes | Continued from previous page. | Continued from previous page. | | Yes |
| Bull Pasture | 5,97.2 | Yes | | | | Yes |
| Big Four | 1,513.8 | Yes | | | | Yes |
| Comanche Lake | 4,010.2 | Yes | | | | Yes |
| Turkey Creek | 2,049.9 | Yes | | | | Yes |
| Mt. Marcy | 3,424.5 | Yes | | | | Yes |
| Cedar Mountain | 1,034.9 | Yes | | | Continued from previous page. | Yes |
| Mt. Lauramac | 2,299.6 | Yes | | | | Yes |
| Mt. Roosevelt | 1,480.7 | Yes | | | | Yes |
| Tarbone | 1,198.2 | Yes | | | | Yes |
| Oxley | 3,29.1 | Yes | Yes | No | Not applicable. | No |

[1] A full explanation of each individual criterion is described on the previous pages.

| Inventory Unit | | Minimum Criteria for Wilderness[1] | | | | Parcel qualifies as a Wilderness Study Area (meets criteria 1, 2, and 3) |
|---|---|---|---|---|---|---|
| **Name** | **Size (acres)** | **Size criteria** | **Naturalness criteria** | **Outstanding opportunities for solitude or primitive and unconfined recreation** | **Supplemental values** | |
| Wing Pasture | 373.2 | No. Heavily traveled area and contains facilities (major corral system and auctions). | Not applicable. | Not applicable. | Not applicable. | No |
| **Public Use Area** | | | | | | |
| Dog Run Hollow | 2,515.8 | Yes | Yes. Although some trails run through this inventory unit and it is bordered by roads, it contains breathtaking land features in their natural state. | Yes. Outstanding opportunities for solitude and primitive and unconfined recreation exist throughout this unit due to fishing access and hiking trails. | Yes. Ecological, geological, or other features of scientific, education, scenic, or historic value exist. | Yes |
| Treasure Lake | 772.6 | No. This unit includes roads that access the Treasure Lake Job Corps, which also occurs within the unit. | Not applicable. | Not applicable. | Not applicable. | No |

| Inventory Unit | | Minimum Criteria for Wilderness[1] | | | | Parcel qualifies as a Wilderness Study Area (meets criteria 1, 2, and 3) |
|---|---|---|---|---|---|---|
| Name | Size (acres) | Size criteria | Naturalness criteria | Outstanding opportunities for solitude or primitive and unconfined recreation | Supplemental values | |
| West Cache Creek | 754.2 | Yes | No. This unit has been modified to accommodate the successful reintroduction of prairie dogs on the Refuge. The prairie dog town is a heavily trafficked destination for wildlife viewing. In addition, Refuge Headquarters occurs within this tract, thereby detracting from the naturalness of the inventory unit. | Not applicable. | Not applicable. | No |
| Quanah Creek | 4,412.3 | Yes | Yes. Although this inventory unit occurs within the Public Use Area and contains the heavily used Doris Campground, it still contains vast amounts of land that appear to be in their natural state. Would need to create buffers around developments. | Yes. Outstanding opportunities for solitude and primitive and unconfined recreation exist throughout this unit. | Yes. Ecological, geological, or other features of scientific, education, scenic, or historic value exist. | Yes |

| Inventory Unit | | Minimum Criteria for Wilderness[1] | | | | Parcel qualifies as a Wilderness Study Area (meets criteria 1, 2, and 3) |
|---|---|---|---|---|---|---|
| Name | Size (acres) | Size criteria | Naturalness criteria | Outstanding opportunities for solitude or primitive and unconfined recreation | Supplemental values | |
| Quanah Mountain | 144.1 | Yes | Yes | Yes | Yes. Unique ecological, geological, or other features of scientific, education, scenic, or historic value such as scenic values and historic buildings exist. | Yes |
| Crater Lake | 375.3 | Yes | Yes. This small land unit is free of roads and signs of development. | No. This small southeastern corner of the Refuge borders Fort Sill and is near the Visitor Center and Sulfur Trap Corral. The inventory unit is too small to offer such recreational opportunities. It also contains power lines. | Not applicable. | No |
| Rush Lake | 2,463.9 | No. The Visitor Center and Sulfur Trap Corral are located within this unit, and access roads are prevalent. | Not applicable. | Not applicable. | Not applicable. | No |

| Inventory Unit | | Minimum Criteria for Wilderness[1] | | | | Parcel qualifies as a Wilderness Study Area (meets criteria 1, 2, and 3) |
|---|---|---|---|---|---|---|
| Name | Size (acres) | Size criteria | Naturalness criteria | Outstanding opportunities for solitude or primitive and unconfined recreation | Supplemental values | |
| Mt. Scott | East: 955.6 | No. This inventory unit contains heavily used roadways that lead to the summit. | Not applicable. | Not applicable. | Not applicable. | No |
| Mt. Scott | West: 2,765.3 | Yes | Yes | Yes | Yes. Unique geological features exist. | Yes |
| Ketch | 736.7 | Yes | No. Sights and sounds of man are apparent; also, the unit is too narrow and lies alongside the road. | Not applicable. | Not applicable. | No |
| Picnic | 599.1 | Yes | Yes | No. Unit is too narrow and lies alongside the road. | Not applicable. | No |
| Lawtonka | 287.2 | No | Not applicable. | Not applicable. | Not applicable. | No |
| Rowe | 205.6 | No. Section is not fenced and not protected. | Yes | Yes | Yes. Unique geological features of scientific, education, scenic, or historic value | No |
| Meers Triangle | 106.1 | No. Too small and road passes through unit. | Not applicable. | Not applicable. | Not applicable. | No |
| Meers Tee | 550.7 | Yes | No. Unit is alongside the road. | Not applicable. | Not applicable. | No |
| Jed Johnson Corner | 218.8 | Yes | No. Road passes through unit. | Not applicable. | Not applicable. | No |

| Inventory Unit | | Minimum Criteria for Wilderness[1] | | | | Parcel qualifies as a Wilderness Study Area (meets criteria 1, 2, and 3) |
|---|---|---|---|---|---|---|
| Name | Size (acres) | Size criteria | Naturalness criteria | Outstanding opportunities for solitude or primitive and unconfined recreation | Supplemental values | |
| Charons Garden | 777.4 | Yes | Yes. Would need to buffer the road passing through this unit and the Job Corps site. | Yes | Yes. Unique geological features of scientific, education, scenic, or historic value exist. | Yes |
| Elk Mountain | 591.9 | Yes | Yes. Would need to buffer the Sunset Picnic Area. | Yes | Yes. Unique geological features of scientific, education, scenic, or historic value exist. | Yes |

## E.3 Wilderness Inventory Summary

After completing the inventory phase of the Wilderness Review, the team found 21inventory units that meet the minimum criteria for a Wilderness Study Area. Upon completion of the CCP, the team will conduct the Wilderness study portion of the Wilderness Review and determine whether or not to recommend any of these WSAs for Wilderness designation.

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# F. Compatibility Determinations

In accordance with the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act), and Service policy (603 FW 2), this appendix provides Compatibility Determinations (CDs) for the following activities:

Table F-1. Compatibility Determinations for Wichita Mountains Wildlife Refuge

| Issue | CD Issuance Date | CD Review Date |
|---|---|---|
| Bicycling | 2013 | 2023 |
| Bicycling Events | 2013 | 2023 |
| Bison and Longhorn Auction | 2013 | 2023 |
| Boating | 2013 | 2023 |
| Camping | 2013 | 2023 |
| Commercial Art, Filming, and Photography | 2013 | 2023 |
| Commercial Fishing Tournaments | 2013 | 2023 |
| Commercial Interpretive Tours | 2013 | 2023 |
| Commercial Rock Sports | 2013 | 2023 |
| Commercial Scuba Instruction | 2013 | 2023 |
| Environmental Education | 2013 | 2028 |
| Fishing | 2013 | 2028 |
| Grazing | 2013 | 2023 |
| Hiking | 2013 | 2023 |
| Holy City | 2013 | 2023 |
| Hunting | 2013 | 2028 |
| Interpretation | 2013 | 2028 |
| Job Corps | 2013 | 2023 |
| Jogging and Strenuous Walking | 2013 | 2023 |
| Mesonet Weather Station | 2013 | 2023 |
| Mount Baker Repeater | 2013 | 2023 |
| Natural Resource Collection | 2013 | 2023 |
| Photography | 2013 | 2028 |
| Picnicking (Including Rental of Boulder Cabin) | 2013 | 2023 |
| Scuba Diving | 2013 | 2023 |
| Rock Sports | 2013 | 2023 |
| Running Events | 2013 | 2023 |
| Scientific Research | 2013 | 2023 |
| Tree Cutting | 2013 | 2023 |
| Visitor Operation of Amateur Radio Equipment | 2013 | 2023 |
| Wildlife Observation | 2013 | 2028 |

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# COMPATIBILITY DETERMINATION

**Use:** Bicycling

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing And Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(S):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Bicycling provides the means of access to various habitats across the Wichita Mountains Wildlife Refuge where visitors may participate in priority wildlife-dependent recreation activities. In this manner, bicycling is an existing secondary recreational use occurring on the Refuge primarily in support of wildlife observation, photography, and interpretation.

The Refuge proposes to continue this existing Refuge use through Public Use Area Management Objective 6: "Improve bicycling opportunities on approximately 13 miles of road to encourage Refuge visitation and wildlife observation and reduced vehicle use on the Refuge within five years of CCP approval."

**b) Where is the use conducted?**

Bicycling takes place on the 50 miles of paved roads within the Refuge and on the 5.8-mile Mt. Scott mountain bike trail and access road. Bicycling on paved roads is governed by State regulations; however, there are public safety concerns about bicycling on the Refuge. Most Refuge roads lack adequate shoulders to allow bicyclists to move out of the active travel lane. A project is underway to widen the highway shoulders along the section of State Highways 115 and 49 from the Medicine Park gate west and south to the Cache gate (included as Strategy 4 of Public Use Area Objective 6).

In addition, the Refuge has determined a number of additional bicycling needs through Public Use Area Objective 6, which include creating bike routes (including the Scenic Byway area) to improve the connectivity of existing routes (Lake Elmer Thomas Recreational Area, Lawton, Medicine Park, Cache connections). The Refuge proposes to allow bicycling opportunities in the medium and high density use areas using existing roads and trails and disturbed areas and proposed new trails and linkages. These include the future trail between the Environmental Education Center and the Visitor Center, the trail between the Environmental Education Center and Camp Doris, Jed Johnson tower trail, the future trail between Lake Elmer Thomas Recreational Area (LETRA) and the Refuge (including a connection to the Museum of Natural History), and the Mt. Scott picnic area nature trail (see CCP Chapter 5, project 24a and 25e).

**c) When is the use conducted?**

Refuge visitors are allowed access for bicycling during daylight hours only. The only restrictions to bicycling occur during fall and winter permit hunts, when foot travel and vehicle travel on secondary roads is restricted.

**d) How is the use conducted?**

Refuge visitors are allowed to bring bicycles to the Refuge and enjoy this outdoor activity on their own accord. The Refuge is considering the development of a bicycle share pilot program that would facilitate this use, which will be reviewed in the Visitor Services Plan (to be completed in 2014).

**e) Why is this use being proposed?**

Bicycling offers an unparalleled opportunity to experience the Refuge and observe wildlife. This activity occurs on the Refuge in support of priority wildlife-dependent recreation uses, especially wildlife observation, photography, and interpretation. In fact, cycling enhances many of these opportunities by giving the bicyclist a better chance to view and interact with wildlife up close. Although it is estimated that less than 0.5 percent (7,500) of all Refuge visitation involves bicycling, the sport is growing in popularity. Under Refuge-Wide Objective 2 (Air Quality), the Refuge includes enhancing bicycling opportunities as a means of minimizing potential effects to air quality while

still offering the public an enjoyable way to participate in recreational opportunities on the Refuge.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including bicycling. Through the CCP, however, the Refuge proposes to construct increased linkages, bike routes, and bike lanes, as well as to introduce a bike share program. To make these enhancements possible, additions to the bicycling program will require additional time, money, and staff. Through Project 24a of the CCP, the Refuge aims to manage compatible supportive recreation activities on the Refuge in a way that minimizes conflict with other users and natural resource management activities. The Refuge proposes an additional start-up budget of $275,500 for hiking and bicycling program management improvements, which includes one-half of a new GS-9 Law Enforcement position, one-fourth of a new GS-9 Park Ranger position, and a study on use thresholds. Annual operating costs for improved program management are estimated at $75,700. Infrastructure improvements assisting supportive recreation, including bicycling, are listed under Project 25e of the CCP, with an estimated start-up cost of $2.15 million and an annual operating cost of $50,000.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Bicycling currently occurs only along paved roadways and the Mt. Scott access road. Bicycling on Refuge roadways is expected to result in negligible impacts to Refuge resources, including any disturbance of wildlife. The small percentage of visitation that occurs for bicycling on roadways will keep any disturbance to wildlife at a negligible level, as vehicle traffic along the same roadways is much higher than bicycle traffic. The impacts of bicycling on the Mt. Scott trail (administrative road) are negligible relative to the use and maintenance by Refuge vehicles. However, these impacts may result in some soil compaction, creation of tire tracks, erosion, and trampling of vegetation. To a limited extent, erosion on the trail has the potential to impact water quality by contributing to suspended sediment, turbidity, and sedimentation. In addition, mountain biking on the trail may have direct impacts on wildlife due to disturbance; however, it is presumed that wildlife have likely become accustomed to humans in areas where existing trails occur for multiple purposes. There are also concerns about the interaction between bicyclists and animals, especially longhorn cattle and bison, and about the safety of bicycles crossing cattleguards. Overall, these adverse resource impacts are expected to be negligible. Bicycling allows the visitor to experience the Refuge and participate in wildlife-dependent opportunities such as wildlife observation, photography, and interpretation and allows participants to engage in outdoor physical fitness activities. This public use opportunity also serves to reduce the Refuge's carbon footprint and adverse air quality impacts associated with vehicle traffic. As with the other public use activities, these widespread benefits for bicyclists would extend in scale beyond the boundaries of the Refuge by increasing the public's awareness, understanding, and appreciation of fish and wildlife resources.

Cumulative Impacts:

There are no anticipated adverse cumulative impacts resulting from bicycling. The use occurs in conjunction with wildlife observation, photography, and interpretation, each of which will

ultimately result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. The Refuge received 28 comments on bicycling. A few suggested re-opening the Burma Road and the rest supported expansion of the Fit Kids Fitness Trail Way System into the Refuge. The Refuge responded that it did consider reopening the Burma Road to bicyclists. However, past experience with allowing mountain bikes in this location reveals that riders frequently leave the road and travel cross-country due to the enticing terrain and side trails, which results in soil compaction, vegetation damage, rutting, and erosion. The Fit Kids trail network is much broader than the Refuge. While the Refuge proposed making some improvements and additions to its current trail system and be a part of the Fit Kids Fitness Trail Way System, the majority of that network will remain outside of the Refuge. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

_**X**_ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that bicycling remains a compatible use:

1. The Refuge may regulate times, areas, and conditions for bicycling. During fall and winter permit hunts the Refuge prohibits foot and vehicle travel on trails and secondary roads. This could also include temporary closure of trails seasonally to protect resource values such as nest locations and den sites.
2. Cyclists are required to remain on designated roads and the Mt. Scott trail at all times (no off-road bicycling).
3. Bicycling is restricted to daylight hours only.

**Justification:**

Bicycling occurs on the Wichita Mountains Wildlife Refuge as a secondary use that facilitates the primary wildlife-dependent recreation uses defined by the National Wildlife Refuge System Improvement Act of 1997. Cycling primarily facilitates interpretation, wildlife observation, and photography. Regulated bicycling as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience wildlife firsthand and develop awareness, understanding, and appreciation of fish, wildlife, and wilderness resources. This activity will not conflict with any of the other priority public uses or

adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that bicycling, in accordance with the stipulations provided here, is a compatible use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-21-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

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# COMPATIBILITY DETERMINATION

**Use:** Bicycling Events

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

"...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)

"…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)

"... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

For many years, Wichita Mountains Wildlife Refuge has been home to annual bicycling events like the Tour de Meers and Tour of the Wichitas. Typically, these non-commercial events are sponsored by local partners like the local fire department. The Tour de Meers is a non-competitive ride occurring each year on the Saturday of Memorial Day Weekend. Similarly, the Tour of the Wichitas is a ride through Fort Sill and the Refuge occurring in June each year in conjunction with the Museum of the Great Plains Bike

Festival. Although physical fitness is the primary purpose of each ride, these events stress that cyclists should take the time to look around and enjoy the beauty of the Refuge. Thus, the events occur in support of wildlife observation, interpretation, and photography, which are priority wildlife-dependent recreational uses. In this manner, annual bicycling events are an existing supportive recreational use. Any organization that wishes to host an annual bicycling event is responsible for contacting the Refuge and receiving a Special Use Permit prior to the event.

**b) Where is the use conducted?**

Bicycling events may occur on any paved public access roads in the Public Use Area of the Refuge.

**c) When is the use conducted?**

Tour de Meers is held the Saturday of Memorial Day weekend every year. Tour of the Wichitas is held each year in June. The Refuge will determine appropriate timing for new proposals of similar bicycling events in a Special Use Permit.

**d) How is the use conducted?**

The Refuge regulates this use through a Special Use Permit issued to the host of the event. The Special Use Permit lists any regulations on the timing, location, magnitude, and method of the events. Event hosts are responsible for educating cyclists on safety information while participating in the annual events.

**e) Why is this use being proposed?**

Annual bicycling events have occurred on the Refuge for many years in the past. These events are proposed because the Refuge provides terrain and landscapes not found anywhere else in southern Oklahoma. The moderately sloping hills of the Refuge provide challenges for both beginning and experienced cyclists, and the wildlife and habitat provide a beautiful setting that will encourage participation in the events.

The events are proposed to bring hundreds of visitors to the Refuge, which will provide an opportunity for the Refuge to conduct public interpretation. The Tour of the Wichitas even includes a water stop at the Visitor Center, where cyclists can pause and learn about the habitats and wildlife on the Refuge. Similarly, the Tour de Meers is a non-competitive race that recommends visitors "linger and take in the natural beauty along the way" (http://tourdemeers.org/registration.php). In this manner, these established annual bicycling events occur in support of wildlife observation and interpretation. Only those annual bicycling events that support wildlife-dependent recreation will be allowed on the Refuge.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including bicycling events. Through the CCP, the Refuge proposes to continue to allow annual bicycling events on its paved roads. Improvements planned for these roads will benefit Refuge bicycling events. To make these enhancements possible, additions to the bicycling program will require additional time, money, and staff. These

enhancements are covered in the Bicycling CD and Project 24a of the CCP. To fully implement and manage the Special Use Permit program (including bicycle events), an additional 0.5 Park Ranger FTE is needed.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Annual bike events, while a short-term and infrequent use on the Refuge, may result in long-term beneficial impacts to the visitor experience. These events may potentially bring hundreds of visitors to the Refuge, which would provide an opportunity for the Refuge to conduct public interpretation, making this activity a wildlife-dependent supportive use. In this manner, these established annual bicycling events occur in support of interpretation and wildlife observation. Only those annual bicycling events that support wildlife-dependent recreation would be allowed on the Refuge. Furthermore, annual bike events could draw more visitors to the Refuge who would participate in other wildlife-dependent recreational uses of the Refuge or those available on nearby lands. In this sense, these bike events may provide short-term benefits to the socioeconomics of the community. Like all other public use activities, annual bicycling events have the potential to adversely impact the physical and biological environment through trash, noise, and wildlife disruption. There is also the potential for conflicts between motorists and bicyclists along the sections of Refuge road that lack shoulders. The Special Use Permit lists any regulations on the timing, location, magnitude, and method of the events to limit any potential adverse effects. Allowing bicycle events to continue would be moderately beneficial, long-term, and localized to widespread. As with the other public use activities, these widespread benefits for bicyclists would extend in scale beyond the boundaries of the Refuge by increasing the public's awareness, understanding, and appreciation of fish and wildlife resources.

Cumulative Impacts:

There are no anticipated adverse cumulative impacts resulting from annual bicycling events. This use occurs in conjunction with wildlife-dependent recreational uses and adds to the available recreational opportunities on the Refuge. Therefore, it may result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

**X** Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that annual bicycling events remain a compatible use:

1. Cyclists are responsible for their own public safety during these annual bicycling events.
2. Littering on the Refuge is prohibited.
3. Permittee will report the annual number of participants to the Refuge.

**Justification:**

Bicycling events occur on the Wichita Mountains Wildlife Refuge as a secondary use that facilitates the primary wildlife-dependent recreation uses defined by the National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act). Essentially, bicycling facilitates interpretation, wildlife observation, and photography. Regulated bicycling events as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience the Refuge firsthand and develop awareness, understanding, and appreciation of fish and wildlife resources. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that annual bicycling events, in accordance with the stipulations provided here, are a compatible use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-20-2013

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

# COMPATIBILITY DETERMINATION

**Use:** Bison and Longhorn Auction

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

In order to manage its bison and longhorn populations, the Refuge hosts public auctions each year for the removal of excess animals. This activity is considered a Refuge management economic activity due to the generation of a commodity (the livestock) that is purchased by members of the public.

Through the CCP, the Refuge proposes to continue this use to manage longhorn cattle and bison populations.

**b) Where is the use conducted?**

The Refuge-hosted auctions are held at the main corral system and grandstand that are one-half mile north of the Refuge Headquarters. All the non-Refuge hosted auctions are conducted through one of the local livestock auction yards.

**c) When is the use conducted?**

The auctions are mainly conducted in the fall, but occasionally a smaller spring sale is necessary.

**d) How is the use conducted?**

After animals are rounded up, the Refuge sorts and selects animals to be excessed at the public auctions. All registered buyers are notified, and public announcements are made as to time, date, location, and animals to be sold. During public auction, all animals are sold to the highest bidder without reserve and remain the property of the Refuge until loaded into the vehicle designated by the buyer.

**e) Why is this use being proposed?**

The Refuge is tasked with the responsibility of managing herds of bison and longhorns, along with the other species of grazers that reside within the Wichita Mountains Wildlife Refuge. Management of these herds requires a careful balance of managing utilization of grasslands, conservation genetics to retain high levels of genetic diversity, and excessing a number of animals needed to maintain healthy grasslands. Population levels of bison and longhorns are managed by carefully selecting and selling excess animals through this annual auction, which helps maintain the health of the herd.

**Availability of Resources:**

On an annual basis, the Refuge reduces its bison and longhorn populations through public auctions. The Refuge has existing staff assigned and volunteers to manage this activity. Through the CCP, the Refuge proposes to continue this use in order to maintain populations at stable and manageable numbers. Through Projects 7 and 8 of the CCP, the Refuge aims to manage auctions in a way that minimizes conflict with other users and natural resource management activities. Through Project 26b, the Refuge proposes an additional budget of $500,000, with a $10,000 recurring cost to adequately fund the expansion of and updates to the corral system that supports these auctions.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

This activity occurs in the existing corrals, adjacent to existing roads, thereby minimizing any adverse impacts to soils, habitat, and waterbodies. The action may result in some level of disturbance to wildlife and longhorns, particularly during the roundup and throughout the placement in corrals, but the duration of this use will not result in any significant resource

impacts. Furthermore, the maintenance of grazers at carrying capacity is necessary to ensure the health of these populations and prevent habitat damage from overgrazing across the Refuge. This activity also renders minor positive socioeconomic impacts in the local communities.

Cumulative Impacts:

There are minimal anticipated adverse cumulative impacts resulting from bison and livestock auctions. Ultimately, this activity will add to the health and diversity of these grazers and their grassland habitats on the Refuge, which, in combination, will result in beneficial cumulative impacts on the physical, biological, and human environment.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. Two comments specific to bison and longhorn auctions were received. One comment stated no opposition to the "sustainable increase, sale, or harvest of animal populations at target levels to allow for adequate protection of both the species and their habitat". The other suggested that the Refuge incorporate lottery hunts for bison as the auctions bring in relatively little money and are a lot of effort. Because of the Refuge's management for the genetic diversity of bison, the Refuge must carefully select those that will be excessed. In addition, the Refuge bison are habituated to human activities and therefore would not provide a quality sport hunting opportunity. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

_**X**_ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that bison and longhorn auctions remain a compatible use:

1. The Refuge will only use auctions for management purposes in order to maintain health of the animals and their habitat.

2. All auctions will be public and animals sold to highest bidder without reserve.

**Justification:**

The Wichita Mountains Wildlife Refuge, as provided for in Part 701, Chapter 8 of the Fish and Wildlife Service manual, by Special Acts of Congress and by special designation, was established for the preservation and the propagation of remnant herds of nationally and/or historically significant animals. Species listed for the Refuge include bison, Rocky Mountain elk, white-tailed deer, and Texas longhorn cattle. Management practices for other resident wildlife will emphasize the protection of breeding stocks and the production of wildlife to achieve and maintain diversity of those species that naturally or historically occurred on the Refuge. Present

bison and longhorn management is conducted under this authority and mandated policies. Regulated auctions as described here and consistent with the management direction provided in the CCP renders the most practical means of management for maintaining healthy populations of bison and longhorns, and the habitats they occupy. This activity will not significantly conflict with any of the other public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that auctioning bison and longhorn, in accordance with the stipulations provided here, is a compatible use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-20-2013

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

# COMPATIBILITY DETERMINATION

**Use:** Boating

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Boating is an existing recreational use occurring on Wichita Mountains Wildlife Refuge. Although this use is not one of the priority public uses defined by the National Wildlife Refuge System Improvement Act of 1997, boating is supportive of wildlife-dependent recreational uses, including fishing, wildlife observation, photography, and interpretation.

The Refuge proposes to continue this existing use through Public Use Area Management Objective 7 of the CCP, which states: “Throughout the life of the CCP, manage boating to allow for high quality opportunities and improved experiences.” The use is directly linked to fishing, which includes boating as a strategy to allow for increased opportunities and improved experiences under Public Use Area Management Objective 1.

**b) Where is the use conducted?**

Hand powered boats are allowed on the following Refuge lakes, each occurring within the Public Use Area. In addition, electric trolling motors are permitted on boats of 14 feet or less on these lakes.

- Jed Johnson Lake
- Rush Lake
- Quanah Parker Lake
- French Lake
- Lake Elmer Thomas

On Lake Elmer Thomas, there is a paved boat ramp; this is the only location on the Refuge where operation of any size boat or motor, including sailboats, is allowed although a “no-wake” speed limit is enforced. Currently, French, Quanah Parker, and Jed Johnson Lakes have unhardened boat ramps that the Refuge proposes to improve or harden through Refuge-Wide Public Use Facilities Objective 1 of the CCP.

**c) When is the use conducted?**

Boating is allowed year-round during daylight hours only. During fall and winter permit hunts, vehicle and boat access is further restricted.

**d) How is the use conducted?**

Through the CCP, the Refuge intends to increase enforcement efforts to prevent littering and alcohol consumption and to improve compliance with fishing and boating licensing and rules and restrictions (Public Use Area Management Objective 1: Fishing and Objective 7: Boating). These preventative efforts may include increased education, law enforcement, signage, and trash or recycling facilities. In addition, the CCP proposes that the Refuge increase maintenance and harden existing boat ramps in order to provide accessible fishing opportunities.

Through Refuge-Wide Non-Native Fauna Objective 9, the Refuge plans to monitor lakes for zebra mussels and to coordinate with Oklahoma Department of Wildlife Conservation to determine way to best prevent mussel introduction. As part of this management, the Refuge is considering a sanitation and washing station at boat ramps.

**e) Why is this use being proposed?**

Boating provides a quiet, uncrowded way to observe wildlife while providing fishing access. These activities are priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. The

Refuge offers the unique opportunity to participate in boating to support these and other wildlife-dependent recreational uses in undeveloped surroundings in a safe, family-friendly location. While the primary purpose of the lakes is to provide a perennial water source for Refuge wildlife and serve as the beginnings of the watershed for many surrounding creeks, the Refuge lakes are also intended to provide a quality visitor experience within serene surroundings. Boating allows the Refuge to accomplish this.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including boating. Through the CCP, however, the Refuge proposes to increase enforcement of Refuge regulations, improve and better maintain existing unhardened boat ramps, and monitor lakes for zebra mussels. These additions to the boating program will require additional time, money, and staff. The Refuge aims to manage compatible supportive recreation activities on the Refuge in a way that minimizes conflict with other users and natural resource management activities. Through Project 25d of the CCP, the Refuge aims to improve or enhance public use fishing and boating facilities. Additions to the boating program will be considered and prioritized through this supportive recreation improvement project, and improvements on the existing facilities will be considered through the public use facilities maintenance and upgrades. The Refuge proposes an additional budget for improvements to the boating and fishing facilities estimated at $225,000, with an annual operating cost of $9,500 per year.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Boating has the potential to adversely impact the Refuge's physical and biological habitat. Use of boats of any size with any type of motor on Lake Elmer Thomas and use of trolling motors on four additional lakes may result in emissions and exhaust, negatively impacting the Refuge's air quality. These boats may also cause wildlife disturbance due to noise and might produce waves that could degrade shorelines; however, the Refuge maintains a no-wake zone on Lake Elmer Thomas to prevent such instances from occurring. The maximum boat size is 14 feet on the four other lakes that allow the use of trolling motors. This stipulation serves to minimize the potential for these types of effects. Nevertheless, the use of any type of motor in Refuge waters may lead to minor effects to water quality resulting from increased pollution, sedimentation, and turbidity.

Other environmental effects may be noted on sites where boat launching occurs. As unpaved ramps are used to launch boats into Refuge lakes, visitors may trample native vegetation, compact soils, and produce litter. The Refuge's proposed action includes strategies that recommend improving or hardening all of the Refuge's boat ramps. This action will help reduce the potential for site-specific adverse impacts, thereby only resulting in short-term negligible impacts to habitat, soils, and vegetation.

Boat use may also cause increased spread of non-native fauna like zebra mussels that can lead to habitat degradation. Zebra mussels cause tremendous modifications and disruptions in freshwater ecosystems. Currently, these mussels do not occur on Refuge lakes. Through the proposed action, the Refuge plans to consider more aggressive and proactive measures to avoid zebra mussel introduction by coordinating with other agencies and organizations, including ODWC.

The Refuge is considering a sanitation and washing station at boat ramps to help minimize the potential for this species' introduction. Thus, these increased efforts are expected to maintain the current ecosystem and prevent introduction, keeping environmental impacts negligible.

Alternatively, boating may result in long-term beneficial impacts to the human environment as it supports wildlife observation, photography, fishing, and interpretation. This use may increase the viewers' understanding and appreciation of fish and wildlife, their habitat needs, and the role of the National Wildlife Refuge System in their conservation. The additional hardening of boat ramps will offer increased opportunities for the public to participate in this wildlife-dependent recreational activity while minimizing environmental harm, thereby helping the Refuge to accomplish some of its primary objectives.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from boating. Ultimately, this activity will add to public use opportunities on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment. The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that boating remains a compatible use:

1. Temporary access restrictions may be used to protect sensitive resources from harassment.
2. Personal water craft such as Jet Skis, Sea-Doos, Wave-Runners, etc. are prohibited.
3. Obtaining any type of fishing bait from Refuge lands or harvesting frogs and turtles is prohibited.
4. The Refuge will limit and control Refuge access through enforcement of Refuge regulations, signage, and education of the public as to the purpose of the Refuge and responsibilities of visitors.
5. Alcoholic beverages are prohibited on the Refuge.

6. Swimming is prohibited on the Refuge.
7. No person may use more than five poles or rods while fishing.
8. State daily creel limits apply.
9. Fishing and boating in the Special Use Area of the Refuge is prohibited. This action assures that the primary bald eagle wintering grounds and core black-capped vireo breeding and nesting colony are not disturbed.

**Justification:**

Boating is a supportive recreational activity secondary to fishing, wildlife observation, photography, and interpretation. This recreational use enhances the fishing experience by giving Refuge visitors a chance to experience the Refuge's waterbodies in a comfortable, peaceful, and safe manner. Because similar opportunities exist nearby, the Refuge only allows the use of non-motorized boats or trolling motors on five lakes. Lake Elmer Thomas is cooperatively managed, and the Refuge allows all types of boats to be used there. Regulated boating as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience fish and wildlife firsthand while also developing an understanding of the Refuge's role in conservation through the National Wildlife Refuge System. This activity will not conflict with any of the priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that boating, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-20-2013
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

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# COMPATIBILITY DETERMINATION

**Use:** Camping

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Camping is an existing recreational use on Wichita Mountains Wildlife Refuge. Although this use is not one of the priority public uses, camping is supportive of wildlife-dependent recreation. Camping can increase the public's awareness, understanding, and appreciation of fish and wildlife resources.

The Refuge proposes to continue this existing recreational use through Public Use Objective 8 in the CCP: "Provide year-round developed camping opportunities at established campgrounds and promote alternatives off-Refuge for times of high demand within six years of CCP approval." In addition, the Refuge intends to provide opportunities for limited backcountry camping in Charons Garden to allow for a wilderness experience through Wilderness Area Management Objective 5.

**b) Where is the use conducted?**

Camping is allowed only at Doris Campground and Fawn Creek Youth Campground within the Public Use Area and throughout a designated area within the backcountry of the Charons Garden Wilderness Area. These locations are highlighted on the Public Use Facilities map in the CCP.

**c) When is the use conducted?**

The Refuge offers camping opportunities year-round. Prime camping season extends from mid-March to late June, with a second peak occurring in September and October when the weather cools. During prime camping season and on holiday weekends, the demand for campsites far exceeds supply. At these times, un-served campers are directed to the gateway communities for lodging or other area campground facilities at Lake Elmer Thomas Recreation Area, Lake Lawtonka, Great Plains, and Tom Steed State Park.

At Doris Campground, gates are open during the following hours:

| | Sunday through Thursday | Friday and Saturday |
|---|---|---|
| **April 1 October 31** | 8 AM – 10 AM | 8 AM – 11 AM |
| **November 1 March 31** | 8 AM – 8 PM | 8 AM – 10 PM |

**d) How is the use conducted?**

Doris Campground is operated under a contract and includes 90 individual and 3 group sites. These sites include 20 walk-in tent sites, 23 RV sites with electricity, and 47 RV sites without electricity. Potable water, a shower house, and a sanitary dump station are available in the campground. Single camp sites are open to the general public on a first come, first served basis, and the three group sites are available for reservation.

Fawn Creek Campground is reserved for organized youth groups up through university-aged student groups. The campground offers three group sites available for reservation that can accommodate groups of 8 to 30 individuals. No water or electricity is available. Fees are charged at Fawn Creek for each group with stays allowed up to one week.

The Refuge also offers a rare and unique opportunity for visitors to experience backcountry camping in Charons Garden Wilderness Area. The Refuge will distribute up to 10 backcountry camping permits to interested parties on a twice a week basis. Limiting this use will protect wilderness character while allowing the use. To limit impacts, the Refuge will implement Leave No Trace techniques through brochures and signs. In addition, the Refuge will participate in the National Wildlife Refuge System Wilderness

Character Monitoring Committee's efforts to monitor how Refuge management, including public use opportunities, affects Wilderness.

Due to the high demand for camping, the Refuge has decided to also promote additional opportunities off the Refuge during prime camping season by working with partners. For example, the CCP proposes to create a pedestrian and bicycle connection from the Refuge high-use density zone to adjacent campgrounds off-Refuge.

**e) Why is this use being proposed?**

The Refuge is home to one of the largest and busiest interpretation and outreach programs in the National Wildlife Refuge System, and camping is directly related to this use and to all of the priority public uses. Visitation at Doris Campground has averaged over 31,370 campers per year for the last five years. Public use of the youth group sites at Fawn Creek Campground has steadily increased over the last 10 years, with an average of 7,200 campers per year. The Wilderness area averages about 1,500 campers per year as well. Cumulatively, the camping opportunities on the Refuge provide a chance for over 40,000 people to experience nature in the unique setting that a national wildlife refuge offers. These individuals travel to the Refuge to enjoy the outdoors while also gaining an understanding of how the natural world and human activities are intertwined. While not a wildlife-dependent recreational use, camping is compatible with the purpose of the Refuge.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including camping. To administer Doris Campground, the Refuge contracts a host family who is able to live on the Refuge in exchange for administering this use at that particular location. Through this agreement, the Refuge is able to provide recreational camping opportunities for Refuge visitors while minimizing the amount of Refuge resources necessary to provide, maintain, and monitor the use. At Fawn Creek Youth Campground and throughout the backcountry of Charons Garden, Refuge resources are mainly required for taking reservations, answering inquiries, providing backcountry permits, hosting or assisting environmental education or interpretation programs during youth camps, and monitoring the use. The Refuge, however, is able to offset some of its costs through fee collection associated with this use.

On all three camping locations, existing Refuge staff and budget is adequate to facilitate the use. Through Projects 12 and 13 of the CCP, the Refuge aims to manage compatible supportive recreation activities on the Refuge in a way that minimizes conflict with other users and natural resources. Funding and staffing needs related to continuing or altering an existing supportive recreational use will be considered and prioritized through this supportive recreation improvement project. It is not anticipated that any changes will require a significant amount of additional time, money, or staff, however.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

Camping has the potential to adversely impact the physical and biological environment at the site-specific areas where the use is allowed. Camping may result in disturbance to wildlife, including white-tailed deer, elk, raptors, and passerine birds, especially during prime camping seasons; however, with an average of over 40,000 Refuge campers each year, it is likely that wildlife species on the Refuge have acclimated to human presence, especially in designated camping areas where the use has occurred for many years. Nevertheless, individuals who wander off trail in areas nearby designated camping facilities may cause soil compaction, trampling of vegetation, plant destruction, illegal trail establishment, trail deterioration, and production of litter or human waste. These on-the-ground conditions may result in adverse impacts to soils, habitat, and water quality; however, the Refuge enforces regulations and ensures that campgrounds are patrolled to help defray any potential negative impacts.

In Charons Garden Wilderness Area, camping is restricted to designated areas and camping numbers are such that no more than 10 individuals may be camping on any given day. These restrictions are done to maintain the wilderness character of the area while providing opportunities for solitude and primitive and unconfined recreation. Although this use may result in similar impacts as mentioned here, the limit on the intensity of the use will likely prevent any long-term negative impacts. Furthermore, offering this wilderness experience to Refuge visitors will further their understanding of nature in its most intact state.

Camping may also result in long-term beneficial impacts to the visitor experience and the mission of the National Wildlife Refuge System. Camping is supportive of all six of the wildlife-dependent recreational uses allowed on the Refuge, which will increase public awareness of the Refuge and conservation issues. Furthermore, camping may draw more visitors to the Refuge who participate in other wildlife-dependent recreational uses of the Refuge or those available on nearby lands. In this sense, camping may provide short-term benefits to the socioeconomics of the community. This use may also increase the viewers' understanding and appreciation of wildlife and their habitat needs as well as the role of the National Wildlife Refuge System in resource conservation.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from camping. Ultimately, this activity will add to available public use opportunities on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment. The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. One comment specific to camping facilities was received. The comment suggested the Refuge had limited camping facilities that can be hard to get into (i.e. find available camping spots). The Refuge responded that it will work to identify additional camping opportunities off Refuge by working

with partners to divert campers to adjacent campgrounds. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that camping remains a compatible use:

1. During periods of high fire danger, camping permits will not be issued in the interest of public safety and resource protection.
2. Possession of alcoholic beverages is prohibited on the Refuge, including the camping areas.
3. Fires are allowed only in Doris Campground and Fawn Creek Campground. Fires must be built in grates and grills provided for that purpose. Dead, fallen timber may be used. Fires must not be left unattended and must be completely extinguished before leaving the area. During periods of very high fire danger, wood fires may be prohibited. Campfires and open fires of any kind are strictly prohibited in the Charons Garden Wilderness Area.
4. Campers may not trench around tents or level off tent sites.
5. All garbage must be packed out with campers in the Charons Garden Wilderness Area.
6. Swimming, wading, and snorkeling are prohibited on the Refuge.
7. Campers may not participate in hiking outside of daylight hours. Night fishing in designated lakes is allowed after dark.
8. Pets are permitted at campgrounds if confined or kept on a leash. All livestock are prohibited.

**Justification:**

Camping is a supportive recreational activity secondary to wildlife observation, photography, interpretation, hunting, and fishing. In addition, camping at the Fawn Creek Campground supports environmental education in certain instances when youth groups request formal lectures. Thus, this recreational use enhances the wildlife experience by giving the camper a better chance to view and interact with wildlife up close. Although similar opportunities exist nearby, the Refuge's campgrounds allow visitors to camp at a central location at night while participating in other wildlife-dependent recreational pursuits throughout the day. Regulated camping as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience the Refuge in a high-quality, safe, wholesome, and enjoyable recreational experience. This activity will not conflict with any of the priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that camping, in accordance with the stipulations provided here, will not materially interfere with or

detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-2013
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

# COMPATIBILITY DETERMINATION

**Use:** Commercial Art, Filming, and Photography

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Commercial art, filming, and photography are existing supportive uses occurring on Wichita Mountains Wildlife Refuge. This use occurs when commercial operators come to the Refuge to produce art, film, or photography using professional equipment or provide a for-profit instructional event (class). The resulting product is typically bought or sold for profit. This use requires a Special Use Permit.

**b) Where is the use conducted?**

The use would occur only within the Refuge's Public Use Area unless otherwise specially allowed. Specific regulations on locations will be explained in the Special Use Permit.

**c) When is the use conducted?**

Commercial art, filming, and photography may occur year-round during daylight hours only. Specific regulations on timing will be explained in the Special Use Permit.

**d) How is the use conducted?**

Commercial art, filming, and photography must be tied to the Refuge's conservation purpose through the documentation of scenery, wildlife, or other natural objects in various media. Participants would be required to obtain a Special Use Permit to conduct their activities on the Refuge. Through the CCP, the Refuge proposes to continue this use by mandating a Special Use Permit. The permittee would be required to follow the terms of the permit, including the locations of the Refuge allowed for a particular use and the methods for which it is conducted and other provisions necessary to protect resources. The Refuge would also do more public outreach so that these groups are aware of the need to obtain a permit. Law enforcement would help the Refuge ensure that groups are obtaining and following their permit correctly.

**e) Why is this use being proposed?**

Commercial art, filming, and photography will bring new visitors to the Refuge each year, and their products will reach hundreds. This use provides an opportunity for visitors to learn about the Refuge's natural resources. The Refuge will provide informational brochures about the Refuge and the National Wildlife Refuge System, which will further goals of the Refuge, the Refuge System, and the Service. These activities provide a value added service to the public, allowing them to appreciate and understand the conservation value of the Refuge. This level of awareness can lead to support for the Refuge System, for wildlife conservation, and for resource management issues.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including some pre-approved commercial uses. Through the CCP, the Refuge proposes to better manage, control, and/or restrict commercial uses as necessary. To make these enforcements possible, changes to the Special Use Permit program will be made. It is anticipated that these changes will require additional time, money, or staff, however. To fully implement and manage the Special Use Permit program (including commercial filming, photography, and art), an additional 0.5 Park Ranger FTE is needed at a start-up cost of $91,000 and an annual operating cost of $45,000. Through the CCP, the Refuge aims to manage compatible supportive recreation activities, including some commercial uses, on the Refuge in a way that minimizes conflict with other users and natural resource management activities.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

These activities could result in adverse effects that come from large groups congregating on the Refuge. To reduce the potential for any adverse effects, each activity would be evaluated individually and would only be approved and permitted when only minimal impacts to Refuge resources and existing wildlife-dependent recreation can be assured. On the other hand, commercial activities, while a short-term and infrequent use on the Refuge, may result in long-term beneficial impacts to the visitor experience. These activities could potentially bring visitors to the Refuge to participate in uses supportive of interpretation, photography, and wildlife observation, making these uses supportive of wildlife-dependent uses.

Cumulative Impacts:

There are no anticipated adverse cumulative impacts resulting from commercial art, filming, and photography. This use occurs in conjunction with wildlife-dependent recreational uses and adds to the available recreational opportunities on the Refuge. There is a potential for adverse effects from the gathering of large groups; however, the Refuge will monitor and regulate this use to ensure that these groups are not too large or occurring too frequently to cause resource damage or user conflict. Therefore, this use may result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. One comment on commercial photography was received. The comment suggested that the Refuge should only require permits when/if the photographer intends to use models or props or interfere with normal activities. The Refuge replied that it will require commercial photographers to obtain a Special Use Permit prior to undertaking this activity in all instances so that the Refuge may monitor the use and track the impacts if any should occur. In addition, Refuge regulations prohibit commercial enterprises being conducted on any national wildlife refuge, except as may be authorized by a Special Use Permit. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

**X** Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that commercial art, filming, and photography remain a compatible use:

1. Permittee will comply with all Refuge regulations.
2. Harassment of wildlife will be prohibited.
3. Commercial art, filming, and photography may only occur where authorized by the permit. Gathering areas will be permit-specific based on maximum potential group size.
4. Permittee will not disrupt the activities of other visitors or the normal use of the Refuge.
5. The permittee will not pose a public health or safety risk.
6. The permittee is responsible for ensuring all employees, party members, contractors, and any other persons working for the permittee and conducting activities allowed by this permit are familiar with and adhere to permit conditions and Refuge regulations.
7. Commercial art, filming, and photography must be tied to the Refuge's conservation purpose through the documentation of scenery, wildlife, or other natural objects in various media.
8. Permittee will submit annual report of activities conducted on the Refuge.
9. The permit may be terminated at any time by the Refuge due to non-compliance with stipulations of this permit or to protect the resources.
10. Permit will include a fee to support administration of the use.

**Justification:**

Commercial art, filming, and photography occur on the Wichita Mountains Wildlife Refuge as a secondary use that facilitates the primary wildlife-dependent recreation uses defined by the National Wildlife Refuge System Improvement Act of 1997. Though there is a commercial element to this activity, these events occur in support of wildlife observation and photography which are priority wildlife-dependent recreational uses. In this manner, commercial art, filming, and photography are existing supportive uses. Regulated commercial uses as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience wildlife firsthand and develop awareness, understanding, and appreciation of fish and wildlife resources. This activity will have minimal, if any, conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that these commercial uses, in accordance with the stipulations provided here, are compatible uses that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-2013
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

# COMPATIBILITY DETERMINATION

**Use:** Commercial Fishing Tournaments

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Commercial fishing tournaments are an existing use occurring on the Wichita Mountains Wildlife Refuge. Though there is a commercial element to this activity, these events occur in support of fishing which is a priority wildlife-dependent recreational use. In this manner, commercial fishing tournaments are an existing supportive recreational use. These tournaments require a Special Use Permit.

Through the CCP, the Refuge proposes to continue this use on Lake Elmer Thomas by requiring the issuance of a Special Use Permit for commercial users. The permittee would be required to follow the terms of the permit, including the locations of the Refuge allowed for a particular use and the methods for which it is conducted. The Refuge would also do more public outreach so that these groups are aware of the need to obtain a permit, and law enforcement would help the Refuge ensure that groups are obtaining and following their permit correctly. Fishing tournaments will be conducted in cooperation and partnership with ODWC and Fort Sill according to the MOU held between these groups. These tournaments will also be managed in accordance with Service policy and regulations.

**b) Where is the use conducted?**

Commercial fishing tournaments are allowed only in Lake Elmer Thomas within the Public Use Area.

**c) When is the use conducted?**

Fishing tournaments may occur year-round during daylight hours only.

**d) How is the use conducted?**

Tournament organizers are allowed access for fishing tournaments through a Special Use Permit only. The Special Use Permit regulates the timing, location, method, and duration of the allowable use.

Through Refuge-Wide Non-Native Fauna Objective 9, the Refuge plans to monitor lakes for zebra mussels and to coordinate with Oklahoma Department of Wildlife Conservation to determine way to best prevent mussel introduction. As part of this management, the Refuge is considering a sanitation and washing station at boat ramps.

**e) Why is this use being proposed?**

Fishing tournaments are an existing use supportive of fishing, one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. ODWC determines State fishing regulations and is the primary law enforcement agency for State fishing areas. While the primary purpose of the lakes is to provide a perennial water source for Refuge wildlife and serve as the beginnings of the watershed for many surrounding creeks, they also provide a high quality fishing experience within serene surroundings. Existing and planned infrastructure developments like fishing piers, parking lots, and impoundment structures at Lake Elmer Thomas support this use. This use offers the perfect opportunity to instill an understanding and appreciation for the purpose and mission of the Refuge.

Commercial tournaments will bring hundreds of new visitors to the Refuge each year. This use provides an opportunity for visitors to learn about the Refuge's natural resources. The Refuge will provide informational brochures about the Refuge and the National Wildlife Refuge System, which will further goals of the Refuge, the Refuge System, and the Service. These activities provide a value added service to the public, allowing them to appreciate and understand the conservation value of the Refuge. This

level of awareness can lead to support for the Refuge System, for wildlife conservation, and for resource management issues.

**Availability of Resources:**

Staff time would be required to administer and manage this activity. Expenses associated with management and monitoring of commercial fishing tournaments include fuel use, maintenance costs to Refuge vehicles, inspection and maintenance of associated facilities, education efforts, visitor contacts, and sign posting. Additions and enhancements to the fishing program as a whole will be addressed in the Fishing CD. To fully implement and manage the Special Use Permit program (including fishing tournaments), an additional 0.5 Park Ranger FTE is needed at a start-up cost of $91,000 and an annual operating cost of $45,000.

Refuge staff also plans to update the existing Fisheries Management Plan (2002) by 2017, as stated in Chapter 5 of the CCP. The step-down planning process will include an initial review period to determine if the activity is occurring at appropriate locations and levels, as well as if a quality recreational experience is being provided. Then, the Refuge will determine what, if any, changes to make to the fishing program. This process will require input from the Refuge Manager, Biology staff, and Visitor Services staff, as well as staff time and money.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Commercial fishing tournaments have the potential to adversely impact the Refuge's physical and biological habitat. Use of boats of any size with any type of motor on Lake Elmer Thomas may result in emissions and exhaust negatively impacting the Refuge's air quality. These boats may also cause wildlife disturbance due to noise and might produce waves that could degrade shorelines; however, the Refuge maintains a no-wake zone on Lake Elmer Thomas to prevent such instances from occurring.

To reduce the potential for any adverse effects, each tournament would be evaluated individually and would only be approved and permitted when only minimal impacts to Refuge resources and existing wildlife-dependent recreation functions can be assured. These activities could result in adverse effects that come from large groups congregating on the Refuge, especially on the banks of Lake Elmer Thomas. Fishing tournaments could result in adverse impacts to the visitor experience for other Refuge users.

Boat use associated with commercial fishing tournaments may also cause increased spread of non-native fauna like zebra mussels that can lead to habitat degradation. Zebra mussels cause tremendous modifications and disruptions in freshwater ecosystems. Currently, these mussels do not occur on Refuge lakes. Through the proposed action, the Refuge plans to consider more aggressive and proactive measures to avoid zebra mussel introduction by coordinating with other agencies and organizations, including ODWC. The Refuge is considering a sanitation and washing station at boat ramps to help minimize the potential for this species' introduction. Thus, these increased efforts are expected to maintain the current ecosystem and help prevent introduction, keeping environmental impacts negligible.

Alternatively, commercial fishing tournaments may result in long-term beneficial impacts to the human environment, as they support fishing on the Refuge. This activity could bring new visitors

to the Refuge to participate in tournaments, resulting in a beneficial impact to these visitors. This use may increase the viewers' understanding and appreciation of fish and wildlife, their habitat needs, and the role of the National Wildlife Refuge System in their conservation.

Cumulative Impacts:

There are some minor to moderate adverse cumulative impacts resulting from fishing tournaments and the gathering of large groups when combined with the normal use of the Refuge. These impacts include fish mortality, disturbance to wildlife, vegetation trampling, erosion, and public use conflict. To mitigate these adverse effects, the Refuge will monitor and regulate this use to ensure that these groups are not too large or occurring too frequently to cause resource damage. The Refuge will also limit the number of tournaments held to protect resources and to maintain the quality of experiences for other Refuge users.

Ultimately, this activity will add to public use opportunities on the Refuge, which will result in beneficial cumulative impacts on the human environment. However, other Refuge users such as bird watchers, wildlife photographers, and environmental educators occasionally experience conflicts with large groups of people on the Refuge (especially large and/or noisy groups). Rather than direct conflict, however, more commonly the reaction of these other users is to avoid popular gathering areas to seek solitude and a more undisturbed atmosphere elsewhere. Socioeconomic impacts are positive for area motels, service stations, and restaurants.

The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that commercial fishing tournaments remain a compatible use:

1. Permittee will comply with all Refuge regulations.
2. Harassment of wildlife will be prohibited.
3. Commercial tournaments may only occur where authorized by the permit. Gathering areas will be permit-specific based on maximum potential group size.

4. Permittee will not disrupt the activities of other visitors or the normal use of the Refuge.
5. The permittee will not pose a public health or safety risk.
6. The permittee is responsible for ensuring that all employees, party members, contractors, and any other persons working for the permittee and conducting activities allowed by this permit are familiar with and adhere to conditions of the permit and all Refuge regulations.
7. The permit may be terminated at any time by the Refuge due to non-compliance with stipulations of this permit or to protect the resources.
8. Permit will include a fee to support administration of the use.

**Justification:**

Fishing tournaments are an existing secondary use on the Refuge that facilitates fishing, one of the primary wildlife-dependent recreation uses defined by the National Wildlife Refuge System Improvement Act of 1997. These tournaments will require a Special Use Permit and will continue to be permitted only on Lake Elmer Thomas. Nearly one half of Lake Elmer Thomas is managed by the U.S. Army (Fort Sill Military Reservation), which allows commercial fishing tournaments. Regulated fishing tournaments as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience wildlife firsthand and develop awareness, understanding, and appreciation of fish and wildlife resources. Appropriate mitigation measures will be required to ensure this activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that fishing tournaments, in accordance with the stipulations provided here, is a compatible use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-20-2013
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

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# COMPATIBILITY DETERMINATION

**Use:** Commercial Interpretive Tours

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination addresses commercial interpretive tours on the Wichita Mountains Wildlife Refuge. Individuals or organizations that bring clients to the Refuge for the purpose of interpretation and charge a fee or tuition for their service are required to have a Special Use Permit issued by the Refuge.

Typically, this use involves motor coaches or buses transporting groups of individuals across the Refuge, though such tours may be conducted by bicycle, on foot, or self-led tours via rental bicycles. Tour group leaders usually present Refuge information that focuses on the natural history and current management of key Refuge species (bison, elk, turkey, black-tailed prairie dog, black-capped vireo, and other species) and their habitats, public land management and stewardship, and emerging issues such as climate change and energy conservation. Such commercial tours are not a priority public use, but they occur in support of wildlife observation and interpretation while providing access to the Refuge where the public may participate in other wildlife-dependent recreational uses. These uses require commercial operators to receive a Special Use Permit from the Refuge Manager prior to conducting interpretive tours.

**b) Where is the use conducted?**

The proposed commercial use would be allowed on the paved roads and managed trails in the high and medium use density areas of the Refuge (see Figure G-2 of the CCP). This restriction is designed to reduce conflicts between user groups and control the impacts of group size on wildlife and designated wilderness. All commercial interpretive uses would be limited to specific, developed public use areas. Only the Friends of the Wichitas-led tours would be allowed in the Special Use Area.

High Density Use Zone: Groups of any size and/or groups using motor coaches would be permitted to use the Public Use Area along State Highway 49 between the Medicine Park gate and the Visitor Center. Permitted stops would include Mt. Scott, Mt. Scott Picnic area, the Holy City, Jed Johnson tower, and the Visitor Center. A stop at the Turkey Creek prairie dog interpretive site would also be permitted although it is in the medium density use zone.

Medium Density Use Zone: Groups of up to 30 people would be permitted to use all locations in the high density use zone, and would be permitted to use the Lost Lake, Boulder Cabin, and Boulder Creek Picnic areas, the Kite Trail, the Turkey Creek prairie dog interpretive site, and the Dog Run Hollow National Recreation Trail system including both French Lake trailheads.

No permits will be allowed for commercial interpretive activities in the low density use zone in order to protect wilderness characteristics or in the Special Use Area.

See Figure G-2. Public Use Density Zones

**c) When is the use conducted?**

Commercial use would be permitted Mondays through Thursdays year-round, with holidays excluded from the commercial use period. From March through May, commercial tours would be limited to the hours after 1:00 p.m. to reduce conflict with the large number of school groups the Refuge hosts during the spring.

**d) How is the use conducted?**

Commercial interpretive vendors would be required to obtain a Special Use Permit to conduct a tour or rent bicycles on the Refuge. Vendors would be required to provide all

transportation and marketing, provide proof of insurance, schedule a tour at least 1 month in advance, and engage a Refuge staff member or Refuge volunteer to provide interpretive services while on the Refuge. A Refuge trained interpreter is a core requirement for any commercial interpretive tour vendor. Requiring the vendor to use a Refuge-trained interpreter ensures that the quality, tone, and content of the commercial tour meet interpretive standards, and allows the Refuge to meet interpretive and outreach goals. Commercial bus operators in the region have historically paid $5.00 per passenger for this type of interpretive service. The Friends of the Wichitas (Friends) also charge $5.00 per person for their interpretive tours of the Refuge.

**e) Why is the use conducted?**

The interpretive bus and hiking tours offered by the Friends are very popular. Demand for these interpretive tours far exceeds the Friends' staffing capacity. For several years, commercial operators have asked for access to the Refuge and for interpretive assistance on their tours. A visitor willing to pay for a commercial tour is a good target audience for value added interpretation on the Refuge.

Commercial interpretive tours will bring hundreds of new visitors to the Refuge each year and bring new awareness and appreciation to return visitors. This provides an opportunity for the Refuge to conduct public interpretation and outreach. The Refuge will provide informational brochures about the Refuge and the National Wildlife Refuge System, which will further goals of the Refuge, the Refuge System, and the Service. These tours provided a value added service to the public, allowing them to appreciate and understand the conservation value of the Refuge. This level of awareness can lead to support for the Refuge System, for wildlife conservation, and for resource management issues.

**Availability of Resources:**

Base operational funds combined with recreational fees that would be made available as a result of this use would be adequate to manage commercial bus tours activities. A $100.00 annual permit fee will be collected from each vendor regardless of how many tours are conducted. The revenue collected from the Special Use Permit will in part be returned to the Refuge through the recreation fee program for use in management of commercial and interpretive services. The fee covers the administrative workload associated with each permit which requires about 1 day per permittee per year to maintain a special use file, coordinate Refuge staff review, issue annual permits, collect fees, ensure licenses and certifications are current, and complete annual reporting. The $5.00 per person charge covers the cost of providing the interpretive service. If the Refuge Manger determines that the vendor does not need a Refuge interpreter because of appropriately trained staff, the permit will require field monitoring for compliance with the interpretive and other terms of the permit. To fully implement and manage the Special Use Permit program (including commercial interpretive tours), an additional 0.5 Park Ranger FTE is needed at a start-up cost of $91,000 and an annual operating cost of $45,000.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

The Refuge already receives over 1.5 million visitors each year. The vast majority of these visitors engage in wildlife observation, using personal vehicles on Refuge maintained roadways. Readily available, commercial interpretive tours would offer the public an alternative method of engaging in wildlife observation, a priority public use. Commercial tours would benefit the Refuge by offering an energy-efficient, organized, content driven method of facilitating large numbers of people engaged in observation. It also has the potential to reduce the number of cars traveling on Refuge roads.

Under the current Visitor Services staffing level, the Refuge can accommodate 1 commercial tour per day, with a maximum of 224 tours per year. Using an average ridership rate of 30 people per tour, this translates to about 6,720 people that the Refuge could reach each year with a very high quality interpretive and observation experience. While these 6,720 people might have visited the Refuge in their private vehicles if the commercial service had not been available, we would not have been able to reach them with a focused presentation. It is expected that we could reach the current maximum tour level of 224 tours per year within the first 3 to 5 years that the Refuge permits commercial interpretive tours. However, the $5.00 per person interpretive service charge could provide up to $33,600 per year to fund additional interpretive staff.

Potential negative impacts are those associated with any increase in visitation: trampling of vegetation, disturbance to wildlife, littering, increased facility maintenance need, and potential conflicts with other visitors.

No long-term impacts beyond the issues indentified here are anticipated. The Refuge already manages visitation and recreational use within the 24,088 acre designated Public Use Area. Because of the Refuge's combined administrative oversight and law enforcement focus on public use activities, direct impacts from commercial bus tours administered through commercial tour permits should have minimal or negligible impact to fish and wildlife resources, other Refuge resources, and other Refuge users. The increased visitation would have minimal impacts to the Refuge because access would be limited to low visitation periods in areas with existing public use infrastructure capable of supporting high levels of visitor use.

If the demand for commercial interpretive service grows beyond the capacity of the existing Visitor Services Staff, the interpretive service charge could fund additional temporary staff or interns.

Cumulative Impacts:

There are no anticipated adverse cumulative impacts resulting from commercial interpretive tours. This use occurs in conjunction with wildlife-dependent recreational uses and adds to the available recreational opportunities on the Refuge. Therefore, it may result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012.

Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that commercial interpretive tours remain a compatible use:

1. Permittee will comply with all Refuge regulations.
2. Commercial interpretive tours may only occur within the Public Use Area of the Refuge. Routes and stops will be permit-specific based on maximum potential group size.
3. Permittee will not disrupt the activities of other visitors or the normal use of the Refuge.
4. The permittee will not pose a public health or safety risk.
5. The permittee is responsible for ensuring that all employees, party members, contractors and any other persons working for the permittee and conducting activities allowed by this permit are familiar with and adhere to conditions of the permit and all Refuge regulations.
6. Permittee will submit annual report of number of clients and trips, location of trips, dates and length of stay on Refuge, group size, and other related information.
7. The permittee shall maintain, throughout the use period specified on the permit, insurance covering his/her interpretive tour operation.
8. The permit may be terminated at any time by the Refuge due to non-compliance with stipulations of this permit or to protect the resources.
9. Permit will include a fee to support administration of the use.

**Justification:**

A goal of the Refuge System is to provide opportunities for the public to develop an understanding and appreciation for wildlife on refuges those opportunities are compatible. Commercial interpretive tours will contribute to the achievement of this goal and the fulfillment of the Refuge System mission. By allowing commercial interpretive tours, the visiting public will have a better understanding and appreciation for wildlife and habitat conservation and management, the purpose of the Refuge, and the mission of the Refuge System. This use will directly support the priority public uses of wildlife observation and interpretation.

Wildlife observation and interpretation are priority public uses of the Refuge System. Providing quality, appropriate, and compatible opportunities for these activities contributes to fulfilling

provisions of the National Wildlife Refuge System Improvement Act. Wildlife observation and interpretation provide excellent forums for promoting increased awareness, understanding, and support of trust resources and programs of the Service. The stipulations outlined here should minimize potential impacts relative to wildlife/human interactions. At the current and anticipated levels of visitation, this use would not detract from the mission of the National Wildlife Refuge System or Purpose of the Wichita Mountains Wildlife Refuge.

**Signature:** Refuge Manager _____, 2-20-2013
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

# COMPATIBILITY DETERMINATION

**Use:** Commercial Rock Sports

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Rock sports are an existing historic use occurring on Wichita Mountains Wildlife Refuge. Rock sports include traditional climbing, rappelling, and bouldering—activities that require specialized equipment such as ropes, harnesses, anchors, and pads. While engaging in rock sports, individuals also engage in wildlife-dependent recreation through wildlife observation and interpretation. In this manner, rock sports are an existing supportive

recreational use. Commercial rock sports users are groups or individuals that charge a fee to lead people for guided or instructional rock climbing activities on the Refuge.

The Refuge proposes to continue this existing Refuge use through Public Use Area Management Objective 11, "Within one year of CCP approval, manage rock sport opportunities to provide for better protection of Refuge resources by increasing, improving, and maintaining administration of these activities."

**b) Where is the use conducted?**

Rock sports are allowed throughout the Public Use Area of the Refuge, with the notable exception of no rappelling in the Narrows. The primary rock sport areas of the Refuge are located at Mt. Scott, the Meadows, the Narrows, and several locations within the Charons Garden Wilderness Area. However, group size would be limited based on geographic area to reduce conflicts between user groups and to control the impacts of group size on wildlife and designated Wilderness. See Figure G-2 in the CCP.

High Density Use Zone: Groups of any size can be permitted to use the high density use zone between the Medicine Park Gate and the Visitor Center, which includes the Mt. Scott climbing walls.

Medium Density Use Zone: Groups of up to 30 people would be permitted to use the Narrows, Forty Foot Hole, and Dog Run Hollow Trail area, as well as Mt. Scott.

Low Density Use Zone: Groups of less than 15 individuals would be permitted to use the low density use area, which includes Charons Garden and all other rock sport areas in other use zones.

Large and medium-sized groups could be permitted to use the Low Density Use Zone group area if they obtain a Special Use Permit in advance.

See Figure G-2 in the CCP.

**c) When is the use conducted?**

Refuge visitors may engage in rock sports on the Refuge year-round during daylight hours only.

**d) How is the use conducted?**

Commercial rock sports participants would be required to obtain a Special Use Permit to conduct their activities on the Refuge. They would be expected to follow the terms of that permit as far as location, timing, and methods allowable for the use, and other provisions necessary to protect resources. The Refuge works in collaboration with the Wichita Mountains Climbers Coalition (WMCC) to ensure that rock sports do not impact other user groups or the natural resource and to manage the installation and replacement of permanent anchors.

**e) Why is this use being proposed?**

The high quality granite domes, slabs, and boulders of the Refuge offer some of the finest rock sports in the southwest and opportunities for group instruction. Multi-pitch routes set in an undeveloped landscape provide the climbing community unparalleled opportunities to experience the wildlife and wild places of the Refuge. It is estimated that only a small fraction of all Refuge visitors engage in commercial rock sports, but this level of use is of great importance to the rock climbing community due to limited opportunities nearby. This use also facilitates wildlife observation and interpretation, both of which are priority wildlife-dependent recreational uses. These activities provide a value added service to the public, allowing them to appreciate and understand the conservation value of the Refuge. This level of awareness can lead to support for the Refuge System, for wildlife conservation, and for resource management issues.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including commercial rock sports. Through the CCP, the Refuge proposes to better manage, control, and/or restrict commercial uses as necessary. To make these enforcements possible, changes to the Special Use Permit program will be made. It is anticipated that these changes will require additional time, money, or staff. To fully implement and manage the Special Use Permit program, an additional 0.5 Park Ranger FTE is needed at a start-up cost of $91,000 and an annual operating cost of $45,000. Through the CCP, the Refuge aims to manage compatible supportive recreation activities, including some commercial uses, on the Refuge in a way that minimizes conflict with other users and natural resources.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Potential negative environmental impacts associated with climbing activity include soil erosion and removal of vegetation, primarily through trail proliferation from climbers seeking foot access to climbing routes. Potential habitat damage from actual climbing includes reduction in coverage and species diversity of lichens and possible damage to spikemosses, lipferns, and other rooted vascular vegetation. Use of permanent climbing anchors (bolts) is also identified as an environmental concern, particularly in the Charons Garden Wilderness Area, with possible impacts including aesthetic degradation and effects on the rock itself.

Probably the most harmful impact to Refuge fauna is human disturbance in the limited and specialized habitats used by climbers. Wildlife impacts include behavioral changes for some species, which can interfere with reproduction and thus lower productivity. Most animals react to human disturbance by avoidance and leaving the disturbed area, although this impact is very difficult to quantify. Based purely on numbers of participants, rock sports would appear to have fewer impacts than other and more popular public uses such as hiking, picnicking, camping, etc.

Impacts to endangered species are believed to be minimal. Black-capped vireos utilize the Charons Garden Wilderness Area, but studies to date have not shown impact on vireos from climbing activity. Indirect impacts of climbing include relationships between climbers and other

Refuge visitors. One indirect effect of climbing is its visual impact. Some Refuge visitors are attracted to climbing and rappelling activity (a spectator sport).

A growing issue in the Public Use Area of the Refuge is the relationship between group size and the impact on other visitors and on wildlife. Large groups (over 15 people) tend to produce more noise, which distracts from the quality of other visitors' experience and disrupts wildlife.

Other Refuge visitors seeking solitude and a more undisturbed wilderness atmosphere tend to avoid climbing areas. Socioeconomic impacts are positive for area motels, service stations, and restaurants. Other Refuge users such as bird watchers, wildlife photographers, and environmental educators occasionally experience conflicts with rappellers (especially large and/or noisy groups). Rather than direct conflict, however, more commonly the reaction of these other users is to avoid popular climbing areas to seek solitude and a more undisturbed wilderness atmosphere elsewhere. More detailed discussion of impacts, including literature references, are included in the environmental assessment.

Cumulative Impacts:

Cumulative effects of climbing and other public use are difficult to quantify, but climbing is only one of several uses that contributes to such negative environmental impacts as soil erosion and vegetation removal (trail proliferation), as well as wildlife disturbance impacts. Rock sports occur in conjunction with wildlife observation, photography, and interpretation, each of which will ultimately result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. One comment was received in regard to commercial rock sports. It recommended that the Refuge ensure Special Use Permit applicants be certified and/or accredited guides as a prerequisite for commercial climbing SUPs. The Refuge replied that it can provide information on this certification but did not think it was appropriate to require this as a prerequisite. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that rock sports remain a compatible use:

1. Some locations or sites may be closed seasonally when necessary to protect resources (i.e., nest locations, den sites)
2. The Refuge will prohibit rappelling in the Narrows.
3. All rock sport participants must register on site so the Refuge can monitor use patterns (such as the type of use, area of use, group size, etc.) and public safety.
4. Permittee will comply with all Refuge regulations.
5. Harassment of wildlife will be prohibited.
6. Commercial rock sports may only occur where authorized by the permit. Gathering areas will be permit-specific based on maximum potential group size.
7. Permittee will not disrupt the activities of other visitors or the normal use of the Refuge.
8. The permittee will not pose a public health or safety risk.
9. The permittee is responsible for ensuring that all employees, party members, contractors, and any other persons working for the permittee and conducting activities allowed by this permit are familiar with and adhere to conditions of the permit and all Refuge regulations.
10. Permittee will submit annual report of activities conducted on the Refuge.
11. The permit may be terminated at any time by the Refuge due to non-compliance with stipulations of this permit or to protect the resources.
12. Permit will include a fee to support administration of the use.
13. Permittee will not install or replace any permanent anchors (bolts) without the review and approval of the Refuge in consultation with the Wichita Mountains Climbers Coalition Advisory Bolting Committee (WMCC ABC).

**Justification:**

The proposed action takes into account the major resource and environmental concerns, as well as socioeconomic factors such as past history and management of technical rock climbing on the Refuge and restrictions on other Refuge recreationists. It recognizes that climbing, with certain environmental and ethical restrictions, is a legitimate recreational activity that has been historically allowed on the Refuge. It provides a primitive recreational activity in the Charons Garden Wilderness Area consistent with the purpose of the Wilderness Act and subordinate to Refuge purposes. Through establishment of the WMCC ABC and overall efforts to foster a spirit of genuine cooperation with the climbing community and improve environmental ethics of all "backcountry" users, it is generally accepted as reasonable and fair by climbers who will thus tend to monitor their own sport and voluntarily cooperate and comply. This spirit of acceptance and cooperation is especially critical given the "backcountry" nature of climbing activity and the relatively small number of Refuge staff usually available for monitoring activities in climbing areas.

**Signature:** Refuge Manager _____, 2-20-2013
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

# COMPATIBILITY DETERMINATION

**Use:** Commercial Scuba Instruction

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Commercial scuba instruction is an existing, secondary recreational use occurring on the Wichita Mountains Wildlife Refuge. This use occurs when scuba instructors bring a class to the Refuge. Individuals in the class are charged a fee for the course instruction, and the instructor makes a profit off of this opportunity. Though not a priority wildlife-dependent recreational use, scuba diving is supportive of underwater wildlife observation.

Through the CCP, the Refuge proposes to continue this existing Refuge use by requiring Special Use Permits for instructors.

**b) Where is the use conducted?**

Scuba diving is allowed only on Lake Elmer Thomas.

**c) When is the use conducted?**

Refuge visitors may engage in scuba diving on the Refuge year-round during daylight hours only.

**d) How is the use conducted?**

Commercial scuba diving instructors will be required to obtain a Special Use Permit and pay a user fee to conduct their activities on the Refuge. They would be expected to follow the terms of that permit as far as location, timing, and methods allowable for the use, and other provisions necessary to protect resources. Group size will be limited to 15 individuals to reduce conflicts with fishing, a priority wildlife-dependent recreational use. Police and fire departments from nearby communities come in large groups to the Refuge to scuba dive for training purposes. They will be required to obtain a Special Use Permit, but the fee will be waived.

**e) Why is this use being proposed?**

Scuba diving is an existing use supportive of wildlife observation, one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. While the primary purpose of the lakes is to provide a perennial water source for Refuge wildlife and serve as the beginnings of the watershed for many surrounding creeks, the Refuge lakes are also intended to provide a high quality recreational experience within serene surroundings. Existing and planned infrastructure developments like fishing piers, parking lots, and impoundment structures at Lake Elmer Thomas support this use. This use offers the perfect opportunity to instill an understanding and appreciation for the purpose and mission of the Refuge.

This use provides an opportunity for visitors to learn about the Refuge's natural resources. The Refuge will provide informational brochures about the Refuge and the National Wildlife Refuge System, which will further goals of the Refuge, the Refuge System, and the Service. These activities provide a value added service to the public, allowing them to appreciate and understand the conservation value of the Refuge. This level of awareness can lead to support for the Refuge System, for wildlife conservation, and for resource management issues.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including commercial scuba diving. Through the CCP, the Refuge proposes to better manage, control, and/or restrict commercial uses as necessary. To make these enforcements possible, changes to the Special Use Permit program will be made. It is

anticipated that these changes will require additional time, money, or staff. To fully implement and manage the Special Use Permit program (including commercial scuba instruction), an additional 0.5 Park Ranger FTE is needed at a start-up cost of $91,000 and an annual operating cost of $45,000.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Changes in habitat or water and shoreline quality are not expected as a result of this activity due to the depth of water that divers generally utilize. These activities could also result in adverse effects that come from large groups congregating on the Refuge. To reduce the potential for any adverse effects and user conflicts, each permit would be evaluated individually and would only be approved and issued when minimal impacts to Refuge resources and existing wildlife-dependent recreation can be assured.

Commercial scuba diving is a short-term use on the Refuge that may result in beneficial impacts to the visitor experience through wildlife-dependent recreational use of wildlife observation and interpretation.

Cumulative Impacts:

At current levels, there are minor anticipated adverse cumulative impacts resulting from commercial scuba diving. Adverse effects are caused by the gathering of large groups and user conflict. To mitigate safety impacts, the Refuge requires boaters to follow State regulations on boating-scuba diving interactions. The Refuge will monitor and regulate this use to ensure that group size and dive frequency are not causing resource damage or safety concerns. This use occurs in conjunction with wildlife-dependent recreational uses and adds to the available recreational opportunities on the Refuge. Therefore, it may result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that scuba diving remains a compatible use:

1. Activity is monitored to assure that all Refuge rules and regulations are followed, as outlined in the Cooperative Agreement (see Justification).
2. Scuba diving is observational only and does not include fishing using underwater techniques.
3. Scuba diving will only occur in Lake Elmer Thomas.
4. Group size will be limited to 15 individuals.
5. Permittee will comply with all Refuge regulations.
6. Harassment or feeding of wildlife is prohibited.
7. Commercial scuba diving may only occur when and where authorized by the permit. Gathering areas will be permit-specific based on maximum potential group size.
8. Permittee will not disrupt the activities of other visitors or the normal use of the Refuge.
9. The permittee will not pose a public health or safety risk.
10. The permittee is responsible for ensuring that all employees, party members, contractors, and any other persons working for the permittee and conducting activities allowed by this permit are familiar with and adhere to conditions of the permit and all Refuge regulations.
11. The permit may be terminated at any time by the Refuge due to non-compliance with stipulations of this permit or to protect the resources.
12. Permit will include a fee to support administration of the use.

**Justification:**

Commercial scuba diving currently occurs on the Wichita Mountains Wildlife Refuge as a secondary use that facilitates the primary wildlife-dependent recreation uses defined by the National Wildlife Refuge System Improvement Act of 1997. Essentially, this commercial use facilitates wildlife observation. According to Fish and Wildlife Service Policy (603 FW 1, Section 1.11), "there may be situations where the refuge has exceptional or unique recreational resources, such as rock climbing, that are not available nearby, off the refuge, and the use requires insignificant management resources. In such cases, we may further consider a use." Police and fire departments from nearby communities come in large groups to the Refuge to scuba dive for training purposes. Opportunities for this type of training are limited in the area. Additionally, Lake Elmer Thomas is one of the few lakes in the local area that has clear enough water to engage in this activity. Scuba diving would only be on Lake Elmer Thomas. Users would be required to obtain a Special Use Permit. Scuba diving occurs in accordance with Cooperative Agreement #1448-0002-92-233 between the U.S. Fish and Wildlife Service (Wichita Mountains Wildlife Refuge), U.S. Army (Fort Sill Military Reservation), and the State of Oklahoma (Oklahoma Department of Wildlife Conservation).

Regulated commercial uses as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience wildlife firsthand and

develop awareness, understanding, and appreciation of fish and wildlife resources. This activity will have minimal conflict with any of the other priority public uses or adversely impact biological resources. Group size will be limited to 15 individuals to reduce conflicts with fishing, a priority wildlife-dependent recreational use. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that these commercial uses, in accordance with the stipulations provided here, are compatible uses that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-2013
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

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# COMPATIBILITY DETERMINATION

**Use:** Environmental Education

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Wichita Mountains Wildlife Refuge is home to one of the largest and busiest Environmental Education (EE) programs in the U.S. Fish and Wildlife Service. Several existing programs and facilities offer educational opportunities for visitors of all abilities to enjoy. The program includes on-Refuge courses taught primarily at the EE Center.

The Refuge proposes to continue this existing wildlife-dependent recreational use, as well as make one change through Public Use Area Management Objective 4 of the CCP: "Within five years of CCP approval, develop the EE Center as an educational training facility and increase emphasis on EE from 6 percent to 10 percent of school contacts and staff-led activities." This CD re-evaluates this existing use and considers the proposed changes to and expansion of the EE program.

**b) Where is the use conducted?**

Most youth programs are conducted at the EE Center at Quanah Parker Lake. The EE Center buildings include a large classroom building (1,960 square feet), a small classroom building (923 square feet), an outdoor observation building (1,000 square feet), a bathroom, and a storage building that houses a women's and men's latrine. In accordance with the strategies outlined in the CCP, the EE Center would be remodeled to allow more functional use as classrooms. In addition, the number of environmental education courses, and the number of participants in these courses, will be limited in the Wilderness area.

**c) When is the use conducted?**

The EE Center is available 7 days a week for educational classes and meetings. EE programs generally last at least two hours and involve a series of contacts that culminate in personal action.

**d) How is the use conducted?**

EE programs are offered on an advance reservation basis only, and class sizes are limited to ensure quality programming. The EE program at the Refuge focuses on the role of personal action—the power of one—in the broader theme of resource conservation. Large and complex topics such as climate change, resource conservation, and endangered species are taught with a focus on what one individual can do to effect change. The Refuge also offers environmental education pertaining to Wilderness management and Leave No Trace in an attempt to maintain the unique opportunity for solitude that designated Wilderness offers. The EE program serves students of a wide variety of ages and interest groups, including Native American EE, university accredited workshops, and school and youth groups.

The Native American EE Program has developed a number of programs for various Plains tribes. These courses typically occur on-Refuge over weekends to allow for more in-depth learning experiences. Programs may combine art, tribal tradition, and modern environmental ethics in a format that celebrates the Native American heritage and wildlife legacy.

The Refuge also hosts a variety of workshops available for college credit in cooperation with Cameron University in Lawton, Oklahoma. Workshop subjects include biodiversity, Wichita Mountains biome, prairie ecology, elk, eagles, global change, migratory birds, and environmental ethics. All Refuge EE workshops through Cameron University remain in high demand, filled to capacity with enrolled students and a waiting list of students eager to fill any cancelled slots. The workshops use activities,

research, personal introduction to the environment, and journaling sessions to involve participants in current environmental issues.

The youth component of the Refuge EE program maintains the largest number of participants, averaging 8,000 students per year. This program involves staff-conducted teaching of students onsite about Refuge resources and management programs. Youth programs consist primarily of public school classes from the surrounding region, although home schools, scout troops, youth groups, parochial schools, and other entities also benefit from the programs. Once per year, the Refuge offers a week long sleepover camp called Nature Quest to offer extensive EE opportunities to school-aged children. Through the management outlined in the CCP, the Refuge intends to correlate EE classes to the Oklahoma State Curriculum.

In addition, the Refuge plans to host teacher workshops conducted by on-site EE staff. These workshops include an orientation, information session, and resource activities that provide area teachers with resources and tools necessary for teaching students about Refuge resources and management programs.

**e) Why is this use being proposed?**

Through a learning process that employs nature as teacher, students gain an appreciation of natural systems and an awareness of environmental issues, and they learn the importance of a healthy environment to humans as well as wildlife. Students apply the knowledge to their daily lives and make changes based on that knowledge. Staff-conducted teaching prepares students to participate in environmental and social decision making to sustain natural and cultural resources. A variety of workshops give children opportunities to learn about and gain a deep appreciation for the natural world while creatively expressing their experiences through a variety of artistic media.

College level students learn to examine human biases and value judgments as they apply to wildlife, habitat, and consumptive uses of natural resources. Native American EE programs are designed to give students a “sense of the scared” in the Native American relationship with the natural world while also instilling awareness and appreciation of environmental issues. Teacher workshops enhance appreciation of the Refuge’s role in the National Wildlife Refuge System, increase support for the preservation of natural diversity of flora and fauna on Refuge lands, and create an educated constituency supporting refuges and biodiversity preservation. Ultimately, the EE program is a cost-effective way to educate Refuge visitors and build public awareness while providing individuals with a high quality Refuge experience.

**Availability of Resources:**

About six percent (9,300) of the contacts made by Visitor Services staff are considered environmental education (USFWS 2009) and are generally comprised of college classes and alternative education classes. Therefore, the Refuge currently funds three full-time environmental educators and receives volunteered services equivalent to an additional three staff people. The existing staff is insufficient to provide the level of use anticipated for the EE Program in the CCP (an increase to 10 percent of contacts). Therefore, the CCP proposes that the Refuge add an additional Environmental Education Specialist to further enhance class offerings

and meet this need. The Refuge also plans to enhance the EE Center in order to better serve the program, as outlined in the CCP, but the existing structure serves as the land base for this use. The Refuge partners with its Friends group to provide transportation assistance for students when needed, and the Refuge has also partnered with the City of Lawton School District.

Ultimately, additions and enhancements to the EE program will be considered through Projects 23d and 25c of the CCP, which aim to improve environmental education and education-related facilities. The Refuge proposes an estimated additional budget of $234,000 in start-up cost and an annual operating cost of $106,800 per year to staff and supply the expanded program. The start-up costs for EE building upgrades are estimated at $600,000 with an annual maintenance and upgrade budget of $25,000. All other public use facility improvements proposed in the CCP will also benefit the EE program.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

The overall impacts to Refuge resources resulting from the EE program will be minimal due to the emphasis on courses occurring on-Refuge at the EE Center. The proposed enhancements to the EE Center will not increase the development footprint of the Refuge, as the current facilities are already in existence. There may be some minimal disturbance to wildlife resulting from large groups of students visiting the Refuge and/or school bus traffic bringing students to the Refuge, but the level of disturbance is unlikely to interfere with wildlife behavior and movements as EE makes up only 6-10 percent of Visitor Service contacts (USFWS 2009). In addition, school groups that travel among trails near the EE Center may cause trampling, erosion, and plant damage, thus resulting in habitat degradation. Due to the level of the use and facilitation of the program by Refuge staff, these impacts are likely to be minimal and short-term, occurring only in close proximity to the EE Center. Offering these activities does not alter the Refuge's ability to meet habitat goals and helps support several of the primary objectives of the Refuge.

Implementation of the EE program will ultimately continue to provide a benefit to local residents by developing a higher level of environmental knowledge and awareness among students. In addition, the program will provide long-term benefits for the Refuge itself by promoting environmental stewardship in students.

Cumulative Impacts:
It is unlikely that the EE program will incrementally add to resource impacts when combined with all past, present, and reasonably foreseeable future projects. Beneficial cumulative impacts may occur, however, through the spread of an environmental stewardship philosophy resulting in students who partake in the EE Program. Ultimately, this may benefit the overall mission of the National Wildlife Refuge System by fostering knowledge of the Service as well as environmental awareness and natural resource conservation.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices

posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

_**X**_ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that EE remains a compatible use:

1. Individuals or organizations that bring clients to the Refuge for EE purposes and charge a fee or tuition for their services are required to have a Special Use Permit issued by the Refuge. This requirement ensures that private businesses are not unfairly making a profit from public lands and provides a mechanism for the Refuge to regulate where and when commercial activities occur.

2. EE will only take place when and where the Refuge approves the use. All activities are to occur under the guidance of a Refuge staff member to assure minimal disturbance to wildlife, minimal vegetation damage, and minimal user conflict between other public uses.

**Justification:**

As defined by the National Wildlife Refuge System Improvement Act of 1997, wildlife-dependent recreational uses may be authorized on a refuge when they are compatible and not inconsistent with public safety. Environmental education is included as one of these six activities, which are to receive enhanced and priority consideration in Refuge planning and management. Interactive environmental education as described here and consistent with the management direction provided in the CCP will increase the public's awareness, understanding, and appreciation of fish and wildlife resources. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that environmental education, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-2013
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date**: **2028**

**References Cited:**

U.S. Fish and Wildlife Service (USFWS). 2009. Wichita Mountains Wildlife Refuge Unpublished Data.

# COMPATIBILITY DETERMINATION

**Use:** Fishing

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates fishing, which is an existing wildlife-dependent recreational use occurring on the 12 lakes on Wichita Mountains Wildlife Refuge.

The Refuge proposes to continue this existing wildlife-dependent recreational use through Refuge-Wide Water Resources Objective 1 in the CCP: "Throughout the life of

the CCP, manage water resources first and foremost for megafauna and secondarily for fisheries, waterbirds, migratory waterfowl, and shorebird species." In addition, the CCP states that the Refuge will manage fishing to allow for increased opportunities and improved experiences (Public Use Area Management Objective 1).

**b) Where is the use conducted?**

Fishing is allowed on all bodies of water located in the Public use Area, but primarily occurs on the following twelve lakes. These areas are illustrated in the Public Use Opportunities map in the CCP. The 12 lakes total 500 acres and include:

- Jed Johnsons Lake (boat ramp)
- Rush Lake (boat ramp)
- Quanah Parker Lake (accessible fishing pier)
- Lake Elmer Thomas (two accessible piers, double-land boat ramp, floating boat dock, artificial fish structures)
- French Lake (boat launch area)
- Lost Lake
- Caddo Lake
- Burford Lake
- Osage Lake
- Treasure Lake
- Post Oak Lake
- Crater Lake

Lake Elmer Thomas is located on the boundary between Fort Sill Military Reservation and the Refuge and is managed cooperatively. The Refuge portion of the lake features two fishing piers, a double-lane boat ramp with floating boat dock, and multiple artificial fish structures.

**c) When is the use conducted?**

Fishing areas are open 24 hours a day year-round. Night fishing is allowed.

**d) How is the use conducted?**

The Refuge provides ample fishing opportunities for bank and boat anglers. Visitors may participate in pole and line or rod and reel fishing only. Largemouth bass, sunfish, crappie, and channel catfish are commonly caught. Only an Oklahoma State fishing license is required to fish on the Refuge. Wading is permitted when fishing, and, thus, fishermen may use tube type floaters, life jackets, or buoyant vests. Obtaining any type of bait from Refuge lands or waters is prohibited, as is taking of frogs and turtles. Mercury contamination has been found in Refuge lakes, and signs are posted warning anglers about mercury levels in largemouth bass.

Through the CCP, the Refuge intends to increase efforts to prevent littering, alcohol consumption, and enforcing fishing licensing and rules and restrictions through law enforcement of fishing activities (Public Use Area Management Objective 1). These preventative efforts may include increased education, law enforcement, signage, and trash or recycling facilities. Through Public Use Area Management Objective 1, the Refuge also proposes to add a youth fishing day clinic geared towards environmental education. In addition, the CCP proposes that the Refuge construct additional fishing piers, increase maintenance of existing facilities, and harden existing boat ramps in order to protect natural resources and provide accessible fishing opportunities.

Stocking of resident fish species to enhance sport fishing opportunities occurs in cooperation with the ODWC. Stocking is no longer conducted on an annual basis but on a limited and sporadic basis as funds and fish are available. Through the CCP's Refuge-Wide Water Resources Objective 1 and Public Use Area Management Objective 1, the Refuge proposes to continue stocking fish periodically in the public use lakes to enhance sport fishing opportunities in cooperation with ODWC.

Fishing occurs primarily from the bank or from impoundment structures. Hand-powered boats are permitted on Jed Johnson, Rush, Quanah Parker, and French Lakes. Electric trolling motors are permitted on boats of 14 feet or less on the same four lakes. Boats of all sizes and motor types are permitted on Lake Elmer Thomas, but a "no wake" speed limit is enforced lake-wide. Float fishing tubes are allowed on all lakes within the Public Use Area. Accessible fishing piers are located at the Environmental Education Center on Quanah Parker Lake and at Lake Elmer Thomas. Through the CCP, the Refuge proposes to add three new accessible fishing piers: one each at Quanah Parker, Jed Johnson, and Crater Lakes (Refuge-Wide Public Use Facilities Objective 1 and Public Use Area Management Objective 1). Such improvements will be focused in the high and medium density use zones to relieve pressure in the low density use zone. Unpaved boat ramps are located at French, Quanah Parker, and Jed Johnson Lakes, and paved boat ramps are located at Lake Elmer Thomas and Rush Lake. This use of boats, however, is a secondary supportive use evaluated in a separate CD.

Commercial fishing tournaments are addressed in an additional Compatibility Determination. Individuals or organizations that sponsor fishing tournaments are required to have a Special Use Permit issued by the Refuge. This requirement ensures that private businesses are not unfairly making a profit from public lands and provides a mechanism for the Refuge to regulate where and when commercial activities occur.

**e) Why is this use being proposed?**

Fishing is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. ODWC determines State fishing regulations and is the primary law enforcement agency for State fishing areas. The Refuge offers the unique opportunity to fish in undeveloped surroundings in a safe, family-friendly location. While the primary purpose of the lakes is to provide a perennial water source for Refuge wildlife and serve as the beginnings of the watershed for many surrounding creeks, the Refuge lakes are also intended to provide a quality family fishing experience within serene surroundings. Existing and planned

infrastructure developments like fishing piers, parking lots, and impoundment structures support the use. In addition, many visitors use the rocky lake shore habitat to bank fish. This use offers the perfect opportunity to introduce beginning anglers to the sport of fishing, to teach catch and release techniques and Leave No Trace user ethics, and to instill an understanding and appreciation for the purpose and mission of the Refuge.

**Availability of Resources:**

Staff time would be required to administer and manage this activity. Expenses associated with management and monitoring of fishing activities include fuel use, maintenance costs to Refuge vehicles, inspection and maintenance of associated facilities, education efforts, visitor contacts, and sign posting. Ultimately, the additions and enhancements to the fishing program will be considered through Projects 23a and 25d of the CCP, which aim to improve wildlife-dependent recreation activities and enhance or improve public use facilities. The Refuge is proposing a start-up budget of $91,000 and annual operating budget of $57,400 to improve management of the fishing program, which includes the addition of a new GS-9 Law Enforcement Officer. Additional fishing infrastructure developments are estimated at a start-up cost of $225,000 and an annual maintenance budget of $9,500.

Refuge staff also plans to update the existing Fisheries Management Plan (2002) by 2017, as stated in Chapter 5 of the CCP. The step-down planning process will include an initial review period to determine if the activity is occurring at appropriate locations and levels as well as if a quality recreational experience is being provided. Then, the Refuge will determine what, if any, changes to make to the fishing program. This process will require input from the Refuge Manager, Biology staff, and Visitor Services staff, as well as staff time and money.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Fishing poses no foreseeable detrimental environmental impacts to the Refuge, its habitats, or wildlife species. Fishing activities may cause temporary disturbance to habitat through trampling of bank vegetation leading to soil erosion, with this erosion of shoreline leading to sedimentation of waterbodies, and littering near shores resulting in pollution. The Refuge, however, proposes to add increased signage, trash facilities, education, and law enforcement to deter visitors from causing damage to these habitats. Nevertheless, these short-term adverse impacts to habitat can also lead to similar short-term disturbances to waterfowl and wildlife. Human presence may disturb wildlife, causing them to move to more remote parts of the Refuge.

The fishing program requires occasional draw-downs to be conducted to control aquatic invasive species, to manage fisheries, and to improve recreational fishing opportunities. These draw-downs also have the potential to provide habitat for waterbirds and migratory waterfowl and shorebird species. Harvest of fish may lead to effects to local fisheries, but anglers are required to follow State regulations on fishing. Therefore, effects would likely only be negligible, and opportunities for over-harvest would be minimized. In addition, construction of additional fishing piers may result in temporary disturbance to water resources, but these actions will be addressed in a step-down management plan to ensure that locations and methods minimize potential adverse environmental impacts.

Alternatively, fishing may result in long-term beneficial impacts to the human environment. This use may increase the viewers' understanding and appreciation of fish and wildlife, their habitat needs, and the role of the National Wildlife Refuge System in their conservation. The additional fishing facilities will offer increased opportunities for the public to participate in this wildlife-dependent recreational activity, thereby helping the Refuge to accomplish some of its primary objectives.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from fishing. Ultimately, this activity will add to public use opportunities on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment. The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that fishing remains a compatible use:

1. Temporary access restrictions may be used to protect sensitive resources from harassment.
2. Personal water craft such as Jet Skis, Sea-Doos, Wave-Runners, etc. are prohibited.
3. Obtaining any type of bait from Refuge lands or harvesting frogs and turtles is prohibited.
4. The Refuge will limit and control Refuge access through enforcement of Refuge regulations, signage, and education of the public as to the purpose of the Refuge and responsibilities of visitors.
5. Alcoholic beverages are prohibited on the Refuge.
6. Swimming is prohibited on the Refuge.
7. No person may use more than five poles or rods while fishing.
8. State daily creel limits apply.

9. Fishing in the Special Use Area of the Refuge is prohibited. This action assures that the primary bald eagle wintering grounds and core black-capped vireo breeding and nesting colony are not disturbed.

**Justification:**

As defined by the National Wildlife Refuge System Improvement Act of 1997, wildlife-dependent recreational uses may be authorized on a refuge when they are compatible and not inconsistent with public safety. Fishing is included as one of these six activities, which are to receive enhanced and priority consideration in Refuge planning and management. Regulated fishing as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience wildlife firsthand while also developing an understanding of the Refuge's role in fish and wildlife conservation through the National Wildlife Refuge System. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that fishing, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 15-year Re-Evaluation Date: <u>2028</u>**

# COMPATIBILITY DETERMINATION

**Use**: Grazing

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Private livestock (cattle) grazing through Special Use Permits currently occurs on 430 acres of the Refuge. All grazed areas fall outside the big game boundary fence on the north and west boundaries of the Refuge. Grazing was permitted in those areas to ensure that they do not become under-utilized, thereby discouraging woody plants from invading. This use has occurred for at least the past 60 years. Five permitees are allowed

to graze on those lands, not to exceed 216 Animal Unit Months (AUMs). AUMs refer to the amount of forage needed to sustain an animal for one month.

Through Refuge-wide Objective 10 (Permitted Grazing) of the CCP, the Refuge proposes to phase out permitted grazing program once boundary fences are moved to the true Refuge boundary.

**b) Where is the use conducted?**

Permitted livestock grazing occurs on 430 acres outside the big game boundary fence on the north and west boundaries of the Refuge.

**c) When is the use conducted?**

Permittees are allowed to regulate their own grazing program, but they may not exceed AUMs specified for each tract.

**d) How is the use conducted?**

All grazing permits specify the maximum number AUMs of grazing allowed, but permittees are otherwise allowed to regulate their own grazing program.

**e) Why is this use being proposed?**

The Refuge has a need to maintain this property until boundary fences can be moved to the true Refuge boundaries. If grazers were excluded, encroachment from woody vegetation would quickly become an issue on these tracts because they are not included in prescribed burn units of the Refuge.

**Availability of Resources:**

The Refuge presently allows permitted grazing on Refuge lands outside of the Refuge boundary fence. Existing staff is assigned to manage this use by annually evaluating the range conditions and reviewing and issuing grazing permits. Through the CCP, however, the Refuge proposes to move the Refuge boundary fence to its true boundary to allow for more acreage for Refuge wildlife and to more effectively and efficiently manage its lands. Grazing permits will be phased out after the Refuge fence is moved to the actual Refuge boundary. Through Project 26c of the CCP, the Refuge aims to manage grazing utilization on the Refuge in a way that minimizes the opportunity for undergrazing or overgrazing. Reconstructing the Refuge boundary fence will be prioritized through the implementation of the CCP, which will allow the peripheral areas currently subject to grazing permits to be managed consistent with other Refuge lands. The cost of moving the eight miles of Refuge fence to the actual Refuge boundary is approximately $850,000. After the fence is moved and grazing permits are phased out, the costs and time required for monitoring and administering the grazing permits will be eliminated.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

All leases specify the maximum number of AUMs of grazing allowed. The Refuge staff's ability to closely monitor compliance is limited, but there is no indication of habitat abuse.

Encroachment of woody vegetation (oak, cedar, and mesquite) occurs on some of these tracts because they are not included in prescribed burn units of the Refuge. Elimination of grazing permits in the peripheral areas will render some long-term wildlife resource benefits, as these areas will increase acreages available for other Refuge management purposes to benefit Refuge grazers and other wildlife, and it would enhance fire management opportunities in these areas to benefit habitat. Some minor adverse long-term economic impacts would result to a few local ranchers who will lose grazing privileges on those lands currently permitted for grazing.

Cumulative Impacts:

Grazing, primarily by bison, longhorns, and elk, is managed throughout the Refuge to maintain the health and natural conditions of the Refuge grasslands. In addition, the Refuge permits livestock grazing on 430 acres of peripheral Refuge lands outside the Refuge big-game (boundary) fence for grassland management. Grazing is a part of this area's natural history needed to maintain natural grasslands conditions. There are no anticipated adverse cumulative impacts resulting from grazing if it is properly managed according to carrying capacity. The proposed phasing out of grazing on the peripheral Refuge lands will likely result in positive cumulative impacts associated with rendering those lands available for wildlife management purposes.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. One comment was received on grazing. The comment suggested the Refuge ban all grazing. The Refuge responded that grazing is a necessary tool to manage wildlife and habitat on the Refuge. The CCP proposed moving the Refuge boundary fence to the true Refuge boundary, which will allow the Refuge to graze free-ranging herds of bison, elk and longhorn, and eliminate private cattle grazing. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that grazing remains a compatible use:

1. Staff efforts to monitor grazing impacts will be increased to assure a better evaluation.
2. Hunting and trapping on these lands are prohibited in the leases.
3. Actual Refuge boundaries are posted conspicuously.

4. No water developments, fences, pens, or other agricultural and/or residential building or facilities may be built by permittees on Refuge lands.
5. Use of any pesticide on Refuge lands is prohibited unless approved by the Refuge Manager.
6. Livestock grazing permits will be phased out after the Refuge boundary fence is relocated to the actual Refuge boundary.

**Justification:**

Grazing occurs on the Wichita Mountains Wildlife Refuge as a management activity that facilitates vegetation management through a natural ecological process. Permitted grazing occurs on 430 acres of the Refuge that fall outside of the boundary fence. Permitted grazing as described here and consistent with the management direction provided in the CCP will provide maintenance on these tracts until the Refuge is able to relocate the boundary fence to its proper boundary. This activity will not conflict with any of the other Refuge habitat and wildlife management activities as long as the boundary fence remains in its current location. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that grazing, in accordance with the stipulations provided here, is a compatible use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

# COMPATIBILITY DETERMINATION

**Use:** Hiking

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Hiking provides the means of access to many habitats across the Wichita Mountains Wildlife Refuge where visitors may participate in priority wildlife-dependent recreation activities. In this manner, hiking is an existing secondary recreational use occurring on the Refuge primarily in support of wildlife observation, photography, and interpretation.

The Refuge proposes to continue this existing Refuge use through Public Use Area Management Objective 9 of the CCP: "Within 10 years of CCP approval, manage hiking opportunities to allow for better experiences by providing 3.5 miles of accessible trail and maintaining the existing 17.7 miles of trail." In addition, the Refuge also proposes to continue this use in the Charons Garden Wilderness Area through Wilderness Area Management Objective 6: "Within six years of CCP approval, manage and improve hiking opportunities to provide for better experiences and fewer Wilderness impacts by increasing trail maintenance on 3.5 miles of trail."

**b) Where is the use conducted?**

The Refuge offers hiking opportunities on 14 trails in the Public Use Area and two trails in the Charons Garden Wilderness Area, totaling approximately 17.7 miles in length. Trails range in length from less than 0.5 miles to 6 miles, and in difficulty from the accessible interpretive trail at Quanah Parker Lake to the 600-foot elevation climb up Elk Mountain trail. The most heavily used trails on the Refuge are the Elk Mountain and Charons Gardens trails, both of which access the Charons Garden Wilderness. The Dog Run Hollow Trail System encompasses four distinct loops (Bison, Longhorn, Elk, and Kite Trails) and was designated a National Recreation Trail in 1981. In addition, the Refuge has a one-mile trail up Little Baldy, a one-mile trail that links the Environmental Education Center and Doris Campground, and a one-mile hike to the Jed Johnson tower, each of which offers easy, family-friendly walks.

Through the plan, the Refuge proposes to develop a new multi-purpose trail between the Refuge Visitor Center and improve the existing trail connecting the EE Center with Doris Campground. This is meant to create a safe, efficient, and accessible link between the three most heavily used visitor facilities that would supplant the need to drive. The Refuge also plans to provide trail linkages between the Refuge and the Lake Elmer Thomas Recreation Area through construction of new segments or reconstruction of old segments.

**c) When is the use conducted?**

Refuge visitors are allowed access for hiking during daylight hours, with the exception of camping in both Doris Campground and throughout the Charons Garden Wilderness backcountry. The only restrictions to hiking occur during fall and winter permit hunts, when foot travel and vehicle travel on secondary roads is restricted.

**d) How is the use conducted?**

Currently, visitors may participate in hiking opportunities by biking or driving to trailheads upon entering the Refuge. The Visitor Center contains information on all available hiking trails. All trails are in need of routine maintenance, including brushing, removing downed trees, and minor ditching.

The CCP, however, proposes a number of strategies that change the current hiking opportunities on the Refuge. Specifically in relation to the compatibility of hiking, the Refuge proposes to require that all hikers register on site at trailheads. This registration process would allow the Refuge to monitor use patterns (such as the type of use, area of

use, group size, etc.) and public safety. The Refuge also proposes to promote the Leave No Trace program by distributing brochures and signs, and by increasing the presence of Trail Rangers.

In addition to the strategies here, the Refuge intends to maintain the existing volume of hiking but redistribute pressure to developed areas (the east side of the Refuge) outside of the Charons Garden Wilderness in order to maintain the character of the existing Wilderness. Group size in the developed areas of the highest use could exceed 30 people without a Special Use Permit (SUP), group size in areas of medium use could number up to 30 people without a SUP, and group size in the low density of use Wilderness area could number up to 15 people without a SUP. For more information regarding this change in management, please refer to the CCP and the Public Use Density Zones map in the CCP.

**e) Why is this use being proposed?**

Hiking occurs on the Refuge in support of priority wildlife-dependent recreation uses, especially wildlife observation, photography, and interpretation. In fact, hiking enhances many of these opportunities by giving the hiker a better chance to view and interact with wildlife up-close. The 17.7 miles of trails across the Refuge offer the visitor ample opportunity to experience a variety of habitats and wildlife species.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including hiking. All trails are in need of improved signage, additional drainage structures, and trail rehabilitation to reduce trail braiding and eliminate paths where visitors have wandered off trail. In addition, administering this use requires staff to provide visitors with information on trails both at the Visitor Center and through the Trail Ranger system. These tasks are typically performed by the current Youth Conservation Corps enrollees, Visitor Services staff, and Maintenance staff.

Enhancements and additions to the hiking program would be considered through Projects 24a and 25e of the CCP. Through Project 24a, the Refuge aims to manage compatible supportive recreation activities on the Refuge in a way that minimizes conflict with other users and natural resource management activities. Project 25e aims to maintain and improve public use facilities, such as increasing trail maintenance and adding new trails. The Refuge proposes a budget of $275,500 for hiking and bicycling program improvements, including an additional 0.5 of a GS-9 Law Enforcement Officer FTE and 0.25 of a GS-9 Park Ranger FTE, and $2.15 million in start-up costs and $50,000 in annual operating costs to improve the facilities that assist supportive recreation, including hiking.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

Hiking currently occurs primarily along designated trails, though some social trails have been developed where visitors have wandered off trail; this concentrated use results in soil compaction, erosion, and trampling of vegetation. To a limited extent, erosion on hiking trails has the potential to impact water quality by contributing to erosion, suspended sediment,

turbidity, and sedimentation. In addition, hiking may have direct impacts on wildlife due to disturbance; however, it is presumed that wildlife have likely become accustomed to humans in areas where existing trails occur. Overall, these resource impacts are expected to be minor.

Through the CCP, however, the Refuge proposes to limit hiking group size on trails occurring in the Charons Garden Wilderness, which could reduce impacts on vegetation, soils, and water quality, in Wilderness. This action may simultaneously increase those adverse impacts in the medium and high density use areas at the eastern side of the Refuge (where group size will not be limited). This change in stipulations regarding hiking is planned to reduce resource impacts in Wilderness. In addition, this action is intended to maintain or increase the Charons Garden Wilderness Area's overall wilderness character. Lands must have opportunities for solitude or primitive recreation in order to be eligible for Wilderness designation, and these management actions are expected to result in direct beneficial impacts on these opportunities while still providing areas for large groups to enjoy the Refuge experience elsewhere.

At the same time, this shift in use may result in beneficial impacts on public safety, as it will decrease the chance of Search and Rescue operations in hard-to-access Wilderness. Currently, most of these operations occur within Charons Garden, but the Refuge hopes that the redistribution of use will reduce overall travel in the Wilderness, thereby reducing the number of lost or injured hikers.

Hiking may result in the presence of litter, human waste, and may increase the risk of human-started wildfires. The Refuge, however, educates the public on these issues through brochures, literature, and conversations. Therefore, the risk of these illegal activities is low. Hiking may also result in long-term beneficial impacts to the visitor experience and the mission of the National Wildlife Refuge System. This use may increase the viewers' understanding and appreciation of wildlife and their habitat needs, as well as the role of the National Wildlife Refuge System in resource conservation. Hiking is supportive of all six of the wildlife-dependent recreational uses allowed on the Refuge, which would serve to increase public awareness of the Refuge and conservation issues.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from hiking. Hiking occurs in conjunction with wildlife observation, photography, and interpretation, each of which will ultimately result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. Three comments were received on hiking and/or hiking trails. Two comments requested more access to the Special Use Area and another suggested building a hiking trail up Mt. Scott. The Refuge replied that it will move forward with the designation of the Special Use Area as a Research Natural Area. This designation will ensure that the Refuge manages this area to maintain natural conditions as much as possible. To most effectively manage these conditions the Refuge will

maintain restrictions on public uses in the area. The Refuge may consider new hiking trails in the future, including the proposed Mt. Scott trail but will also analyze the cost, impact to threatened and endangered species, and other potential impacts before making a decision. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that hiking remains a compatible use:

1. The Refuge may regulate times, areas, and conditions for hiking. During fall and winter permit hunts the Refuge prohibits foot and vehicle travel on trails and secondary roads. This could also include temporary closure of trails seasonally to protect resource values such as nest locations and den sites.

2. The Refuge prohibits night access to the entire Refuge with the exception of Doris Campground, main roads, and night fishing.

3. The Refuge will maintain established trails, as well as block off and rehabilitate other trails to encourage use on established lanes of travel.

4. Hikers will be required to register at trail heads prior to traversing hikes.

5. Individuals or organizations that bring clients to the Refuge for hiking and charge a fee or tuition for their service will continue to be required to have a Special Use Permit issued by the Refuge. This requirement ensures that private businesses are not unfairly making a profit from public lands and provides a mechanism for the Refuge to regulate where and when commercial activities occur.

6. Group size will be restricted to 15 people or less in Wilderness. In addition, group size in designated high use portions of the Public Use Area may exceed 30 people without a Special Use Permit, whereas a permit will be required for groups of 30 people or more in the areas of medium use.

**Justification:**

Hiking occurs on the Wichita Mountains Wildlife Refuge as a secondary use that facilitates the primary wildlife-dependent recreation uses defined by the National Wildlife Refuge System Improvement Act of 1997. Essentially, hiking facilitates all six of these activities, which include hunting, fishing, environmental education, interpretation, wildlife observation, and photography. Regulated hiking as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience wildlife firsthand and develop awareness, understanding, and appreciation of fish, wildlife, and wilderness resources. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that hiking, in accordance with the stipulations provided here, is

a compatible use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

# COMPATIBILITY DETERMINATION

**Use:** Holy City

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. On October 23, 1970, Public Law 91-504 established two units of Wilderness areas within the Refuge.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates the management or permitted occupancy and use of a 65-acre site within the Refuge known as the Holy City of the Wichitas (Holy City). Under the proposed use, the Refuge would permit the continued occupancy of the site by an existing chapel, buildings and structures generally designed to resemble Jerusalem or the Holy Land during the time of Christ, and a 23-foot marble statue of Christ. The site is also occupied by a house for the caretaker, a gift shop, restrooms, a

water tank, and a parking lot. The Refuge proposes to permit the Wallock Foundation, a non-profit entity, to continue to manage and operate the Holy City for visitation, similar to a visitor center and interpretive site, as well as to conduct the Easter Sunrise Service and Pageant. The Refuge proposes to continue renewal of five-year permits authorizing use of the Holy City, subject to conditions needed to ensure compatibility of the use, throughout the life of the CCP. The Refuge will continue to monitor the Holy City operations to ensure this use remains compatible with Refuge purposes. If adverse cumulative impacts result from the permitted use of this site, additional permit conditions will be required to make the use compatible or the use will be discontinued.

**b) Where is the use conducted?**

Holy City is located in the eastern part of the Refuge, within the Public Use Area, approximately one mile east of Rush Lake. It is situated on a 65-acre site consisting of 10 acres occupied by permanent buildings, a parking area, and a statue scattered amongst the Refuge's mixed-grass prairie, oak woodlands, and minor rock outcroppings.

**c) When is the use conducted?**

Visitors come to Holy City year-round, but the Special Use Permits issued to the Wallock Foundation in the past have encompassed a 90-day exclusive use permit each year primarily for the foundation's Easter Pageant. These 90 days include the 60 days prior to Easter and the 30 days following Easter. The newly proposed management would continue the previous management and permitting.

**d) How is the use conducted?**

The Holy City is managed by the Wallock Foundation for public visitation and interpretation subject to a Special Use Permit issued by the Refuge. Numerous local volunteers participate in performing the Easter Pageant show each year. The Refuge would continue the current level of interpretation opportunities at Holy City through handouts provided by the Wallock Foundation and answering inquiries at the Visitor Center. The Refuge would also work with the Wallock Foundation to offer increased interpretation of the Refuge's natural resources for Holy City visitors. The Foundation is responsible for the maintenance and liability of the buildings within the Holy City. The Wallock Foundation hosts a caretaker on the premises year-round to assist with site visitation and maintenance.

**e) Why is this use being proposed?**

The original Easter Pageant started in Medicine Park, just east of the Refuge, in 1926 by Reverend Anthony Wallock. As the audience became too large for Medicine Park, the Reverend heard of the Wichita Mountains site and collaborated with the Lawton Chamber of Commerce and the State Works Progress Administration (WPA) Administrator to pursue construction on the Federal land. President Franklin D. Roosevelt permitted use of the present location for the Holy City in the Refuge and authorized WPA to construct it. The WPA completed construction in 1934, and the first Pageant was conducted on the Refuge in 1935. After construction ceased, the WPA was released from responsibility of the site and the Department of Agriculture issued a special

use permit to the Wallock Foundation for continued use of the Holy City. The Special Use Permit has been renewed for varying time frames since then. Most recently, the Service has issued five-year permits to the Wallock Foundation for administration of the Holy City. The Easter Pageant has historically drawn in crowds of 5,000 to 10,000 people each year. Overall visitation of the Holy City is over 350,000 people per year.

Given the history, tradition, and strong attachment Oklahoma residents have for this activity, the Holy City site and Easter Pageant activities have continued as an important part of the cultural heritage of the area. The Wallock Foundation seeks to continue to use the Holy City because of the existing facilities and their local historical and cultural significance. In light of today's environmental standards and passage of several laws governing the Refuge System since 1935, it is unlikely that this activity would be considered appropriate on a National Wildlife Refuge today; however, the authorization to use the present site on the Refuge was granted by a U.S. president, and a commitment was made to allow the current uses when the WPA completed construction of the site and structures in the 1930s.

**Availability of Resources:**

As existing Refuge resources are adequate to properly and safely administer this use, no additional resources from the Refuge would be necessary to oversee and permit activities at Holy City. The Wallock Foundation would continue to be responsible for administering use at the site and maintaining the existing facilities under the terms of a Special Use Permit, as well as publication of any interpretive materials used to facilitate the use. The Refuge would also make interpretive materials available for public use and distribution at the Holy City.

Only a limited amount of Refuge personnel time and funds are needed to oversee the use of the Holy City. A minor amount of refuge management and biological staff time is needed to review and renew the Refuge Special Use Permit every five years. During most of the year, only a minor amount of Refuge staff time and funding is needed for monitoring compliance and enforcing Refuge regulations and permit stipulations. Easter Pageant activities involve many participants and draw heavy crowds, which demands more substantial involvement of Refuge personnel, mostly for law enforcement activities. Overall, the Refuge expends approximately 0.3 full-time equivalents (FTEs) of personnel time per year toward managing uses associated with the Holy City.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

Continued occupancy of the Holy City site by facilities and heavy public uses and maintenance activities associated the site would continue to have minor to moderate long-term impacts on terrestrial wildlife resources and their habitats within and in the immediate vicinity of the site. Longhorns, bison, and other wildlife species would continue to freely roam on and near the Holy City site, except for the fenced 10 acres encompassing the core structures at the site. Temporary displacement of wildlife may occur for a few days during the weekends of the Easter Pageant show and the rehearsals due to congregations of people and vehicles. Some short-term minor or moderate levels of vegetation damage may occur at the parking areas. Power lines and poles associated with the Holy City render long-term adverse aesthetic or visual impacts.

A large prairie dog colony has been established adjacent to the Holy City and spread to the area used for parking during the Easter Pageant. Parking during the pageant renders some minor to moderate local disturbance on the prairie dogs, as cars sometimes park on the prairie dog holes. Parking also causes some short-term localized impacts on prairie vegetation and soil damage and compaction resulting from vehicle traffic and parking. Such impacts may be more significant during wet muddy conditions. During wet weather, the Refuge may require shuttling to and from the Easter pageant to avoid impacts from rangeland parking.

The Holy City and Easter Pageant attracts over 350,000 visitors to the area each year, which renders beneficial long-term economic impacts to the local areas. The 1985 environmental assessment prepared for the Holy City estimated the visitor dollars contributed to the local economy by the Holy City to be between $200,000 and $400,000. This use also provides minor to moderate positive long-term benefits to Refuge interpretive program, as it attracts visitors to the Refuge and provides opportunities for visitors to be presented interpretive materials about the Refuge during their visit to the Holy City.

Cumulative Impacts:
Due to the unique nature of this action, the continued occupancy and permitted use of the Holy City by a private non-profit organization for public visitation and interpretation and the annual Easter Pageant event will not incrementally add to any resource impacts resulting from other past, present, or reasonably foreseeable future actions.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. One comment was received on Holy City. It said, “What bothers me is that this is year-round religious outreach on Federal land. In particular, I believe strongly that the gift shop should not be run as a money-maker for what is essentially a Church. I would prefer that operation disappear entirely, but at a minimum it should be operated under contract with whomever enters the winning bid, just as your Campground and concessions within National Parks. The Federal government should be neutral toward religion, but here it appears that the Federal government is actively supporting one particular faith through its current management of this site.” The Refuge replied that in light of today's environmental standards and passage of several laws governing the Refuge System since 1935, it is likely that this activity would be considered inappropriate on a Federal wildlife refuge today. However, a commitment was made in the 1930s when President Franklin D. Roosevelt permitted construction and use of the Holy City at its present location within the Refuge. The Wallock Foundation's predecessor accepted responsibility for the maintenance and liability for the buildings, presumably in exchange for their continued use. Given the history, tradition, and strong attachment Oklahoma residents have for this activity, the Holy City site and Pageant have continued as an important part of the cultural heritage of the area. The Proposed Action in the CCP provides for continued renewal of five-year permit with the option of renewal in five-year increments at the Refuge Manager’s discretion (not to exceed 25 years) for use of a 65-acre site, including the Holy City, for the Pageant and related activities. Although there are only minor cumulative impacts anticipated with the preferred alternative, this issue may need to be revisited if use of the site significantly increases. Granting the five-year

permit will allow for frequent reassessment of the permit terms and conditions to adjust for environmental and other effects. The gift shop has been permitted as part of the Special Use Permit to help the Wallock Foundation's maintenance and operation of the facility. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

**X** Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that uses associated with the Holy City remain a compatible use:

1. Temporary access restrictions may be used to protect sensitive resources from harassment.
2. The Refuge prohibits night access to the entire Refuge with the exception of Doris Campground, main roads, and night fishing.
3. The Refuge prohibits foot and vehicle travel on trails and secondary roads during fall and winter permit hunts.
4. Vehicle parking shall be confined to the established parking lot adjacent to Holy City proper, except that the Refuge Manager may identify and designate additional temporary parking areas in the vicinity of the site to be used only during the Easter Pageant.
5. The Refuge Manager may require shuttling from off-site parking areas when conditions warrant, such as during wet muddy conditions, to prevent adverse impacts on Refuge resources or for human safety.
6. The Holy City will be open to casual public visitation only during daylight hours. Special events during non-daylight periods, other than the Pageant and scheduled night rehearsals, shall require prior approval of the Refuge Manager.
7. Campfires shall be prohibited in the permit area unless specifically authorized by the Refuge Manager.
8. As determined by the Refuge Manager, the permittee shall provide adequate law enforcement personnel to handle traffic, parking, and crowd control and be responsible for providing fire protection.
9. All livestock to be used in the Pageants shall be tested for and/or inoculated against infectious diseases to assure they are free from same and will be treated for both internal and external parasites prior to entry into the permit area. A copy of the test results and inoculation records, along with a veterinary health certificate, on any and all animals to be brought into the permit area will be provided to the Refuge Manager within five days prior to the animals being brought onto the permit area.

10. All vehicles that have previously hauled livestock must be in a clean and dry condition before entering the permit area.

11. Within the permit area, the permittee is responsible for maintaining all buildings, roads, water, sewage, and electrical facilities in a safe condition and up to all applicable laws, codes or regulations.

12. The permittee shall keep the premises and buildings in a neat, clean, and orderly condition and shall dispose of all litter and debris at an approved disposal site(s) off the Refuge.

13. The permittee shall not build or erect any major structure or perform major improvements without receiving prior written consent of the Regional Director of the Service. Annual basic repairs and maintenance of buildings and structures within the permit area shall require the approval of the Refuge Manager.

14. No more than, but at least one caretaker/hostess and their immediate family shall reside in the residence within the bounds of the permit area.

15. The permittee will allow treatment of non-native invasive plants identified by Refuge staff and any new plantings must be approved by the Refuge Manager.

**Justification:**

In light of today's environmental standards and passage of several laws governing the Refuge System since 1935, it is likely that this activity would be considered inappropriate on a Federal wildlife refuge today. However, a commitment was made in the 1930s when President Franklin D. Roosevelt permitted construction and use of the Holy City at its present location within the Refuge. The Wallock Foundation's predecessor accepted responsibility for the maintenance and liability for the buildings, presumably in exchange for their continued use. Given the history, tradition, and strong attachment Oklahoma residents have for this activity, the Holy City site and Pageant have continued as an important part of the cultural heritage of the area. The Proposed Action in the CCP provides for continued renewal of five-year permit with the option of renewal in five-year increments at the Refuge Manager’s discretion (not to exceed 25 years) for use of a 65-acre site, including the Holy City, for the Pageant and related activities. Although there are only minor cumulative impacts anticipated with the preferred alternative, this issue may need to be revisited if use of the site significantly increases. Granting the five-year permit will allow for frequent reassessment of the permit terms and conditions to adjust for environmental and other effects. Because of the possible detrimental, cumulative impacts by allowing a specific site for rangeland parking, the proposed permit will not designate a specific parking area for the Pageant, as in the past. A reasonable and suitable parking site, adjacent to the Holy City, will be designated at the Refuge Manager's discretion, prior to the period of use each year.

The five-year permit with renewal options is considered the most prudent means of protecting Refuge resources, while allowing the Wallock Foundation to maintain a regionally important cultural and historical event and associated facility. In addition to its own interpretive materials and programs, the Holy City will provide interpretive materials and information about the Refuge and its wildlife resources to help foster appreciation of the Refuge and its resources and

to encourage outdoor recreational uses of the Refuge, and thus facilitate other priority public uses of the Refuge.

If managed or permitted under the conditions discussed here, the proposed use would not materially interfere with or detract from the Wichita Mountains Refuge's primary purpose to be set aside for the protection of game animals and birds. Although there will be some minor adverse impacts to wildlife resources and aesthetic values of the Refuge, they do not rise to the level of incompatibility.

**Signature:** Refuge Manager _____ 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

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# COMPATIBILITY DETERMINATION

**Use:** Hunting

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates hunting, an existing wildlife-dependent recreational use on Wichita Mountains Wildlife Refuge. The Refuge hosts two of Oklahoma's most popular controlled hunts, the annual elk and deer hunts. These gun hunts for elk and white-tailed deer are conducted through a permit system each year in a program cooperatively managed by the Refuge and the Oklahoma Department of Wildlife Conservation (ODWC).

The Refuge proposes to continue this existing wildlife-dependent recreational use through Refuge-Wide Public Use Goal 1 Objective 1, stating that the Refuge will continue to manage hunts cooperatively based on population and habitat management objectives throughout the life of the CCP.

**b) Where is the use conducted?**

Facilitated hunts typically occur Refuge-wide, including within the Special Use Area where public use is largely prohibited with the exception of these hunts and some interpretive tours.

**c) When is the use conducted?**

Gun hunts are held each fall and winter (between November and January) depending on white-tailed deer and elk population levels and habitat conditions. Each hunt lasts four days, with a one-day orientation and safety meeting and three days of active hunting. Public access to the Refuge during a controlled hunt is restricted during the three days of active hunting. Overall, the use equates to 6 to 12 days of restricted public access each year.

**d) How is the use conducted?**

Hunts are cooperatively managed and tightly controlled by the Refuge and ODWC. Both entities facilitate the hunts. Hunters are selected by random drawing and must obtain a State-issued hunting license prior to applying for the Refuge hunt. Hunters attend a mandatory safety briefing and are assigned a hunt area with a specific access point into that hunt area. Refuge and ODWC staff shuttle hunters to access hunt areas. Hunters are required to follow all Refuge restrictions including the night-time closure.

Potential hunt-related issues such as wildlife and habitat disturbance, poaching by non-registered hunters, public safety, search and rescue operations, and conflicts between hunts and other members of the pubic are mitigated by the limited number of hunts offered each year and by the high level of hunt facilitation and staffing. The elk hunt is a once-in-a-lifetime hunt; once drawn, hunters may not reapply.

**e) Why is this use being proposed?**

Hunting is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stated in the Refuge Improvement Act of 1997. There are limited public hunting opportunities in western Oklahoma, and the Refuge hunts give the community a chance to experience the Refuge's exhilarating scenery and once-in-a-lifetime elk hunt and some of the best-managed deer hunts in the country. Over the last decade, the Refuge has supported one deer hunt and at least two elk hunts per year. These hunts have provided high-quality hunting opportunities for 100 deer hunters and 180 elk hunters each year. The permit hunts are very popular, with demand far outstripping the availability.

Aside from providing the public with this unique opportunity, these permit hunts are used as a management tool to meet elk and deer population management goals. Providing the hunt creates a conflict between two priority user groups (hunters and wildlife observers) and creates a large administrative workload; for these reasons, the hunting program is limited to deer and elk, which are species that require hunting as a primary means of

population management. Partnering with ODWC to provide the hunts allows the Refuge to strengthen their relationship that ultimately benefits both entities from the program's success.

**Availability of Resources:**

With almost 100 hunters afield during each hunt opening and three to four openings each year, the level of management places a heavy administrative burden on both the Refuge and ODWC staff. Staff time and resources are primarily spent working with ODWC to organize the hunts, facilitate the hunts during the 6 to 12 days a year that hunting is offered, and monitor the overall success of the hunts. Partnering with ODWC allows the Refuge to split their administrative burden while still managing wildlife populations. ODWC benefits from license and registration fees, and the Refuge benefits from the shared equipment and labor cost. Thus, existing Refuge resources are adequate to continue to offer these hunting opportunities on the Refuge. Funding and staffing for the hunting program will be considered through Projects 9 and 10 of the CCP, which aim to continue elk and deer hunting activities on the Refuge. Existing Refuge resources are adequate to properly and safely administer this use and no additional Refuge resources are required to oversee hunting.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Hunting has shown no assessable adverse environment impact to the Refuge, its habitats, or wildlife species because the use is limited and heavily facilitated by Refuge and ODWC staff. Refuge staff shuttles hunters to various locations to minimize any impacts from vehicle access, especially in the Special Use Area. Facilitation of the hunts allows the Refuge or ODWC staff to minimize detrimental effects to vegetation, water quality, soils, or habitat. Hunting does cause mortality and disturbance to those deer and elk that are hunted and nearby non-target species, but providing this public use ultimately provides the Refuge with a method of population management for these wildlife species in excess of their carrying capacity. Limiting access to the Refuge to approximately 100 deer hunters and 180-250 elk hunters each year, each with specific areas that they are allowed to access, minimizes disturbance.

In 2010, the deer hunts resulted in 49 percent overall success and the elk hunts resulted in an overall 66 percent success rate (USFWS 2011). This resulted in the harvest of 36 deer and 180 elk, which helps enhance the habitat conditions for the remainder of each herd. Therefore, this management provides long-term beneficial impacts to the larger deer and elk population, as well as to Refuge habitat that provides shelter and forage for these species.

Potential hunt-related issues such as wildlife and habitat disturbance, poaching by non-registered hunters, public safety, search and rescue operations, and conflicts between hunters and other members of the pubic are mitigated by the limited number of hunts offered each year and by the high level of hunt facilitation and staffing. For this reason, foot and vehicle traffic on secondary roads is prohibited during the hunts.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from hunting. Ultimately, this activity will add to public use opportunities on the Refuge, which, in combination, will result in

beneficial cumulative impacts on the human environment. The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. The Refuge received two comments on adding hunts for hog and bison. The Refuge replied that hog hunting by the public has been shown ineffective at reducing populations and therefore did not propose adding it to the CCP. Bison are managed for genetic diversity and excess bison are carefully chosen, which would make selection of bison for hunts extremely difficult. Additionally, Refuge bison are largely habituated to human activities. Therefore, a bison hunt would not be a quality sport hunting opportunity. The Refuge received fifteen comments on continuing the current elk and deer hunts as they are now. One comment mentioned that hunting should not be allowed on the Refuge and another suggested it should only be used as a tool for large populations. The Refuge responded that hunting is a compatible activity according to the 1997 Refuge System Improvement Act and it is a management tool needed to maintain the health of elk and deer herds according to the Refuge's carrying capacity. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that hunting remains a compatible use:

1. Foot and vehicle travel on secondary roads and trails in the Public Use Area would be prohibited during fall and winter permit hunts.
2. Hunters are not allowed to use private vehicles to access hunt areas.
3. Hunters are required to follow all Refuge restrictions including the night-time closure.

**Justification:**

As defined by the National Wildlife Refuge System Improvement Act of 1997, wildlife-dependent recreational uses may be authorized on a refuge when they are compatible and not inconsistent with public safety. Hunting is included as one of these six activities, which are to receive enhanced and priority consideration in Refuge planning and management. Regulated hunting as described here and consistent with the management direction provided in the CCP will provide the visitor with a unique chance to experience the Refuge and its wildlife firsthand

while also allowing the Refuge to manage deer and elk populations. The small amount of this activity will limit conflicts with any of the other priority public uses (wildlife observation) and will not adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that hunting, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2/20/13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 15-year Re-Evaluation Date: 2028**

**References Cited:**


U.S. Fish and Wildlife Service. 2011. Wichita Mountains National Wildlife Refuge website.

U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/southwest/refuges/oklahoma/wichitamountains/hunts.html

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# COMPATIBILITY DETERMINATION

**Use:** Interpretation

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates interpretation, an existing use on the Wichita Mountains Wildlife Refuge. Interpretation is a process that aims to reveal meanings and relationships through the use of original objects by firsthand experience or illustrative media rather than simply to communicate factual information. Active interpretation consists of Ranger talks and nature walks on the Refuge or at off-Refuge events. Contacts made annually number around 60,000 or more. The Refuge proposes to continue this

existing wildlife-dependent recreational use through Public Use Objective 5 in the CCP: "Within 12 years of CCP approval, update interpretive facilities and programs to improve and increase services."

This Compatibility Determination also addresses interpretive tours on the Wichita Mountains Wildlife Refuge led by the Friends of the Wichitas. Typically, this use involves motor coaches or buses transporting groups of individuals across the Refuge, though such tours may be conducted by bicycle or on foot as well. Tour group leaders usually present Refuge information that focuses on the natural history and current management of key refuge species (bison, elk, turkey, black-tailed prairie dog, black-capped vireo, and other species) and their habitats, public land management and stewardship, and emerging issues such as climate change and energy conservation. Both staff and Friends led interpretive tours are a wildlife-dependent recreational use, and facilitate other dependent and supportive uses.

**b) Where is the use conducted?**

The 24,088-acre Public Use Area is open to public access for interpretive purposes. Facilities that support interpretation include:

- Visitor Center
- Sunset Picnic Area
- Lost Lake Picnic Area
- Boulder Creek Picnic Area
- Boulder Creek Cabin
- Mount Scott Picnic Area
- Charons Garden Wilderness Trail
- Elk Mountain Trail
- Dog Run Hollow Trail System
- Lost Lake Trail
- Jed Johnson Trail and Tower
- Doris Campground
- Quanah Park Lark Trail
- Turkey Creek Prairie Dog Town

An information kiosk located at the Refuge entrance serves to orient and interpret the area for visitors. Through the CCP, the Refuge plans to upgrade existing facilities and construct new facilities, including the Jed Johnson Tower and trail, as well as create a designated driving tour with interpretive signs along an established route. In addition, the Refuge plans to construct an interpretive trail loop around the Visitor Center.

Interpretation also occurs at Holy City, where the Refuge allows the Wallock Foundation to distribute interpretive materials.

In the Special Use Area, the Association of the Friends of the Wichitas (Friends) offers interpretive bus tours that reach roughly 800 people each year. The tours occur on existing roads in the Special Use Area or sometimes occur solely in the Public Use Area.

Very little organized interpretation is conducted or offered in the Wilderness Area in an attempt to maintain the unique opportunity for solitude that Charons Garden offers.

**c) When is the use conducted?**

Refuge visitors are generally allowed access for interpretation in the Public Use Area during daylight hours, with the exception of Doris Campground. The only restrictions to interpretation occur during fall and winter permit hunts, when foot travel and vehicle travel on secondary roads is restricted. Most informational kiosks are accessible to visitors after normal Visitor Center hours as well. In the Special Use Area, interpretation is only offered through the Friends tours, which include 7 summer wildlife tours, 6 winter eagle tours, 15 fall elk tours, and 3 fall foliage tours. Through the CCP, the Refuge has decided to limit existing interpretive tours of the Special Use Area to no more than 80 times annually. Some Friends tours also focus on stargazing, which is an interpretive event aided by the use of optical equipment. Special Use Permits are issued to provide private individuals or groups access to the Refuge after dark to participate in stargazing interpretation.

**d) How is the use conducted?**

Interpretation occurs through signage, informational kiosks, brochures, exhibits, demonstrations, oral presentations, audiovisual media, and conversations with staff; however, firsthand experiences are emphasized. Interpretive topics may range from the relationship between wildlife and individuals to the history of the Refuge. Optical equipment may be used to facilitate stargazing. Stargazing programs occur as a Friends tour on the Refuge or as special events. Virtual geocaching, which is using GPS coordinates to find existing points of interest (such as a natural rock formation) rather than placing/locating a physical cache, occurs on the Refuge as long as resources are not at risk.

Interpretation is both educational and recreational in nature. Participation is voluntary in nature. Through the CCP, the Refuge intends to expand public evening and weekend interpretive programs, as well as develop a Visitor Services Plan. The Refuge uses a variety of media to offer interpretive activities to all guests visiting the Refuge. In addition, the Refuge website is updated as needed, and includes interpretive information about the Refuge and its history.

At interpretation talks and event booths, the Refuge includes interpretive materials emphasizing Wilderness management and Leave No Trace information; this is done to offer non-intrusive Wilderness interpretation without actually bringing large groups to the Wilderness areas. The Friends lead three spring wilderness hikes to provide on-site interpretation.

This activity may be facilitated through other wildlife-dependent recreation activities (hunting, fishing, environmental education, wildlife observation, and photography) or secondary supportive uses, including camping, hiking, jogging, boating, bicycling, picnicking, rock climbing, and scuba diving. Visitors can benefit from interpretation by

gaining an understanding of the interrelationships between humans and animals. Each of these individual recreational uses of the Refuge is evaluated in its own Compatibility Determination.

The Friends group hosts interpretive bus tours in the Special Use Area to convey current Refuge management information and educate the public on natural history, cultural history, and recreational issues. The Friends of the Wichitas (Friends) also charge $5.00 per person to defray costs to the Refuge.

Individuals or organizations that bring clients to the Refuge for the purpose of interpretation and charge a fee or tuition for their service are considered to be involved in commercial interpretation and are required to have a Special Use Permit issued by the Refuge.

**e) Why is this use being proposed?**

The Refuge is home to one of the largest and busiest interpretation and outreach programs in the National Wildlife Refuge System. Over 150,000 people visit the Refuge's Visitor Center each year, where most experience a passive form of interpretation provided by the many displays and exhibits. Countless contacts are also made informally by roving staff members at popular observation areas like Mt. Scott and Turkey Creek prairie dog town. In addition, over 1,000 Refuge visitors are participants in the popular interpretive bus and hiking tours staffed by the Friends of the Wichitas.

The primary goals of the Refuge's Interpretation Program are to help connect people to the land, to foster an appreciation of the resources, and to facilitate outdoor, nature-based recreation. This use has the potential to create understanding, reveal relationships, examine systems, and explore how the natural world and human activities are intertwined. An objective of interpretation is to stimulate additional interest and positive action in visitors, which can even prepare citizens to participate in environmental and social decision making emphasizing natural and cultural resource conservation. The Interpretation Program also supports and facilitates the Wildlife Observation Program by offering pertinent natural history and management information.

The interpretive bus and hiking tours offered by the Friends are very popular. Commercial interpretive tours will bring hundreds of new visitors to the Refuge each year. This provides an opportunity for the Refuge to conduct public interpretation and outreach. The Refuge will provide informational brochures about the Refuge and the National Wildlife Refuge System, which will further goals of the Refuge, the Refuge System, and the Service. These tours provided a value added service to the public, allowing them to appreciate and understand the conservation value of the Refuge. This level of awareness can lead to support for the Refuge System, for wildlife conservation, and for resource management issues.

**Availability of Resources:**

Interpretive tours are cost effective, as most labor is contributed through the volunteer efforts of the Association of the Friends of the Wichitas. Visitor Services staff includes one Supervisory Park Ranger (GS-0025-12), a Park Ranger (GS-0025-5/7/9), and three Environmental Education Specialists (GS-1701-9) who are actively involved in the Interpretation Program. Through the

CCP, the Refuge intends to add an additional Park Ranger in order to enhance interpretive programs. The Refuge provides periodic interpretive training for Friends members, who then coordinate and conduct pre-scheduled tours for Refuge visitors. As part of this cooperative effort, the Refuge owns and maintains one bus used for interpretive tours in the Special Use Area. To offset such costs, however, the Friends collects a $5.00 per person fee for participation.

In relation to interpretation, the Refuge also spends time and money on the maintenance of interpretive facilities and access points. Less than 10 percent of the regulatory signs and all of the interpretive signs need replacement, according to the 2010 Wichita Mountains Visitor Services Review (Wichita Mountains Wildlife Refuge, unpublished report). Most interpretive panels and kiosks are in good physical condition but are in need of updating with current information and the Service logo, according to the 2010 Wichita Mountains Visitor Services Review (Wichita Mountains Wildlife Refuge, unpublished report). The Refuge has adequate staff and funding to perform these upgrades and better meet the needs of the interpretive program.

Enhancements and additions to the interpretive program will be considered through Projects 23c and 25b of the CCP. Project 23c proposes to improve management and content of the interpretive program, and Project 25b proposes to improve the interpretive infrastructure. Start-up costs are estimated at $1.53 million with an annual operating and maintenance cost of $10,500. Estimated figures will assist the Refuge in adequately funding both overall projects and to improve facilities and opportunities that assist all six of the wildlife-dependent recreational uses allowed on the Refuge.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Interpretive activities have the potential to impact the physical, biological, and human environment. Vehicles travelling on Refuge roads and tour buses facilitating interpretation will result in vehicular emissions that have the potential to degrade air quality. Staff- or volunteer-led interpretive tours on Refuge trails may result in some temporary disturbance to wildlife; however, with 1.5 million Refuge visitors each year, it is likely that wildlife species on the Refuge have acclimated to human presence. Groups or individuals travelling on trails may also cause soil compaction, erosion, trampling of vegetation, and production of litter or human waste. These impacts have a low potential of causing degradation of soil and water quality in lands and waterbodies near trails and interpretive facilities.

Active interpretive contacts with the public are usually less than two hours and are generally facilitated by Refuge staff or volunteers trained by Refuge staff. This gives the Refuge some level of control over the participants' behavior and potential to negatively impact resources. The Refuge also confines the use to areas where designated facilities and trails exist in an attempt to accommodate the priority wildlife-dependent recreational use while reducing the potential for resource impacts. The proposed additional wildlife observation routes and interpretive trail loop will increase the area where visitors can participate in this activity while decreasing the intensity of the environmental impacts resulting from the use. Therefore, all of these impacts are expected to be negligible to minor, site-specific, and short-term.

Restricting the size of interpretive group activities in the Wilderness Area will also allow the Refuge to better maintain the Wilderness character of that area. This action will help the Refuge

increase the apparent naturalness of the Wilderness while maintaining and even enhancing opportunities for solitude or primitive and unconfined recreation.

Interpretation may also result in long-term beneficial impacts to the visitor experience and the mission of the National Wildlife Refuge System. The Visitor Center facilities, publications, films, and public speeches will increase public awareness of the Refuge and conservation issues. This use may increase the viewers' understanding and appreciation of wildlife and their habitat needs as well as the role of the National Wildlife Refuge System in resource conservation. The additional interpretive facilities will offer increased opportunities for the public to observe, understand, and appreciate wildlife while enhancing the overall Refuge System mission. Therefore, these beneficial impacts will likely remain.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from interpretation. Ultimately, this activity will add to public use opportunities on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment. The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. The Refuge received two comments on the lack of interpretive or informational signs. The Refuge responded that it proposed adding and/or improving interpretive and informational signs in the CCP and will consider additional markers or signs in its updated/revised Sign Plan. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

**X** Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that interpretation remains a compatible use:

1. Temporary access restrictions may be used to protect sensitive resources from harassment.
2. The Refuge prohibits night access to the entire Refuge with the exception of Doris Campground, main roads, night fishing, and occasional permitted tours.
3. The Refuge prohibits foot and vehicle travel on trails and secondary roads during fall and winter permit hunts.

4. The Refuge will limit and control Refuge access through enforcement of Refuge regulations, signage, and education of the public as to the purpose of the Refuge and responsibilities of visitors.

5. Only virtual geocaching is allowed on the Refuge; traditional geocaching and placement of human objects is prohibited.

6. Individuals or organizations that bring clients to the Refuge for the purpose of interpretation and charge a fee or tuition for their service are required to have a Special Use Permit issued by the Refuge. This requirement ensures that private businesses are not unfairly making a profit from public lands and provides a mechanism for the Refuge to regulate where and when commercial activities occur.

**Justification:**

As defined by the National Wildlife Refuge System Improvement Act of 1997, wildlife-dependent recreational uses may be authorized on a refuge when they are compatible and not inconsistent with public safety. Interpretation is included as one of these six activities, which are to receive enhanced and priority consideration in Refuge planning and management. Regulated interpretation as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience the Refuge in a high-quality, safe, wholesome, and enjoyable recreational experience. This will ultimately further the visitors' understanding of the refuge's role in wildlife and habitat conservation through the National Wildlife Refuge System. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that interpretation, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge. Instead, this use directly supports the purpose for which the Refuge was established by educating visitors and local clientele so they can better understand and support conservation of all wildlife and their habitats.

**Signature:** Refuge Manager _____ 2/20/13

(Signature and Date)

**Concurrence:** Regional Chief _____ 4/4/13

(Signature and Date)

**Mandatory 15-year Re-Evaluation Date: <u>2028</u>**

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# COMPATIBILITY DETERMINATION

**Use:** Job Corps

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates the continued administration and operation of the Treasure Lake Job Corps Center by the U.S. Forest Service through a Memorandum of Understanding (MOU). The Job Corps Center was established in 1965 and was originally operated by the Bureau of Sport Fisheries and Wildlife, a predecessor of the U.S. Fish and Wildlife Service. The purpose of the site was to provide disadvantaged youth an opportunity for education, vocational training, and useful work

experience for the purpose of increasing their employment capability and preparing them for the responsibilities of citizenship. The Treasure Lake Job Corps Center was administered by the Service until 2006, when administration was transferred to the Bureau of Reclamation. Most recently, on January 17, 2010, the administration and operation of the Treasure Lake Job Corps Center was transferred to the U.S. Forest Service. The CCP supports continuation of this management of the 80-acre Job Corps site by the Forest Service.

**b) Where is the use conducted?**

The Treasure Lake Job Corps Center is located within the Public Use Area of the Refuge, as identified in the Management Areas map in the CCP. The site encompasses approximately 80 acres near the southwest corner of the Refuge in Comanche County, Oklahoma.

**c) When is the use conducted?**

The Treasure Lake Job Corps site is open 24 hours a day, 365 days a year. Thus, the Forest Service is responsible for its management year-round. The Refuge and the Forest Service will meet annually, however, to facilitate regular communication and partnership activities. As written in the MOU between the two agencies, this meeting will occur between October and December each year.

**d) How is the use conducted?**

The administration of the Job Corps site was transferred from the Bureau of Reclamation to the Forest Service through a Memorandum of Agreement dated January 17, 2010. An additional site-specific MOU was signed on March 16, 2010, that solidified the transfer and explained the roles and responsibilities of both the Service and the Forest Service. According to the MOU, the Service transferred a right-of-way to the land to the Forest Service. The Service maintains the responsibility to grant rights and privileges to the 80-acre tract of land, which may include roads, pipelines, power transmission lines, and utilities, provided there is no adverse impact on the Job Corps Program. At the same time, the agreement states that the Department of Labor has the authority to modify the Job Corps site by constructing new buildings, provided the new construction is submitted in advance to the Refuge Manager and is compatible.

Despite handing administration of the site to the Forest Service, the Refuge works with Treasure Lake Job Corps to give students a familiarity of the Refuge. The Refuge's Environmental Education Specialists provide part of the instruction for the orientation of new enrollees every two weeks to explain the purposes and operations of the Refuge to instill a sense of appreciation and respect for the Refuge. Through the CCP, the Refuge also plans to seek partnership opportunities with Treasure Lake Job Corps that could facilitate or increase environmental education (Administrative Area Management Objective 2). Refuge managers also meet with the Center Director and staff a few times a year to discuss and coordinate activities. Refuge law enforcement officers respond periodically to back-up and provide assistance to the Comanche County Sheriff s deputies for law enforcement and emergency response incidents.

**e) Why is this use being proposed?**

The Center is contracted for 236 students ages 16 to 24 and teaches 11 vocational training programs. Job Corps is a no-cost education and vocational training program administered by the U.S. Department of Labor that helps youth between ages of 16 and 24 improve their quality of life through vocational and academic training (Department of the Interior 2010). The U.S. Forest Service gained administration of the Treasure Lake Job Corps and five other Job Corps Civilian Conservation Centers in 2010 through the MOA with the Bureau of Reclamation. The purpose of that action was to continue to allow Center students to learn conservation and recreation-related trades and skills and to conduct beneficial activities on Center lands.

The Job Corps Civilian Conservation Program is a priority for the Forest Service, who has the experience and expertise to manage the Treasure Lake Job Corps Center. Although this is not a typical use of Refuge land, the Forest Service Job Corps Program will ultimately add to the future of natural resource conservation as students learn about both agencies' conservation missions while preparing for productive careers and fulfilling lives. Simultaneously, this action is in the spirit of the Job Training Partnership Act section 427 (a)(1) that authorizes Civilian Conservation Centers and states that Job Corps shall include:

"*...Civilian Conservation Centers, located primarily in rural areas, which shall provide, in addition to other training and assistance, programs of work experience to conserve, develop, or manage public natural resources or public recreational areas; or to develop community projects in the public interest*." (140 FW 3, Center Management)

**Availability of Resources:**

Existing Refuge resources are adequate to properly and safely administer this use, and no additional Refuge resources are required to oversee Treasure Lake Job Corps. The Forest Service is responsible for oversight of the operation of the Center, including utilities, materials, supplies, other goods or services, and administrative support, required to carry out the Center functions, activities, educational and vocational training programs. The Forest Service is also responsible for maintaining all lands and facilities at the Center in a condition that will assure the health and safety of students, employees and the visiting public. All land, buildings, structures, fixtures at the Center remain under the jurisdiction of the Refuge. The Refuge's Environmental Education Specialists, Law Enforcement officers, and Refuge Manager are already allocated to the tasks required of them through the MOU and the commitment to Treasure Lake Job Corps.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

Many of the impacts of having a Job Corps Center on a national wildlife refuge are beneficial. Hundreds of construction projects, from building offices to fences to water control structures, have been completed on the Wichita Mountains Wildlife Refuge and surrounding communities since the Job Corps site was established in 1965. Students from Job Corps have been able to assist in those activities while in vocational school. Some Job Corps students regularly assist with Refuge Environmental Education programs as interns. Also, the students learn about the Refuge, the National Wildlife Refuge System, and both entities' role in resource conservation while attending Job Corps. In this manner, the presence of the site is helping spread knowledge, appreciation, and understanding of the Refuge, and, thus, providing beneficial impacts for the Refuge.

Alternatively, the presence of over 200 students residing at the Job Corps Center can also have some adverse impacts on the Refuge landscape. Students are allowed to leave the 80-acre Job Corps site during free time, and many participate in recreational activities on the Refuge during those times. Litter and graffiti painted on Refuge rocks has occurred regularly. The Charons Garden Wilderness Area's southern boundary is located immediately north of the Job Corps Center Complex. Thus, the presence of young students has resulted in some negative impacts to the wilderness quality; it is likely that this has also affected soils, habitat, and wildlife, through compaction, trampling of vegetation, off-trail travel, and disturbance to animals. For these reasons, the Refuge participates in the orientation program by educating new Job Corps students about the Refuge and its resources. These negative impacts have decreased substantially since the Refuge began offering this training. Therefore, the impacts are expected to remain minimal as the Refuge continues its close relationship with the Forest Service in managing this site.

Cumulative Impacts:
The administration and operation of Treasure Lake Job Corps by the Forest Service will not incrementally add to any resource impacts resulting from other past, present, or reasonably foreseeable future actions.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. The Refuge received three comments on the Treasure Lake Job Corps. Two comments suggested that the Refuge could better utilize Job Corps for Refuge projects while the other proposed a land swap to move Job Corps off of the Refuge. The Refuge responded that the CCP did propose incorporating the efforts of the Job Corps on Refuge projects. Administration and operation of the Job Corps site by the Forest Service has only minor effects on the Refuge while the center has provided many opportunities for assistance on maintenance and habitat improvement and enhancement projects. Therefore, the Refuge is not proposing a land swap or any other modification of the partnership held between the USFWS and the U.S. Forest Service for management of this center. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that administration of Treasure Lake Job Corps by the Forest Service remains a compatible use:

1. The Forest Service may not permit the use of Treasure Lake Job Corps lands or facilities for any purpose that is inconsistent or incompatible with the functions and objectives of the Job Corps and the National Wildlife Refuge System.

2. The Refuge maintains management control of the Center's lands and buildings, as no land transfer is part of the MOU between the parties. The Forest Service retains a right-of-way to this land to administer and operate the Center.

3. Environmental education orientations will continue to be an integral part of Job Corps' enrollee instruction.

4. Any law enforcement issues arising from occasional student infractions occurring on the Refuge will be handled by Refuge law enforcement staff and the County Sheriff's deputies, as appropriate.

5. The Treasure Lake Job Corps Center operations must comply with all applicable laws that the U.S. Fish and Wildlife Service must comply with, including the National Wildlife Refuge System Administration Act of 1966, the Refuge Recreation Act of 1962, the National Environmental Policy Act of 1969, the Migratory Bird Treaty Act, the Archeological Resource Protection Act of 1979, the Endangered Species Act of 1973, and the Fish and Wildlife Improvement Act of 1978.

6. The permittee will be required to allow treatment and removal of non-native invasive plants and animals identified by Refuge staff, and any new plantings must be approved by the Refuge Manager.

**Justification:**

The operation of the Treasure Lake Job Corps Center by the U.S. Fish and Wildlife Service has been in effect for over 40 years. Administration and operation of the Job Corps site by the Forest Service has minimal effect on the Refuge. The existence of the Job Corps Center on the Refuge has provided numerous maintenance and habitat improvement and enhancement projects. Although the operation of a Job Corps Center on a national wildlife refuge is not a typical use, it is compatible on the Wichita Mountains Wildlife Refuge.

**Signature:** Refuge Manager _____, 2/20/13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

**References Cited:**

Department of Interior. 2010. United States Departments of Interior and Agriculture Pre-acquisition and Disposal Environmental Screening Report for Federal Land Transactions Treasure Lake Job Corps, Transfer from U.S. Bureau of Reclamation to U.S. Forest Service.

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# COMPATIBILITY DETERMINATION

**Use:** Jogging and Strenuous Walking

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Jogging and strenuous walking are existing recreational uses that occur on the Wichita Mountains Wildlife Refuge. Though the primary purpose of these activities is typically physical fitness, the Refuge provides a serene and natural landscape for civilians to exercise and view wildlife. In this manner, jogging and strenuous walking is a secondary use occurring primarily in support of wildlife observation.

**b) Where is the use conducted?**

Jogging and fitness walking are allowed on all public access roads and two dirt roads (the Mt. Scott bike trail/administrative road and the Burma administrative road) in the Public Use Area. Although these activities may occur on hiking trails throughout the Refuge, visitors typically do not run on trails.

**c) When is the use conducted?**

Jogging and strenuous walking may occur year-round during daylight hours only. Restrictions occur during fall and winter permit hunts, when foot travel and vehicle travel on secondary roads is restricted.

**d) How is the use conducted?**

Individuals who participate in these activities on the Refuge typically live in nearby communities and use the Refuge for physical fitness, while also appreciating the beauty of the Refuge and the wildlife scattered throughout. Some local civilian groups, such as the local chapter of the Volksmarchers, come to the Refuge to participate in these activities. Local schools occasionally transport small physical education classes to the Refuge to participate in these activities.

**e) Why is this use being proposed?**

It is likely that recreational user groups who participate in jogging and strenuous walking on the Refuge enjoy engaging in these activities on the Refuge because of the remoteness and beauty of the area. These activities facilitate two wildlife-dependent recreational opportunities (wildlife observation and interpretation) for most civilian recreational users. In this way, jogging and strenuous walking are supportive recreational uses.

**Availability of Resources:**

The Refuge experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including jogging and strenuous walking. The Refuge has very little involvement with this use due to the low demand for physical fitness activities. No additional Refuge resources would be necessary to oversee jogging and strenuous walking.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

Jogging and strenuous walking occur only along established paved public access roads and unpaved administrative roads. This use is expected to result in negligible adverse impacts to Refuge resources, including some disturbance of wildlife. The small percentage of visitation that occurs for jogging and strenuous walking on these roadways will keep any disturbance to wildlife at a negligible level, as vehicle traffic along the same roadways is much higher than human presence associated with this use. On the other hand, this use also serves to reduce the Refuge's carbon footprint and minimize air quality impacts.

Although physical fitness is likely the primary purpose of this activity, there is an opportunity to enjoy the beauty of the Refuge. Thus, jogging and strenuous walking occur in support of wildlife

observation and interpretation, priority wildlife-dependent recreational uses. In this manner, jogging and strenuous walking are an existing supportive recreational use with a beneficial impact on the human environment.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from jogging. Jogging occurs in conjunction with wildlife observation and interpretation, each of which will ultimately result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that hiking remains a compatible use:

1. The Refuge may regulate times, areas, and conditions for jogging. During fall and winter permit hunts, the Refuge prohibits foot and vehicle travel on trails and secondary roads.
2. The Refuge prohibits night access to the entire Refuge with the exception of Doris Campground, main roads, and night fishing.
3. Individuals or organizations that bring clients to the Refuge for any purpose and charge a fee or tuition for their service will continue to be required to have a Special Use Permit issued by the Refuge. This requirement ensures that private businesses are not unfairly making a profit from public lands and provides a mechanism for the Refuge to regulate where and when commercial activities occur.

**Justification:**

Jogging and strenuous walking occur on the Wichita Mountains Wildlife Refuge as a secondary use that facilitates the primary wildlife-dependent recreation uses defined by the National Wildlife Refuge System Improvement Act of 1997. Jogging and strenuous walking along roadways as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to engage in physical fitness activities while experiencing wildlife firsthand and develop awareness, understanding, and appreciation of fish and wildlife. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge

has determined that recreational jogging/strenuous walking, in accordance with the stipulations provided here, is a compatible use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2/20/13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

# COMPATIBILITY DETERMINATION

**Use:** Mesonet Weather Station

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates the continued use of lands within the Wichita Mountains Wildlife Refuge by the Oklahoma Climatological Survey (OCS) for the purpose of operating and maintaining a Mesonet weather station and repeater. This weather station is one in 120 automated stations that monitor "mesoscale" weather events, which are those that range in size from about one mile to 150 miles lasting from several minutes to several hours (University of Oklahoma 2011). These mesoscale

events, such as wind gusts or heat bursts, are phenomenon that may go undetected without densely spaced weather observations (University of Oklahoma 2011). The data from all of the Mesonet stations, including the one on the Refuge, is submitted to the Oklahoma Climatological Survey at University of Oklahoma, which then publishes the data for the public.

This activity is not a priority public use of the National Wildlife Refuge System, and the Refuge issues a Special Use Permit for the use.

**b) Where is the use conducted?**

The Mesonet Weather Station is located inside an existing range enclosure that uses a plot of land (32 feet by 32 feet) in the northwest corner of the enclosure. The area is fenced and occurs in an open prairie range site. The legal description of the site is the NW ¼ of the SE ¼ of Section 16 in Township 03 North, Range 13 West. The site is three miles west of Medicine Park in Comanche County in the Refuge's Public Use Area.

*The Mesonet Weather Station located on the Wichita Mountains Wildlife Refuge. Photo provided by http://www.mesonet.org.*

The station consists of a 10-meter antenna tower and weather collecting instruments that are connected to a Data Collection Platform (DCP) also located within the area. The DCP transmits data that is collected every 15 minutes through a Refuge repeater located on Mt. Scott. The repeater tower is approximately 20 feet tall with a 10-15 foot antenna. The tower is solar powered with a series of batteries to store the electricity, but the site also includes a wind generator that helps maintain the batteries' charge. The Refuge uses the repeater tower for law enforcement but allows the Oklahoma Climatological Survey to use it to transmit weather data as well.

Access to the weather station is by vehicle, primarily on the existing Milligan Road or Highway 49. The road, however, stops approximately 100 yards from the station itself. There is not a maintained secondary road to the station site from Milligan Road. Therefore, maintenance and repair workers walk to the station site from the Milligan Road whenever possible in an effort to maintain the roadless condition of the area.

**c) When is the use conducted?**

The Mesonet Weather Station transmits data that is collected every five minutes. Therefore, the station is in continuous operation 24 hours per day year-round. Routine maintenance and repair of instrumentation may occur but typically require no more than one or two visits to the station site per year, except during instances when an instrument malfunctions. As stated in the Special Use Permit, OCS must notify the Refuge by phone when personnel need access to the station.

**d) How is the use conducted?**

Both the Mesonet Weather Station and the repeater are administered through a Special Use Permit. The antenna tower and weather collecting instruments collect data that is stored in the DCP, which transmits the data every five minutes through the repeater. The data is transmitted to a central site in Norman, Oklahoma. There, the data is compiled from all 120 Mesonet stations throughout Oklahoma. The data is distributed for public use. The station on the Refuge is owned, maintained, and operated by the OCS, which is a non-profit cooperative education and governmental organization. All maintenance and operations are conducted by the permittee.

**e) Why is this use being proposed?**

The statewide network of Mesonets, including that on the Refuge, provide weather forecasters with more frequent and more localized information than the more typical atmospheric measurement sites (University of Oklahoma 2011). Specifically, better forecasts of excessive rainfall and real-time measurements of soil moisture conditions help improve the lead time on flood warnings (University of Oklahoma 2011). The Refuge also uses the data collected at the Mesonet Weather Station for baseline weather information to determine conditions suitable for prescribed burning on the Refuge. Future uses for collected weather data are anticipated to increase, and some potential uses (i.e., air and water quality monitoring) will require an up-to-date source that the Mesonet station on the Refuge can provide.

**Availability of Resources:**

There is very little Refuge staff or budgetary resources required to oversee permitting the Oklahoma Climatological Survey to maintain and operate the Mesonet weather station. The resources that are necessary to provide this use are already available within current and anticipated Refuge budgets. Staff time associated with the administration of this use is related to drafting and issuing the Special Use Permit and keeping in contact with the OCS.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

The Mesonet Weather Station and Repeater Tower both occur on existing sites where land has already been devoted to these purposes. Access to the sites has generally only occurred one to two times per year in order for the permittee to conduct basic maintenance. As such, there are very few potential impacts on Refuge resources. During these very infrequent times when access is required, there may be negligible impacts to wildlife by adding to disturbance factors. There

may also be negligible impacts to soils and vegetation, as OCS individuals may have to walk across approximately 100 yards of Refuge land (non-trail) to access the site. The largest adverse impact on the Refuge from the issuance of this permit is the visual impact of the 10-meter antenna tower. The tower is visible from the road and may even draw the curiosity of Refuge visitors, tempting individuals to walk over to it. The Station is fenced in, preventing access by, and potential safety issues for, curious Refuge visitors. The tower is not fenced in, however, and its physical presence may cause short-term minor adverse impacts to public use by impacting the viewshed of the Refuge and, by default, decreasing the naturalness of the area. Minor vandalism and destruction have occurred to the tower. The Refuge is working to reinforce the tower building to deter or prevent future incidences.

Alternatively, the presence of the Mesonet Weather Station may result in long-term beneficial impacts to Refuge management and science understanding. Refuge management will be affected by continuing to provide the Refuge with accurate and up-to-date weather data to use when considering prescribed burning or integrated pest management strategies. Also, the OCS's use of data collected at the site may help move science research forward, potentially increasing Oklahoma's understanding of current weather and future climate conditions.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from this use. The data collected at this station and all of the other Mesonet Weather Stations in the State will contribute to better weather forecasting throughout all of Oklahoma. Ultimately, increased understanding of weather data and potential future conditions may help residents better prepare for severe weather events, thereby assisting residents in minimizing potential harm. Each of the 120 Mesonet Weather Stations throughout the State in combination will result in beneficial cumulative impacts on the human environment.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

**X** Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

Oklahoma Climatological Survey must continue to contact the Refuge by phone when access to the station or repeater site is desired. This allows the Refuge to control the permittee's access in an effort to maintain the sites in as natural a condition as possible.

**Justification:**

This use has little impact to wildlife or habitat since it is primarily conducted for research purposes using existing permanent infrastructure. Maintenance is rarely required, which limits physical presence at the site. This activity will not conflict with any of the priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that continuing to issue the Special Use Permit for operation and maintenance of Mesonet Weather Station, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2/20/13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

**References Cited:**

University of Oklahoma. 2011. Oklahoma Mesonet. http://www.mesonet.org. Accessed 2011 Mar 16.

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# COMPATIBILITY DETERMINATION

**Use:** Mount Baker Repeater

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. On October 23, 1970, Public Law 91-504 established two units of Wilderness areas within the Refuge.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates secondary use of a repeater building and tower on Mount Baker of the Wichita Mountains Wildlife Refuge that was originally established to serve Refuge law enforcement and fire fighting communication needs. The facilities are used by several secondary operators, including the Department of Homeland Security, the Federal Bureau of Investigation, the Oklahoma Department of Public Safety, and Comanche County. Each entity has its own repeater located in a central

building on Mount Baker owned by the Department of Homeland Security. This activity is not a priority public use of the National Wildlife Refuge System.

**b) Where is the use conducted?**

The repeater building is located on the side of Mount Baker within the Special Use Area. The approximately 30-foot tall tower is located near Baker Peak on the northwest corner of the Refuge and is connected to the building by a cable that runs up the side of the mountain.

**c) When is the use conducted?**

The communication facilities remain on site and operate on an ongoing basis. Maintenance activities occur occasionally when needed.

**d) How is the use conducted?**

Operation and maintenance of the building and tower are primarily conducted by the Department of Homeland Security. Communication facilities are remotely operated. A limited amount of human activities occur at the site and is generally associated with occasional maintenance. Current and future access will be achieved by small all-terrain vehicle (ATV) or by air (helicopter) when possible.

**e) Why is this use being proposed?**

The Baker repeater facilities on the Refuge serve the national safety interests and law enforcement needs by providing facilities needed to gather information and communicate with one another. The use also enhances the Refuge's law enforcement capabilities and firefighting services as officers carry both regular walky-talkies and 800 megahertz walky-talkies that allow them to use the Baker repeater tower for enhanced communication.

**Availability of Resources:**

There is very little Refuge staff or budgetary resources required to oversee operation and maintenance of the repeater building and tower, as the Department of Homeland Security manages the use. The resources that are necessary to provide and administer this use are already available within current and anticipated Refuge budgets.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

Anticipated impacts on Service lands pertaining to this use are minimal. Historical access to the radio building and tower for maintenance and/or repairs has been very low (approximately once a year) in the past. Current and future access by ATVs and helicopters will have minimal impacts to the soils, vegetation, water quality, and wildlife, especially with the anticipated low frequency of disturbance. Use of this equipment may, however, result in some minor impacts to air quality due to emissions. Again, the limited amount of site access will also limit the potential impact. Presence of the tower, building, and cable result in adverse impacts to the visual resource of the

Refuge, but the location of the site in the Special Use Area minimizes this impact, as the site is not within view of where most public uses occur.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from operation and maintenance of the Baker repeater building and tower.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

X Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

Access to maintenance and operation of the current equipment will continue to be by air or by ATV to help insure minimal resource disturbances of any type.

**Justification:**

Regulated operation and maintenance of the Baker repeater building and tower as described here will have very little impact on the physical and biological environments. This use has little impact to wildlife or habitat since access occurs so infrequently and human activities that occur onsite are very limited. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that the use of the building and tower, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-20-13
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

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# COMPATIBILITY DETERMINATION

**Use:** Natural Resource Collection

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates natural resource collection on the Refuge occurring for tribal, educational, or cultural reasons. This use is not open to the general public. Typically, this use entails the removal of plants, cedar branches, or rocks for traditional ceremonies or educational purposes. This activity is not a priority public use of the National Wildlife Refuge System, and it requires a Special Use Permit.

**b) Where is the use conducted?**

This use may occur anywhere in the 24,088-acre Public Use Area though specific locations and will be described in the individual Special Use Permits.

**c) When is the use conducted?**

Time frames for this use will vary depending on the request, and restrictions on when the use can be conducted will be described in the individual Special Use Permits. Individuals who request this use will likely be confined to collecting natural resources during daylight hours only.

**d) How is the use conducted?**

When an individual requests to conduct natural resource collection on the Refuge, that individual must formally request such use from the Refuge Manager. The Refuge Manager then issues the individual a Special Use Permit with specific restrictions on timing and location of the use, as well as amount of collection permissible. Permits will only be issued when the proposed natural resource collection is associated with tribal, cultural, or educational purposes.

**e) Why is this use being proposed?**

Natural resource collection is allowed on the Refuge because it is a traditional tribal use of the area, and resource specimens may be valuable for scientific research or cultural understanding. In addition, this use supports interpretation of the area by expanding the appreciation and understanding of Refuge resources.

**Availability of Resources:**

There is very little Refuge staff or budgetary resources required to oversee natural resource collection. The resources that are necessary to provide and administer this use are already available within current and anticipated Refuge budgets. Staff time associated with the administration of this use is primarily related to interactions with individuals who request the use, issuance of Special Use Permits, and monitoring the impacts of the use on Refuge resources.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Historically, public participation in natural resource collection on the Refuge has been low. In 2010, only seven Special Use Permits were issued for this use. This activity mainly occurs adjacent to existing roads and trails, thereby minimizing any adverse impacts to soils, habitat, and waterbodies. The action may result in some level of disturbance to wildlife, but the very low frequency and duration of this use will not result in any measurable resource impacts. Furthermore, the relatively few resources harvested during natural resource collection will not significantly alter the many habitats scattered across the Refuge.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from natural resource collection. Ultimately, this activity will add to the diversity of public use opportunities on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. The Refuge received two comments on natural resource collection. Both stated that local tribes come to the Refuge for many reasons which include collecting native plants and resources. The Refuge replied that it will continue to allow tribal use of the Refuge, including the collection of natural resource items, for customary and traditional purposes. See CCP Appendix I for the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

X Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

All individuals interested in natural resource collection related to tribal, educational, or cultural purposes must receive a Special Use Permit prior to actively participating in this activity. The permit will indicate when, where, and how the applicant may participate in natural resource collection.

**Justification:**

Regulated natural resource collection as described here will provide the visitor with a chance to experience the Refuge while participating in a traditional Refuge use that could benefit long-term scientific research. This use has little impact to wildlife or habitat since it is recreational in nature and few people participate. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that natural resource collection, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

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# COMPATIBILITY DETERMINATION

**Use:** Photography

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Photography is an existing wildlife-dependent recreational use on Wichita Mountains Wildlife Refuge. This is a popular public use of the Refuge, and it includes a variety of formats (i.e., still, video, or movie). Opportunities for photography and videography mirror those for wildlife observation. The Refuge offers world-class wildlife viewing and photography with opportunities to see and photograph bison, elk, white-tailed deer, turkey, and prairie dogs, as well as a host of small mammals, birds, and reptiles. The

Refuge proposes to continue this existing wildlife-dependent recreational use through Public Use Objective 3 in the CCP: "Throughout the life of the CCP, continue to allow public use access and provide facilities that contribute to spectacular photographic opportunities for over one million visitors per year." In addition, the Refuge intends to manage for spectacular photography opportunities in Charons Garden Wilderness Area throughout the life of the CCP by improving Wilderness conditions (Wilderness Area Objective 2).

**b) Where is the use conducted?**

The 24,088-acre Public Use Area is open to public access for photography opportunities via foot, bicycle, and vehicle travel. Over 50 miles of paved roads, 17.7 miles of hiking trails, and 13 miles of dirt roads facilitate a range of viewing and photography opportunities. The Refuge contains 89 parking areas, ranging from roadside pullouts to fully-developed parking lots, where visitors can use their vehicles as photography blinds. In addition, the Refuge provides two sites specifically for photography opportunities. The first is Turkey Creek prairie dog town, which has a paved pullout parking area and two interpretive signs. The second is the accessible nature trail at Quanah Parker Lake that offers waterfowl and wetland photography, four interpretive signs, and accessible restrooms. In addition, the Charons Gardens Wilderness Trail and Elk Mountain Trail are open to photography. These 2 trails (hiking access only) constitute 3.5 miles that facilitate this use.

**c) When is the use conducted?**

Refuge visitors are allowed access for photography during daylight hours, with the exception of Doris Campground and certain areas that provide night fishing opportunities where photography may occur as a secondary use. The only restrictions to photography occur during fall and winter permit hunts, when foot travel and vehicle travel on secondary roads is restricted.

**d) How is the use conducted?**

The Photography Program is currently managed in conjunction with the Wildlife Observation Program. As is the case with wildlife observation, the use can take form through a variety of different means including camping, fishing, hiking, jogging, hunting, interpretation, boating, bicycling, picnicking, rock climbing, and scuba diving. Each of these individual recreational uses of the Refuge is evaluated in its own Compatibility Determination. The Refuge is also proposing to develop online observation and photography tools and tips to aid in awareness of such opportunities.

Individuals or organizations that bring clients to the Refuge for the purpose of photography and charge a fee or tuition for their service are required to have a Special Use Permit issued by the Refuge.

**e) Why is this use being proposed?**

The goal of the Photography Program is to offer a variety of high quality opportunities to photograph wildlife in their native habitats while minimizing potential conflict between

user groups and between humans and wildlife. Visitors can benefit from photography by gaining an understanding of the interrelationships between humans and animals.

**Availability of Resources:**

Photography use from 2005 to 2009 is estimated at an average of 1.2 million visits per year (USFWS 2009). The Refuge uses a large portion of their staff and budget resources to facilitate wildlife observation, which goes hand-in-hand with photography opportunities. Both programs require oversight by visitor services, law enforcement, and maintenance staff. In association with these two uses, Refuge staff make visitor contacts at the Visitor Center, provide information to visitors through the Trail Ranger system, maintain and improve existing facilities, and monitor the uses. Law enforcement staff patrols roads, pullouts, and parking areas, mainly enforcing regulations regarding speed limits, illicit substance use or possession, occasional vehicle theft, and vandalism.

Continuing, enhancing, or adding to the existing photography and wildlife observation programs will be considered through Projects 23b and 25a of the CCP. Project 23b proposes to improve the management and delivery of the photography/observation program, and Project 25a proposes to improve photography and observation infrastructure. The estimated start-up cost for improved program management and infrastructure development is $993,000, with an annual operating and maintenance cost of $41,200. These estimated figures will assist the Refuge in adequately funding both overall projects and in improving facilities and opportunities that assist all six of the wildlife-dependent recreational uses allowed on the Refuge.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Human presence on roads and trails that facilitate viewing and photography may result in some environmental impacts to the Refuge, its habitat, and wildlife species. Vehicles travelling Refuge roads for photography purposes may result in emissions that could negatively impact air quality. Human activity and accompanying pets throughout wildlife habitat for any of the public uses on the Refuge will continue to result in some temporary disturbance to wildlife. In addition, the use of trails where photography occurs may result in soil compaction, erosion, trampling of vegetation, and production of litter or human waste. These impacts have a low potential of leading to water quality degradation in waterbodies near trails. Visitor access, however, is typically by individuals or groups that participate in recreational activities for short durations. The Refuge will continue to confine the use to designated roads and trails where facilities exist specifically to accommodate the use while reducing resource impacts. Therefore, destruction or negative impacts to habitat and associated vegetation are minor.

Alternatively, photography may result in long-term beneficial impacts to the human environment. This use may increase the viewers' understanding and appreciation of wildlife and their habitat needs while allowing visitors to capture images that preserve their Refuge experience for years to come. In this sense, photography supports interpretation and heightened understanding of the Refuge's role in wildlife conservation.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from photography. Ultimately,

this activity will add to public use opportunities on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment. The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that photography remains a compatible use:

1. Temporary access restrictions may be used to protect sensitive resources from harassment.
2. The Refuge prohibits night access to the entire Refuge with the exception of Doris Campground, main roads, and night fishing.
3. The Refuge prohibits foot and vehicle travel on trails and secondary roads during fall and winter permit hunts.
4. The Refuge will limit and control Refuge access through enforcement of Refuge regulations, signage, and education of the public as to the purpose of the Refuge and responsibilities of visitors.
5. Individuals or organizations that bring clients to the Refuge for the purpose of wildlife observation or photography and charge a fee or tuition for their service are required to have a Special Use Permit issued by the Refuge. This requirement ensures that private businesses are not unfairly making a profit from public lands and provides a mechanism for the Refuge to regulate where and when commercial activities occur.

**Justification:**

As defined by the National Wildlife Refuge System Improvement Act of 1997, wildlife-dependent recreational uses may be authorized on a refuge when they are compatible and not inconsistent with public safety. Photography is included as one of these six activities, which are to receive enhanced and priority consideration in Refuge planning and management. Regulated photography as described here and consistent with the management direction provided in the

CCP will provide the visitor with a chance to experience wildlife firsthand and develop knowledge about species' behaviors, adaptations, and habitat requirements while also developing an understanding of the Refuge's role in wildlife and habitat conservation through the National Wildlife Refuge System. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that photography, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 15-year Re-Evaluation Date: 2028**

**References Cited:**

U.S. Fish and Wildlife Service (USFWS). 2009. Wichita Mountains Wildlife Refuge Unpublished Data.

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# COMPATIBILITY DETERMINATION

**Use:** Picnicking (Including Rental of Boulder Cabin)

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Picnicking is an existing recreational use on Wichita Mountains Wildlife Refuge. Although this use is not one of the priority public uses, picnicking is supportive of wildlife-dependent recreational uses, including wildlife observation and photography, which can increase the public's awareness, understanding, and appreciation of fish and wildlife resources. Picnicking may occur at four day-use areas and at the Boulder Cabin, which is available for large group picnicking by reservation.

The Refuge proposes to continue this existing use through Public Use Area Objective 10 in the CCP: "Provide year-round developed picnicking opportunities at established picnic grounds and provide alternatives off-Refuge for times of high demand within six years of CCP approval."

**b) Where is the use conducted?**

Four day-use picnicking areas (Mt. Scott, Lost Lake, Boulder, and Sunset Picnic Areas) with a total of 85 individual sites, are scattered throughout the Public Use Area. Mt. Scott Picnic Area is located directly south of Mt. Scott and west of Lake Elmer Thomas. Lost Lake and Boulder Picnic Areas are centrally located approximately half-way between Refuge Headquarters and Doris Campground. Sunset Picnic Area is located on the west end of the Refuge at the base of Elk Mountain. Road signs direct visitors to the areas, which are highlighted on the Public Use Facilities map in the CCP. In addition, Boulder Cabin is available for group picnicking with a fee. Boulder Cabin is listed on the National Register of Historic Places.

| Picnic Area Name | Number of Sites |
|---|---|
| Mt. Scott | 27 |
| Boulder | 22 |
| Lost Lake | 20 |
| Sunset | 16 |
| Boulder Cabin | 7 |
| **TOTAL** | **92** |

**c) When is the use conducted?**

The Refuge offers picnicking opportunities year-round during daylight hours only. Picnic areas receive a sporadic but high level of use on weekends and holidays.

**d) How is the use conducted?**

Fire rings and grills are available at the picnic areas, but guests must check current Fire Danger Ratings at Refuge gates or on the Web (at http://www.fws.gov/southwest/refuges/oklahoma/wichitamountains/current.html) to determine use regulations. Trash receptacles, parking areas, and restrooms are available at all picnic areas. Potable water, however, is not available at picnic areas.

At the four main picnicking areas, picnicking is free for all guests on a first-come, first-served basis. There is no limitation on group size, but the Refuge plans to develop infrastructure and services to facilitate group size management, as discussed in the following text.

Through Public Use Area Management Objective 10 of the CCP, the Refuge plans some changes to the current picnicking opportunities. First, the Refuge intends to enhance the quality of the visitor experience in the heavily-trafficked Mt. Scott Picnic Area (high

density use zone) by increasing interpretive services, interpretive signage, kid-friendly landscaping, and recycle and/or garbage services. The less-utilized picnic grounds at Boulder and Lost Lake would also be improved to encourage use at these sites while minimizing use in the low density areas. The Refuge will promote off-Refuge opportunities through strengthened partnerships with the Lake Elmer Thomas Recreation Area and local communities in order to meet the demand for picnicking while protecting Refuge resources. As part of this strategy, the Refuge will improve the Lake Elmer Thomas Recreational Area (LETRA) connection and other trail connections to provide linkages to off-Refuge recreational opportunities. With these improvements, the Refuge hopes to minimize large group size traffic at the Sunset Picnic Area, which borders and affects the Charons Garden Wilderness Area. Aside from building additional infrastructure at the other on- and off-Refuge picnicking facilities, the Refuge hopes to minimize negative impacts in the low density use and Wilderness areas by increasing awareness of other sites and expanding education on wilderness character.

Boulder Cabin can be rented for private group picnicking, occasionally associated with weddings and family reunions. Reservations can be taken up to three months in advance by contacting Refuge Headquarters. Boulder Cabin Picnicking Area has one group picnic site with a shelter available for day-use only. Capacity for the site is a minimum of 20 people and a maximum of 60 people, with a responsible adult 18 years or older accompanying each group. The fee is $5.00 for renting Boulder Cabin.

**e) Why is this use being proposed?**

The Refuge is home to one of the largest and busiest interpretation and outreach programs in the National Wildlife Refuge System, and picnicking is directly related to this use and to all of the priority public uses. Picnicking has been a popular recreational pastime since the Refuge was designated in 1905. By 1983, the Visitor Service program at the Refuge had eliminated over half of the picnicking areas to protect natural resource and public use values, improve public safety, and meet national recreation management direction. The Refuge is maintaining the existing facilities in order to allow the use but link it more closely to the wildlife-dependent recreation opportunities that it supports. Although picnicking is not a wildlife-dependent recreational opportunity, it is closely related to wildlife observation, interpretation, and photography, as well as to all of the priority public uses. In addition, picnicking at Boulder Cabin provides a unique opportunity for Refuge visitors to connect with the history of this nationally-recognized special place (as it is listed on the National Register of Historic Places).

**Availability of Resources:**

*General Picnic Areas*

Refuge resources required to administer picnicking on the Refuge are minimal. Very little staff time and finances are required to provide this use as the facilities have existed for numerous years. The primary tasks related to this use are maintenance of the existing sites and access points as well as law enforcement to ensure that Refuge visitors comply with Refuge regulations. Additional trail connections and infrastructure expansion will require additional staff and budget.

*Boulder Cabin Picnic Area*

Primary tasks related to rental of the Boulder Cabin Picnic Area include coordinating reservations with interested parties and monitoring the use to ensure that no damage is incurred at the historic site. Fee collection offsets some of the maintenance costs the Refuge may incur to maintain the integrity of this facility.

Improving the six wildlife-dependent and supportive recreation activities and facilities that in turn support the Refuge's picnicking opportunities will be considered through Projects 23a-d, 24a-c, and 25a-e of the CCP. Through Projects 23 and 24, the Refuge aims to manage primary and secondary compatible supportive recreation activities on the Refuge in a way that minimizes conflict with other users and natural resource management activities. Through Project 25, the Refuge intends to maintain or improve public use facilities, including those associated with picnicking, such as interpretive signs or kiosks. As the Refuge is only considering improvements to programs and facilities that indirectly benefit picnicking, no additional Refuge resources would be necessary to oversee picnicking as a singular use.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Picnicking has the potential to adversely impact the physical and biological environment at the site-specific areas where the use is allowed. Human presence at picnicking sites may result in disturbance to wildlife, particularly on holidays and weekends when picnicking participation is high. With over 1.5 million visitors each year, however, it is likely that wildlife species on the Refuge have acclimated to human presence. Visitor use in and near picnicking areas may cause soil compaction, trampling of vegetation, plant destruction, and production of litter. The Refuge provides trash receptacles at each picnic site to deter visitors from littering, and the CCP proposes that infrastructure is improved in high use areas to better distribute the use while minimizing effects to resources. Despite this, these possible human use impacts may result in adverse impacts to soils, habitat, and water quality.

Sunset Picnic Area is located very close to the Charons Garden Wilderness Area. Currently, this use may result in similar environmental consequences to Wilderness as those described in the Public Use Area. Through the CCP, however, the Refuge is attempting to enhance opportunities elsewhere in an effort to minimize picnicking visitors near the Wilderness area where there is high potential to degrade resources or even wilderness character. By expanding infrastructure in other areas, the Refuge hopes to naturally detract people from bringing large groups to picnic at Sunset. These changes are proposed to limit litter, human disturbance, and noise, while maintaining or enhancing the wilderness character of the area. Furthermore, offering this wilderness experience to individuals or small groups of Refuge visitors seeking solitude at Sunset Picnic Area will further their understanding of nature in its most intact state.

Boulder Cabin Picnicking Area offers guests another unique opportunity to picnic at a site listed on the National Register of Historic Places. This opportunity may result in the same general adverse impacts to resources at the site, but it may also heighten visitors' understanding and appreciation of the historic role of the Refuge, the cabin site, and environmental resources. In this regard, this opportunity will result in long-term beneficial impacts to the human environment. The existing facilities at Boulder Cabin are large enough to house groups of 20 to

60 individuals without resulting in long-term natural resource degradation possible at other picnic areas. Therefore, Boulder Cabin can accommodate the demand for picnicking in large groups while minimizing potential adverse impacts to the physical and biological environment elsewhere.

Proposed partnerships may result in long-term beneficial impacts to the Refuge and potential partners, as off-Refuge areas gain increased visitation while decreased use on the Refuge protects resources. Partnerships may also facilitate increased communication between the Refuge and its neighbors, leading to an increased understanding of the ecosystem in which the Refuge exists. Construction of trail connections may result in disturbance to wildlife, noise, displacement of vegetation, and soil compaction. Ultimately, however, these impacts will be short-term, lasting only during trail construction. Once complete, the trails will facilitate travel between Refuge sites and off-Refuge neighboring sites. Thus, visitors can still enjoy the Refuge experience and use trail connections to participate in desired picnicking off-Refuge.

Picnicking at all sites may also result in long-term beneficial impacts to the visitor experience and the mission of the National Wildlife Refuge System. Picnicking is supportive of all six of the wildlife-dependent recreational uses allowed on the Refuge, which will increase public awareness of the Refuge and conservation issues. Furthermore, picnicking may draw more visitors to the Refuge who participate in other wildlife-dependent recreational uses of the Refuge or those available on nearby lands. In this sense, the use may provide short-term benefits to the socioeconomics of the community. Picnicking may also increase the viewers' understanding and appreciation of wildlife and their habitat needs as well as the role of the National Wildlife Refuge System in resource conservation.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts of picnicking. Ultimately, this activity will add to available public use opportunities on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment. The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. The Refuge received one comment on opening the Boulder Picnic Area at 7am during the summer. The Refuge replied that it will look into shifting work schedules during the summer months to open public areas earlier. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that picnicking remains a compatible use:

1. Possession of alcoholic beverages is prohibited on the Refuge, including the picnicking areas.

2. Fires are allowed only in the designated picnicking areas. Fires must be built in grates and grills provided for that purpose. Dead, fallen timber may be used. Fires must not be left unattended and must be completely extinguished before leaving the area. During periods of very high fire danger, wood fires may be prohibited. Campfires and open fires of any kind are strictly prohibited in the Charons Garden Wilderness Area.

3. Pets are permitted on the Refuge if kept on a leash at all times. Owners are responsible for pet behavior, including barking and cleaning up waste. Free roaming pets are prohibited on any portion of the Refuge.

**Justification:**

Picnicking is a supportive recreational activity secondary to wildlife observation, photography, interpretation, environmental education, hunting, and fishing. Thus, this recreational use enhances the wildlife experience by giving the visitor a chance to sit, relax, and view the Refuge up-close. Regulated picnicking as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience the Refuge in a high quality, safe, wholesome, and enjoyable recreational experience. This activity will not conflict with any of the priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that picnicking, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____, 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date**: **2023**

# COMPATIBILITY DETERMINATION

**Use:** Scuba Diving

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Scuba diving is an existing recreational use occurring on Wichita Mountains Wildlife Refuge. Though not a priority wildlife-dependent recreational use, scuba diving is supportive of underwater wildlife observation.

**b) Where is the use conducted?**

Scuba diving is allowed only on Lake Elmer Thomas.

**c) When is the use conducted?**

Refuge visitors may engage in scuba diving on the Refuge year-round during daylight hours only.

**d) How is the use conducted?**

Recreational scuba diving is unregulated with the exception of it being limited to daylight hours and allowed only on Lake Elmer Thomas. The Refuge will monitor the use to determine if other regulations are necessary. Scuba diving occurs in accordance with Cooperative Agreement #1448-0002-92-233 between the U.S. Fish and Wildlife Service (Wichita Mountains Wildlife Refuge), U.S. Army (Fort Sill Military Reservation), and the State of Oklahoma (Oklahoma Department of Wildlife Conservation).

**e) Why is this use being proposed?**

Scuba diving on Lake Elmer Thomas is an existing recreational use on the Refuge that exists in support of wildlife observation.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including scuba diving. No additional Refuge resources would be necessary to oversee scuba diving, with the exception of some staff time devoted to monitoring this use.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Changes in habitat or water and shoreline quality are not expected as a result of this activity due to the depth of water that divers generally utilize.

Scuba diving is a short-term and infrequent use on the Refuge that may result in beneficial impacts to the visitor experience. This activity would be supportive of wildlife observation and perhaps interpretation, making this activity a wildlife-dependent supportive use.

Cumulative Impacts:

At current levels, there are no anticipated adverse cumulative impacts resulting from scuba diving. This use occurs in conjunction with wildlife-dependent recreational uses and adds to the available recreational opportunities on the Refuge. Therefore, it may result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices

posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

_X_ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that scuba diving remains a compatible use:

1. Activity is monitored to assure that all Refuge rules and regulations are followed, as outlined in the Cooperative Agreement.
2. Scuba diving is observational only and does not include fishing using underwater techniques.
3. Scuba diving will only occur in Lake Elmer Thomas.
4. Harassment and feeding of wildlife is prohibited.
5. Alcoholic beverages are prohibited on the Refuge.
6. Swimming is prohibited on the Refuge.

**Justification:**

Scuba diving provides the only feasible means of observing aquatic species and their habitat on the Refuge and is therefore considered supportive of wildlife observation. Unlike swimming, scuba diving does not take place in shallow areas, which would promote water turbidity and shoreline erosion.

**Signature:** Refuge Manager _____ 2-20-13
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

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# COMPATIBILITY DETERMINATION

**Use:** Rock Sports

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Rock sports are an existing historic use occurring on Wichita Mountains Wildlife Refuge. Rock sports include traditional climbing, rappelling, and bouldering—activities that require specialized equipment such as ropes, harnesses, anchors, and pads. While engaging in rock sports, individuals also engage in wildlife-dependent recreation through wildlife observation and interpretation. In this manner, rock sports are an existing supportive recreational use.

The Refuge proposes to continue this existing Refuge use through Public Use Area Management Objective 11: "Within one year of CCP approval, manage rock sport opportunities to provide for better protection of Refuge resources by increasing, improving, and maintaining administration of these activities."

**b) Where is the use conducted?**

Rock sports are allowed throughout the Public Use Area of the Refuge, with the notable exception of no rappelling in the Narrows. The primary rock sport areas of the Refuge are located at Mt. Scott, the Narrows, the Meadows, and several locations within the Charons Garden Wilderness Area.

**c) When is the use conducted?**

Refuge visitors may engage in rock sports on the Refuge year-round during daylight hours only.

**d) How is the use conducted?**

Rock sports on the Refuge include traditional climbing, rappelling, and bouldering—activities that require specialized equipment such as ropes, harnesses, anchors, and pads. The Refuge works in collaboration with the Wichita Mountains Climbers Coalition (WMCC) to ensure that rock sports do not impact other user groups or natural resources, and to manage the installation and replacement of permanent anchors. A growing issue in the Public Use Area of the Refuge is the relationship between group size and the impact on other visitors and on wildlife. Large groups (over 15 people) tend to produce more noise, which distracts from the quality of other visitors' experience and disrupts wildlife.

**e) Why is this use being proposed?**

The high quality granite domes, slabs, and boulders of the Refuge offer some of the finest rock sports in southwest Oklahoma. Multi-pitch routes set in an undeveloped landscape provide the climbing community unparalleled opportunities to experience the wildlife and wild places of the Refuge. It is estimated that only a small fraction of all Refuge visitors engage in rock sports (less than one percent), but this level of use is of great importance to this rock climbing community due limited opportunities nearby. This use also facilitates wildlife observation and interpretation, both of which are priority wildlife-dependent recreational uses.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including rock sports. Through the CCP, however, the Refuge proposes to provide for better protection of Refuge resources by increasing, improving, and maintaining administration of these activities. To make these enhancements possible, changes to these uses will require additional time, money, and staff. Through Project 24b of the CCP, the Refuge aims to manage compatible supportive recreation activities on the Refuge in a way that minimizes conflict with other users and natural resource management activities. The Refuge proposes an additional budget of $150,000 for a use thresholds study and other

administrative tasks to adequately fund the overall project and to improve administration of and opportunities that assist supportive recreation including rock sports.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

Potential negative environmental impacts associated with climbing activity include soil erosion and removal of vegetation, primarily through trail proliferation from climbers seeking foot access to climbing routes. Potential habitat damage from actual climbing includes reduction in coverage and species diversity of lichens and possible damage to spikemosses, lipferns, and other rooted vascular vegetation. Use of permanent climbing anchors (bolts) is also identified as an environmental concern, particularly in the Charons Garden Wilderness Area, with possible impacts including aesthetic degradation as well as effects on the rock itself.

Probably the most harmful impact to Refuge fauna is human disturbance, including mere presence in limited and specialized habitat used by climbers. Impacts include behavioral changes for some species, which can interfere with reproduction and thus lower productivity. Most animals react to human disturbance by avoidance and leaving the disturbed area.

This impact is very difficult to quantify, but based purely on numbers of participants, climbing activity would be much less significant than would other public uses such as hiking, picnicking, camping, etc.

Impacts to endangered species are believed to be minimal. Black-capped vireos utilize the Charons Garden Wilderness Area, but studies to date have not shown impact on vireos from climbing activity. Climbing, however, may directly impact specialized cliff/rock face habitat more than does other public uses. Indirect impacts of climbing include relationships among climbers and other Refuge visitors. One indirect effect of climbing is its visual impact. Some Refuge visitors are attracted to climbing or rappelling activity (spectator sport).

Other Refuge visitors seeking solitude and a more undisturbed wilderness atmosphere tend to avoid climbing areas. Socioeconomic impacts are positive for area motels, service stations, and restaurants. Other Refuge users such as bird watchers, wildlife photographers, and environmental educators occasionally experience conflicts with rappellers (especially large and/or noisy groups). Rather than direct conflict, however, more commonly the reaction of these other users is to avoid popular climbing areas to seek solitude and a more undisturbed wilderness atmosphere elsewhere. More detailed discussion of impacts including literature references are included in the environmental assessment.

Cumulative Impacts:

Cumulative effects of climbing and other public use are difficult to quantify, but climbing is only one of several uses that contributes to such negative environmental impacts as soil erosion and vegetation removal (trail proliferation) as well as wildlife disturbance impacts. The impact of climbing thus could contribute to cumulative effects of Refuge visitors. Rock sports occur in conjunction with wildlife observation, photography, and interpretation, each of which will ultimately result in beneficial cumulative impacts by increasing public awareness about conservation issues and the National Wildlife Refuge System. Ultimately, this will benefit the Service's mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. The Refuge received 16 comments on rock sports. Most comments were supportive of the current rock sport management on the Refuge. Some comments requested a clarification of sport rappelling and the trail registration process. The Refuge responded by adding a definition of "sport rappelling" to the CCP Glossary. The Refuge also clarified that individuals/groups sign in at trailheads so that the Refuge could monitor use and public safety. This would help the Refuge collect data on type of uses, number of users and locations of use. This is a common procedure on public lands. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that rock sports remain a compatible use:

1. Some locations or sites may be closed seasonally when necessary to protect resources (i.e., nest locations, den sites)
2. The Refuge will prohibit rappelling in the Narrows.
3. All rock sport participants must register on site so the Refuge can monitor use patterns (such as the type of use, area of use, group size, etc.) and public safety.
4. Group size will be restricted to 15 people or less in Wilderness. In addition, group size in designated high use portions of the Public Use Area may exceed 30 people without a Special Use Permit, whereas a permit will be required for groups of 30 people or more in the areas of medium use.

**Justification:**

The proposed action takes into account the major resource and environmental concerns as well as socioeconomic factors such as past history and management of technical rock climbing on the Refuge and restrictions on other Refuge recreationists. It recognizes that climbing, with certain environmental and ethical restrictions, is a legitimate recreational activity that has been historically allowed on the Refuge. It provides a primitive recreational activity in the Charons Garden Wilderness Area consistent with the purpose of the Wilderness Act and subordinate to Refuge purposes. Through the Wichita Mountains Climbers Coalition's Advisory Bolting Committee and overall efforts to foster a spirit of genuine cooperation with the climbing community and improve environmental ethics of all "backcountry" users, it is generally accepted

as reasonable and fair by climbers who will thus tend to monitor their own sport and voluntarily cooperate and comply. This spirit of acceptance and cooperation is especially critical given the "backcountry" nature of climbing activity and the relatively small number of Refuge staff usually available for monitoring activities in climbing areas.

**Signature:** Refuge Manager _____, 2-20-13
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

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# COMPATIBILITY DETERMINATION

**Use:** Running Events

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

For many years, Wichita Mountains Wildlife Refuge has been home to a marathon, marathon relay, and 5k run on Refuge public access roads. In the past, these foot races primarily occurred for public health, fundraising, and community awareness purposes and were sponsored by the Comanche County Memorial Hospital. Hosting the event on the Refuge supports wildlife observation and interpretation, two priority wildlife-dependent recreational uses. In this manner, marathons are an existing supportive recreational use.

Any organization that wishes to host a marathon or other running event is responsible for contacting the Refuge and receiving a Special Use Permit prior to the event.

Through the CCP, the Refuge proposes to continue this use, but event routes are to be focused primarily in previously-widened public access roads in the Public Use Area of the Refuge for safety purposes.

**b) Where is the use conducted?**

For safety purposes, marathon routes are restricted to previously-widened public access roads in the Public Use Area of the Refuge. These include State Highways 49 and 115 from the Cache gate to the Medicine Park gate. Some courses may continue off-Refuge.

**c) When is the use conducted?**

The Refuge will determine appropriate timing for new proposals of running events in a Special Use Permit.

**d) How is the use conducted?**

The Refuge regulates this use through a Special Use Permit issued to the host of the event. The Special Use Permit lists any regulations on the timing, location, magnitude, and method of the events. Event hosts are responsible for educating runners on safety information while participating in the events. The host also is responsible for posting (and subsequently removing) temporary signage at strategic locations on the Refuge to direct participants. Hosts may establish temporary water stations on the Refuge as well, but these must be removed and cleaned after the race is completed. Medical staff must be present on the Refuge to evaluate runner condition during the event as an additional safety precaution.

**e) Why is this use being proposed?**

The use is proposed because the Refuge provides terrain and landscape not found anywhere else in southern Oklahoma. The moderately sloping hills of the Refuge provide challenges for both beginning and experienced runners, and the wildlife and habitat provide a beautiful setting that will encourage participation in the events.

The events are proposed to bring hundreds of visitors to the Refuge, which will provide an opportunity for the Refuge to conduct public interpretation and environmental education. Guided hikes may be planned in conjunction with the races, as well as informational kiosks at the event headquarters, which will further the goals and objectives of the Refuge and the Service. The Refuge will provide informational brochures about Wichita Mountains Wildlife Refuge and the National Wildlife Refuge System to be inserted into each runner's packet.

**Availability of Resources:**

The Refuge presently experiences high daily visitation and has existing staff assigned to manage varied compatible recreational uses, including running events. Through the CCP, however, the Refuge proposes to limit the events to paved roads. Through Projects 23a-d, 24a-c, and 25a-e of the CCP, the Refuge aims to manage compatible primary and supportive recreation activities on

the Refuge in a way that minimizes conflict with other users and natural resource management activities while improving public use facilities. Road enhancements will be considered and prioritized through this supportive recreation improvement project.

The events will be held with minimal financial cost to the Refuge. Infrastructure use is limited to paved roadways and shoulders. Refuge personnel may need to adjust schedules, including law enforcement and Search and Rescue personnel, to ensure safety of visitors and participants. Organizers provide medical personnel to assist event participants and bystanders. Additional visitor services staff may be necessary to provide interpretation and environmental education to event participants and bystanders. This likely can be handled through a temporary change of duty hours and will not result in increased salaries.

All necessary resources will be provided by the event organizers, including post-event cleanup.

However, additional restroom facility maintenance may be required following the events due to the increased visitation. Natural resources will not be impacted by the proposed use as currently planned. Monitoring will consist of providing a venue for comments on the Refuge's website, where interested parties will be able to submit suggestions regarding the events and the overall quality of visitor experiences. This task might result in an increase in correspondence to the Refuge but should be a negligible expense. Some staff time will be required to participate in annual planning meetings and to ensure compatibility with Refuge and Service missions. These responsibilities are considered standard duties and will be incorporated into a normally scheduled workday, resulting in no additional funding required.

**Anticipated Impacts of the Use:**

Short-term Impacts:

The area of the Refuge most affected by running events is the Mt. Scott area and high density use zone. Much of this area has undergone or has planned road improvements and can provide a clear line of sight for vehicular traffic. To ensure that existing wildlife-dependent recreational activities are not impaired, routes for past races have been identified that begin and end off-Refuge, with the exception of the Mt. Scott 5k. The routes were designed to encourage participants to “spread out” by the time they reach the Refuge, further decreasing the likelihood of conflict with existing uses. This method of planning will continue for this use.

It is anticipated that 500-750 participants will register for the proposed events. This level of participation would be manageable with existing Refuge resources. To ensure manageability in the future, with the expectation that the events would become larger, organizers and the Refuge would agree to conduct formal after-action evaluations and written reports following the events.

Report findings would be used to identify any issues of concern, including establishment of a limit for number of participants.

Possible short-term impacts of road-based events are the disruption of vehicular traffic through the Refuge, increased litter due to increased visitation, and increased noise along the roadways.

Wildlife is not likely to be impacted, as animals found in these areas are accustomed to persistent vehicular, foot, and bicycle traffic. As a condition of the events, participants are warned that the area is open-range and that if animals are encountered on or near the roadway, they must wait for

animals to pass before they continue the event. Litter patrols will be conducted by the event organizers, and post-event pickup is a condition of the event approval.

Increased noise is likely only an issue at the starting and ending points of the races and at the relay points during the marathon relay. The starting and ending points for all races (except the Mt. Scott 5k) are located off Refuge and will not cause noise related issues. The Mt. Scott 5k begins in the Mt. Scott Picnic Area and short-duration noise is expected at the 7:00 a.m. start of the race. Other visitors to the Refuge will not be affected by this noise, because the picnic area does not open to the public until 9:00 a.m. The race ends at the top of Mt. Scott, which is also closed to the public until 9:00 a.m. Few bystanders are expected along the race routes; therefore, increased noise is not expected along the course.

The disruption of vehicular traffic on the roadways is of primary concern. The main Refuge road is a connection between two State highways, Highway 49 and Highway 115, and receives commuter traffic as well as use by visitors engaged in priority wildlife-dependent recreational activities. Significant disruption of this traffic flow for periods extending beyond a few minutes would negatively impact commuters and existing Refuge visitors and might exceed the compatibility threshold.

Runner safety is another concern. Runners will be informed that wildlife is free ranging on the Refuge and that they must wait for animals on or near the road to pass before they continue the event. This should decrease the likelihood of conflicts between runners and wildlife. The main Refuge road receives significant traffic during this time of year. As currently proposed, the use should not disrupt the traffic flow beyond an acceptable level. The length of the events will result in participants being “strung out” and spaced apart. This spacing, coupled with existing Refuge speed limits (30-45 miles per hour), is conducive to ensuring that existing recreational activities and vehicular traffic can continue with minimal impairment.

Long-term Impacts

The event, by itself, is anticipated to have virtually no impact on either Refuge resources or the ability of the Refuge to fulfill the Service mission at the current level of participation. It is expected, however, that this event will draw more participants in the future, and the potential exists that more events will be proposed by other organizations. Either has the potential to strain Refuge resources. As a result, each proposed event (new or existing) will be evaluated based on the overall impact of all events and will only be approved and permitted when minimal impacts to Refuge resources and existing wildlife-dependent recreation can be assured.

Additionally, promotion of physical fitness activities on Refuges is consistent with Executive

Order 13266, which encourages Federal land management agencies to provide physical activity opportunities to the public.

Race events, while a short-term and infrequent use on the Refuge, may result in long-term beneficial impacts to the visitor experience. These events could potentially bring hundreds of visitors to the Refuge, which would provide an opportunity for the Refuge to conduct public interpretation, making this activity a wildlife-dependent supportive use. In this manner, these established race events would occur in support of interpretation, wildlife observation, and photography.

Cumulative Impacts

Currently, similar activities occur on a smaller scale on Refuge roads. Individuals and families regularly walk, jog, and ride bicycles along Refuge roadways with no observable impact to Refuge resources. This use, as proposed, is manageable with existing Refuge resources,

However, this event should be evaluated annually to ensure continued compatibility.

A significant increase in participation in this event or an increase in requests for additional, similar events could impair wildlife-dependent recreational activities and would therefore exceed the Refuge's compatibility threshold. Increased participation or request for additional events must be evaluated in context of all events scheduled on the Refuge to ensure that cumulative impacts are minimized or avoided.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

**X** Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that marathons remain a compatible:

1. Participants must yield to wildlife on the Refuge.
2. Participants must run facing traffic as required by State law for all pedestrians.
3. Participants must not materially interfere with other Refuge uses or visitors engaged in the pursuit of an authorized activity.
4. Event signs and mile markers will be removed by race officials immediately following the event.
5. All necessary resources to host the event will be provided by the event organizers.
6. We request approval of all materials discussing the Refuge, Refuge wildlife, or facilities.
7. Participants must be informed in writing and verbally of the fact that longhorn cattle, elk, deer, and bison roam free on the Refuge and they may be encountered during the event. Wildlife is dangerous and should not be approached or disturbed in any manner. Disturbance includes any action that results in a change in behavior of an animal.

8. Event organizers are responsible for ensuring that individuals are physically capable of participating in the event without risk of serious injury or death.
9. A Refuge brochure and information on the National Wildlife Refuge System will be part of the event registrant information packet.
10. Event officials will provide litter and post-event pickup to help clean up litter along roadsides after the races.

**Justification:**

Running events occur on the Wichita Mountains Wildlife Refuge as a secondary use that facilitates the primary wildlife-dependent recreation uses defined by the National Wildlife Refuge System Improvement Act of 1997. Essentially, these events facilitate interpretation, wildlife observation, and photography. Regulated running events as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience wildlife firsthand and develop awareness, understanding, and appreciation of fish and wildlife resources. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that running events, in accordance with the stipulations provided here, are a compatible use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Executive Order 13266 of June 20, 2002 - Activities to Promote Personal Fitness**

Section l (d) While personal fitness is an individual responsibility, the Federal Government may, within the authority and funds otherwise available, expand the opportunities for individuals to empower themselves to improve their general health. Such opportunities may include improving the flow of information about personal fitness, assisting in the utilization of that information, increasing the accessibility of resources for physical activity and reducing barriers to achieving good personal fitness.

**MEMORANDUM OF UNDERSTANDING:** Department of Health and Human Services (Center for Disease Control and Prevention, Indian Health Service, and Office of Public Health and Science); and Department of Agriculture (Forest Service and Center for Nutrition Policy and Promotion); Department of the Interior (Bureau of Indian affairs, Bureau of land Management, Bureau of Reclamation, Fish and Wildlife Service, and National Park Service) Department of the Army (Army Corps of Engineers): The cooperating agencies propose to work together to promote uses and benefits of the Nation's public lands and water resources to enhance the physical and psychological health and well being of the American people. This collaborative effort is being undertaken to help promote healthy lifestyles through sound nutrition, physical activity, and recreation in America's great outdoors.

**Signature:** Refuge Manager _____, 2-20-13
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

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# COMPATIBILITY DETERMINATION

**Use:** Scientific Research

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates scientific research, including surveys and inventories, on the Refuge. Research is conducted by outside (i.e., non-agency) parties in accordance with Refuge regulations and goals and objectives. The use involves collection of information that is used for analysis and reporting, and often also entails collection of plant, animal, soil, rock , water, or air samples from the Refuge for analysis. The most common modes of access are by foot or vehicles, although boats and aircraft may

occasionally be permitted. All outside requested research is evaluated on a case-by-case basis before approval is granted to ensure compatibility. This activity is not a priority public use of the National Wildlife Refuge System, and it requires a Special Use Permit.

**b) Where is the use conducted?**

This use may occur Refuge-wide, including and especially within the Special Use Area/Proposed Research Natural Area, though specific locations will be described in the individual Special Use Permits.

**c) When is the use conducted?**

Time frames for this use will vary depending on the request, environmental concerns, and restrictions on when the use can be conducted and will be described in the individual Special Use Permits.

**d) How is the use conducted?**

Requests to conduct scientific research on the Refuge must be approved by the Refuge Manager. The Refuge Manager evaluates the following criteria to determine if the research will be allowed: 1) viability of research, 2) contributions to Refuge resources and management implications, and 3) impacts on Refuge resources. When the use meets these criteria, the Refuge Manager then issues a Special Use Permit with specific restrictions on the allowable timing, location, and methods of scientific research. In 2010, 13 permits were issued for research activities.

**e) Why is this use being proposed?**

Research is often needed to improve our knowledge and understanding of our environment, monitor environmental changes, and to collect information needed to make more informed management decisions.

**Availability of Resources:**

There is very little Refuge staff or budgetary resources required to oversee scientific research. The resources that are necessary to provide and administer this use are already available within current and anticipated Refuge budgets. Staff time associated with the administration of this use is primarily related to review of requests, interactions with individuals who request the use, issuance of Special Use Permits, and monitoring the impacts of the use on Refuge resources.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

Research proposals with the potential for adverse impacts to Refuge resources are not approved or are subject to special conditions to minimize the potential for adverse impacts. Thus, the scientific research projects that occur on the Refuge generally are limited to those with no, or only minor, effects. In 2010, only 13 Special Use Permits were issued for this use. The action still has the potential to result in some level of disturbance or mortality to wildlife and disturbance or removal of plants, soil, or rock surfaces due to human activities and collection of

soil, rock, wildlife, or plant specimens. However, the very low frequency and duration of this use will not result in any significant resource impacts.

Cumulative Impacts:

Only negligible adverse cumulative impacts resulting from scientific research are anticipated. Such impacts would be associated with surface disturbances associated motorized access. Ultimately, this activity will add to the diversity of information available on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. The Refuge received three comments encouraging more research take place on northern bobwhite on the Refuge. The Refuge responded that it will consider proposals for quail research in cooperation with ODWC and other partners. See CCP Appendix I for more information on the Refuge's Response to Comments.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

Current research has and future research will be evaluated on a case-by-case basis to determine if the project supports Refuge and Service goals, will be beneficial to Refuge purposes, and will not cause significant impacts to Refuge resources or other users. Permits will not be issued to those projects not fulfilling these criteria.

**Justification:**

Research by outside authorities provides valuable opportunities to the Refuge for study on various components of the Refuge environment and wildlife in a more comprehensive manner than Service staff time and funding allows. Researchers provide expertise in various fields to Refuge staff that can assist the Refuge in management planning. Outside research also provides educational opportunities to schools and universities that are not available at other locations. Regulated scientific research has little impact to wildlife or habitat since few people participate, and the Refuge only approves projects with little to no adverse impact on Refuge resources. Permitted research activities will be subject to conditions to assure these activities will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that scientific research, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-13
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

# COMPATIBILITY DETERMINATION

**Use:** Tree Cutting

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates tree cutting on the Refuge to remove eastern red cedar, oak, or other woody species from specified locations for Refuge management purposes. This Refuge management economic activity may include removal of native vegetation due to overgrowth, removal of invasive species due to habitat destruction, or individual harvest of Christmas trees. This activity is not a priority public use of the National Wildlife Refuge System, and it requires a Special Use Permit.

**b) Where is the use conducted?**

This use may occur at areas on the Refuge where habitat degradation has occurred due to overgrown vegetation or spread of invasive species. Specific locations will be described in individual Special Use Permits.

**c) When is the use conducted?**

Time frames for this use will vary depending on the request to the Refuge. Restrictions on when the use can be conducted will be described in individual Special Use Permits.

**d) How is the use conducted?**

This use will occur on an as needed basis, when the Refuge determines that conditions warrant tree cutting or removal of downed debris. Special Use Permits will be issued to trained and qualified woodcutters. The area, amount, method, timing, and extent of tree cutting will be carefully controlled in the special conditions of the Special Use Permit.

**e) Why is this use being proposed?**

Tree cutting is proposed because it will allow the Refuge to remove seed sources of encroaching woody vegetation into grasslands. In addition, it will provide clear fire breaks from which the Refuge can better control both wild and prescribed fire. Allowing members of the public to perform this activity will allow the Refuge to benefit from the control of invasive species or increased habitat quality at no cost.

**Availability of Resources:**

There is very little Refuge staff or budgetary resources required to oversee tree cutting. The resources that are necessary to provide and administer this use are already available within current and anticipated Refuge budgets. Staff time associated with the administration of this use is primarily related to issuing Special Use Permits and monitoring the use; however, this action ultimately consists of an individual or entity such as the Friends of the Wichitas providing a service to the Refuge by accomplishing a Refuge management activity at no expense to the Refuge.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

Historically, tree cutting has been conducted infrequently. No Special Use Permits have been issued recently for this use. The action may result in some level of disturbance to wildlife, but the very low frequency and duration of this use will not result in any measurable resource impacts. Furthermore, impacts on Refuge lands are generally positive in that effective fire breaks are maintained by this practice, and fire risk is reduced as excessive fuel accumulations are decreased. In addition, removal of invasive species helps to protect grasslands from encroaching woody species. Also beneficial is that tree cutting results in the removal of concentrated seed sources, thereby providing beneficial long-term impacts to habitat in reducing the spread of invasive species. Tree cutting also produces beneficial impacts by clearing open areas where the Refuge can safely manage bison and longhorn cattle.

Cumulative Impacts:

There are no anticipated adverse cumulative impacts resulting from tree cutting. This use occurs infrequently with a primary purpose of improving habitat conditions, thereby resulting in long-term beneficial impacts to Refuge resources. Therefore, tree cutting will not incrementally add to any resource impacts resulting from other past, present, or reasonably foreseeable future actions.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

X Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

All individuals or entities conducting tree cutting and removal on the Refuge must receive a Special Use Permit prior to actively participating in this activity. The permit will indicate when, where, and how the applicant may participate in the use.

**Justification:**

Tree cutting is permitted on the Refuge primarily as a management activity used to provide long-term beneficial impacts to habitat while also producing economic benefits to the contracted entities. The Refuge maintains control of the outside entity physically conducting this use through the Special Use Permit. Tree cutting has little adverse impact to wildlife or habitat since it is short-term in duration, site-specific, and infrequent. This activity will not conflict with any of the priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that tree cutting, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: 2023**

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# COMPATIBILITY DETERMINATION

**Use:** Visitor Operation of Amateur Radio Equipment

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

This Compatibility Determination evaluates visitor operation of amateur radio equipment on the Wichita Mountains Wildlife Refuge. The visitor uses portable equipment designed for the transmission and reception of high frequency, very high frequency, and/or ultra-high frequency radio signals, including simple antennae. Typically, this activity is done to broadcast to other licensed operators and usually occurs in association with events held

on the Refuge. This activity is not a priority public use of the National Wildlife Refuge System, and it requires a Special Use Permit in all instances.

**b) Where is the use conducted?**

The radio equipment and visitors will operate from a temporary site located within the existing 24,088-acre Public Use Area. When visitors request such use, the Refuge will specify locations where the use may be conducted in the Special Use Permit. In the past, permits have almost exclusively been issued for a site on top of Mt. Scott, where radio operators can easily transmit signals. Operators are allowed to participate in the use only in areas that are open for other recreational uses, and they may only occupy an area of space similar to other Refuge recreational users (such as one parking space).

**c) When is the use conducted?**

Time frames for this use will vary depending on the request, and restrictions on when the use can be conducted will be described in the individual Special Use Permits. In the past, this use was usually associated with the Refuge marathon each year, but the Refuge still anticipates occasional requests for radio equipment operation for other activities.

**d) How is the use conducted?**

When an individual requests to conduct amateur radio on the Refuge, that individual must formally request such use from the Refuge Manager. The Refuge Manager then issues the individual a Special Use Permit with specific restrictions on timing, location, and stipulations of the use. This will vary depending on the request, but a Special Use Permit is required for all radio operations on the Refuge. The permitted operator coordinates with the Refuge to identify the National Wildlife Refuge System and the Refuge itself in an effort for the Refuge to outreach to radio enthusiasts around the world. Operators also work with the Refuge to create "podcasts" or other similar records of events to outreach to other potential audiences.

**e) Why is this use being proposed?**

Public operation of amateur radio equipment has been allowed on the Refuge for many years without resulting in any disturbance or resource impacts beyond those that result from the more typical public uses. Amateur radio operators include some sort of promotional information for the Refuge during broadcasts to other radio operators. In this manner, the use supports enhancing the public's general knowledge of the Refuge. Ultimately, as the use does not conflict with any other uses or cause any resource impacts on the Refuge, the Refuge sees no reason to discontinue allowing amateur radio operation.

**Availability of Resources:**

There is very little Refuge staff or budgetary resources required to oversee amateur radio operation. In the past, there have been one or two requests for this use per year; staff time associated with this use includes interacting with those who request the use and preparing Special Use Permits. The resources that are necessary to provide and administer this use are already available within current and anticipated Refuge budgets.

**Anticipated Impacts of the Use:**

Short- and Long-term Impacts:

In the past, public participation in amateur radio operation on the Refuge has occurred once or twice a year. This activity mainly occurs on Mt. Scott in the designated high density use area of the Refuge, which is heavily trafficked by other recreational users. The action may result in some of the same effects of all public use activities, including some wildlife disturbance, trampling of vegetation, and soil compaction depending on foot travel by operators. Therefore, specific guidance and limits on the use will be addressed in the Special Use Permit to ensure that any adverse resource impacts resulting from this use are minimized. Ultimately, it is expected the very low frequency and duration of this use in areas where other recreational uses occur will not result in any measurable resource impacts. In addition, promotion of the Refuge by amateur radio operators may result in increased awareness of the Refuge.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from amateur radio operation.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

__**X**__ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that amateur radio equipment operation remain a compatible use:

1. All individuals interested in amateur radio operation on the Refuge must receive a Special Use Permit prior to actively participating in this activity. The permit will indicate when, where, and how the applicant may participate in the use.

2. Each permittee may only occupy an area of space similar to other Refuge recreational users (i.e., one parking space).

3. Each permittee agrees to discontinue the activity if conditions become unsafe due to inclement weather or if the Refuge deems necessary due to conflict with wildlife or the visiting public.

4. Each operator must also incorporate information about the National Wildlife Refuge System and the Refuge itself to create an opportunity for the Refuge to outreach to radio enthusiasts around the world.

**Justification:**

Regulated amateur radio operation as described here will provide the visitor with a chance to enjoy this recreational activity on the Refuge while having very little impact on the physical and biological environment. This use has little impact to wildlife or habitat since it occurs so infrequently. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that amateur radio, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-13

(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13

(Signature and Date)

**Mandatory 10-year Re-Evaluation Date: <u>2023</u>**

**COMPATIBILITY DETERMINATION**

**Use:** Wildlife Observation

**Refuge Name:** Wichita Mountains Wildlife Refuge

**Establishing and Acquisition Authorities:**

Wichita Mountains was originally established as a Forest Reserve by President William McKinley in 1901 through the authority provided by the Act of Congress entitled, "An Act to Repeal Timber - Culture Laws, and for other purposes." By proclamation of President Theodore Roosevelt, on June 2, 1905, based on a special Act of Congress (33 Stat. 614 "An Act for the Protection of Wild Animals and Birds in the Wichita Forest Reserve", January 24, 1905), the land was further designated as the Wichita Forest and Game Preserve. The land was administered by the U.S. Forest Service until June 1936, when it was transferred to the U.S Fish and Wildlife Service (formerly Bureau of Biological Survey) as a provision of the Agriculture Appropriations bill (40 Stat. 1446). Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System. In addition, two units of Wichita Mountains Wilderness were established by Public Law 91-504 on October 23, 1970.

**Refuge Purpose(s):**

1. "...set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (33 Stat. 614, dated January 24, 1905)
2. "…to be set aside for the protection of game animals and birds and be recognized as a breeding place thereof." (President Theodore Roosevelt, proclamation of June 2, 1905)
3. "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." (The Wilderness Act, September 3, 1964)

**National Wildlife Refuge System Mission:**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:**

**a) What is the use?**

Wildlife observation encompasses the act of viewing, listening to, and watching animal behavior and habitats in as natural a setting as possible. This activity, particularly driving observation, is the most popular public use of the Wichita Mountains Wildlife Refuge. The Refuge offers world-class wildlife viewing with opportunities to see bison, elk, white-tailed deer, turkey, and prairie dogs, as well as a host of small mammals, birds, and reptiles. The Refuge proposes to continue this existing wildlife-dependent recreational

use through Public Use Area Objective 2in the CCP: "Throughout the life of the CCP, continue to allow public use access and provide facilities that contribute to spectacular viewing opportunities for over one million visitors per year."

**b) Where is the use conducted?**

The 24,088 Public Use Area is open to public access for wildlife observation opportunities via foot, bicycle, and vehicle travel. Over 50 miles of paved roads, 17.7 miles of hiking trails, and 13 miles of dirt roads facilitate a range of wildlife observation experiences. There are 89 parking areas, ranging from roadside pullouts to fully-developed parking lots, scattered along the Refuge road system to facilitate driving observation. The Refuge has one wildlife observation blind at the Environmental Education Center. Few specific viewing facilities have been developed due to the mobility of wildlife species on the Refuge, but the Turkey Creek prairie dog town and viewing area is complete with a paved pullout, parking lot, and two interpretive signs. The accessible nature trail at Quanah Parker Lake also offers waterfowl and wetland wildlife viewing with four interpretive signs and accessible restrooms. In addition, the Refuge will manage for spectacular viewing opportunities in the Charons Garden Wilderness Area by improving wilderness conditions per Wilderness Area Management Objective 1 of the CCP. Through the CCP, the Refuge plans to upgrade existing facilities, construct new facilities, including the Jed Johnson Tower and trail, and develop and designate wildlife observation routes using existing public roads and trails to allow for improved viewing opportunities. The Refuge also proposes to add two viewing blinds at Quanah Parker Lake/EE Center and Lake Elmer Thomas off of the picnic area.

**c) When is the use conducted?**

Refuge visitors are allowed access for wildlife observation during daylight hours, with the exception of Doris Campground and certain night fishing opportunities. The only restrictions to observation occur during fall and winter permit hunts, when foot travel and vehicle travel on secondary roads is restricted.

**d) How is the use conducted?**

On this Refuge the activity can take form through a variety of means, including camping, fishing, hiking, jogging, hunting, interpretation, boating, bicycling, picnicking, rock climbing, scuba diving, and photography. The Refuge is also proposing to develop online observation tools and tips to aid in awareness of observation opportunities. Visitors can benefit from wildlife observation by gaining an understanding of the interrelationships between humans and animals. Each of these individual recreational uses of the Refuge is evaluated in its own Compatibility Determination.

Individuals or organizations that bring clients to the Refuge for the purpose of wildlife observation or photography and charge a fee or tuition for their service are required to have a Special Use Permit issued by the Refuge. These commercial activities are covered under a separate Compatibility Determination.

**e) Why is this use being proposed?**

The goal of the Wildlife Observation Program is to offer a variety of high quality opportunities for the public to observe wildlife in their native habitats, while minimizing potential conflict between humans and wildlife, or between user groups. The Interpretation Program supports and facilitates the Wildlife Observation Program by offering pertinent natural history and management information.

**Availability of Resources:**

The Refuge estimates an average of 1.5 million wildlife observation visits per year (USFWS 2009). The Refuge uses a large portion of their staff and budget resources to facilitate wildlife observation, which goes hand-in-hand with photography opportunities. Both programs require oversight by visitor services, law enforcement, and maintenance staff. In association with these two uses, Refuge staff make visitor contacts at the Visitor Center, provide information to visitors through the Trail Ranger system, maintain and improve existing facilities, and monitor the uses. Law enforcement staff patrols roads, pullouts, and parking areas, mainly enforcing regulations regarding speed limits, illicit substance use or possession, occasional vehicle theft, and vandalism.

Continuing, enhancing, or adding to the existing photography and wildlife observation programs will be considered through Projects 23b and 25a of the CCP. Project 23b proposes to improve the management and delivery of the photography/observation program, and Project 25a proposes to improve photography/observation infrastructure. The estimated start-up cost for improved program management and infrastructure development is $993,000, with an annual operating and maintenance cost of $41,200. These estimated figures will assist the Refuge in adequately funding both overall projects and to improve facilities and opportunities that assist all six of the wildlife-dependent recreational uses allowed on the Refuge.

**Anticipated Impacts of the Use:**

<u>Short- and Long-term Impacts:</u>

The use of roadways and trails to facilitate wildlife observation may result in some environmental impacts to the Refuge, its habitat, and wildlife species. Vehicles travelling Refuge roads for wildlife viewing purposes may result in emissions that could negatively impact air quality. Human activity throughout wildlife habitat will continue to result in some temporary disturbance to wildlife. In addition, the use of trails may result in soil compaction, erosion, trampling of vegetation, and production of litter or human waste. These impacts have a low potential of leading water quality degradation in waterbodies near trails. Visitor access, however, is typically by individuals or groups that participate in recreational activities for short durations. The Refuge will continue to encourage the use of designated roads and trails where facilities exist specifically to accommodate the use while reducing resource impacts. The additional trails proposed in the CCP would increase the area where resource impacts occur while simultaneously decreasing the density of those impacts overall. Therefore, destruction or negative impacts to habitat and associated vegetation are minor.

Alternatively, wildlife observation may result in long-term beneficial impacts to the human environment. This use may increase the viewers' understanding and appreciation of wildlife and their habitat needs as well as the role of the National Wildlife Refuge System in resource conservation. The additional wildlife observation facilities will offer increased opportunities for

the public to view wildlife in a variety of habitats occurring on the Refuge while enhancing the overall Refuge System mission.

Cumulative Impacts:
There are no anticipated adverse cumulative impacts resulting from wildlife observation. Ultimately, this activity will add to public use opportunities on the Refuge, which, in combination, will result in beneficial cumulative impacts on the human environment. The wide variety of public use opportunities available on the Refuge will increase public awareness about conservation issues and the National Wildlife Refuge System. This will benefit the Service's overall mission and the Refuge purpose.

**Public Review and Comment:**

This Compatibility Determination was published and available for public review and comment concurrent with the Draft CCP and EA released August 9, 2012 and closing September 10, 2012. Public notification included a notice in the Federal Register, media announcements, public notices posted throughout the surrounding local communities, and two public meetings. No comments specific to this determination were received.

**Determination (check one below):**

___ Use is Not Compatible

**X** Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

The Refuge will implement the following stipulations to ensure that wildlife observation remains a compatible use:

1. Temporary access restrictions may be used to protect sensitive resources from harassment.
2. The Refuge prohibits night access to the entire Refuge with the exception of Doris Campground, main roads, and night fishing.
3. The Refuge prohibits foot and vehicle travel on trails and secondary roads during fall and winter permit hunts.
4. The Refuge will limit and control Refuge access through enforcement of Refuge regulations, signage, and education of the public as to the purpose of the Refuge and responsibilities of visitors.
5. Individuals or organizations that bring clients to the Refuge for the purpose of wildlife observation or photography and charge a fee or tuition for their service are required to have a Special Use Permit issued by the Refuge. This requirement ensures that private businesses are not unfairly making a profit from public lands and provides a mechanism for the Refuge to regulate where and when commercial activities occur.

**Justification:**

As defined by the National Wildlife Refuge System Improvement Act of 1997, wildlife-dependent recreational uses may be authorized on a refuge when they are compatible and not inconsistent with public safety. Wildlife observation is included as one of these six activities, which are to receive enhanced and priority consideration in Refuge planning and management. Regulated wildlife observation as described here and consistent with the management direction provided in the CCP will provide the visitor with a chance to experience wildlife firsthand and develop knowledge about species' behaviors, adaptations, and habitat requirements while also developing an understanding of the refuge's role in wildlife and habitat conservation through the National Wildlife Refuge System. This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the Compatibility Determination process, Wichita Mountains Wildlife Refuge has determined that wildlife observation, in accordance with the stipulations provided here, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the Refuge.

**Signature:** Refuge Manager _____ 2-20-13
(Signature and Date)

**Concurrence:** Regional Chief _____ 9/4/13
(Signature and Date)

**Mandatory 15-year Re-Evaluation Date: 2028**

**References Cited:**

U.S. Fish and Wildlife Service (USFWS). 2009. Wichita Mountains Wildlife Refuge Unpublished Data.

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# G. Key Legislation and Service Policies

Management of Wichita Mountains Wildlife Refuge (Refuge) is dictated, in large part, by the legislation that created the unit and the purposes and goals described in Chapter 1 of this CCP. However, other laws, regulations, and policies also guide the management of the Refuge. This Appendix identifies the acts and policy guidance that are integral in the development of this Comprehensive Conservation Plan (CCP).

**Administrative Procedure Act (1966; 5 U.S.C. 551-559, 701-706 and 801-808, as amended):** Contains procedures that Federal agencies must follow, including public information, open meetings, and privacy of information requirements, and provisions for hearings, adjudications, rule making, and judicial and congressional review of Federal agency actions.

**Americans with Disabilities Act (1992):** The Americans with Disabilities Act (ADA) is the most comprehensive Federal civil rights statute that prohibits discrimination on the basis of disability in employment, state and local government, public accommodations, commercial facilities, transportation, and telecommunications.

**Antiquities Act of 1906 (16 U.S.C. 431-433):** First United States law to provide general protection of cultural or natural resources. This act authorizes the scientific investigation of antiquities on Federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.

**Archaeological and Historic Preservation Act (1974):** Requires that Federal agencies provide for *"...the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of...any alteration of the terrain caused as a result of any Federal construction project of federally licensed activity or program."*

**Archaeological Resources Protection Act of 1979, as amended (16 U.S.C. 470aa-470mm):** The Archaeological Resources Protection Act (ARPA) was enacted *"...to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals."* The main focus of ARPA is on regulation of legitimate archeological investigation on public lands and the enforcement of penalties against looting or vandalism of these resources. Protects materials of archaeological interest from unauthorized removal or destruction and requires Federal managers to develop plans and schedules to locate archaeological resources.

**Appropriate Uses Policy (2006) 603 FW1:** Describes procedures for refuge managers to follow when deciding if uses are appropriate on a refuge. Appropriate uses are either proposed or existing uses on a refuge that meet at least one of the following four conditions: 1) the use is a wildlife-dependent recreational use as identified in the 1997 Refuge Improvement Act; 2) the use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the Refuge Improvement Act was signed into law; 3) the use involves the take of fish and wildlife under state regulations; or 4) the use has been found to be appropriate as described further in the Appropriate Refuge Uses policy. This policy applies to all proposed and existing uses in the

National Wildlife Refuge System only where the Service has jurisdiction over the use. The policy does not apply in: 1) situations where reserved rights or legal mandates provide that the Service must allow the use, and 2) refuge management activities (e.g., fish and wildlife population or habitat management actions including but not limited to prescribed burns, water level management, invasive species control, routine scientific monitoring, law enforcement activities, and maintenance of existing refuge facilities).

**Architectural Barriers Act (1968):** Requires federally-owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

**Bald and Golden Eagles Protection of 1940 (16 U.S.C. 668-668d; 54 Statute 250), as amended:** Provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds.

**Biological Integrity, Diversity, and Environmental Health (2001) 601 FW 3:** As part of the comprehensive conservation planning process, this policy provides for the consideration and protection of the broad spectrum of fish, wildlife, and habitat resources found on refuges and associated ecosystems. It provides refuge managers with an evaluation process to analyze their refuge and recommend the best management direction to prevent further degradation of environmental conditions; and, where appropriate and in concert with refuge purposes and Refuge System mission, restore lost or severely degraded components.

**Clean Air Act (1970; 42 U.S.C. 7401 et seq.), as amended:** A comprehensive Federal law that regulates air emissions from area, stationary, and mobile sources. This law authorizes the U.S. Environmental Protection Agency to establish National Ambient Air Quality Standards to protect public health and the environment.

**Clean Water Act (1977); Federal Water Pollution Control Act:** This is the principal law that governs pollution of the nation's surface waters. The Clean Water Act employs several regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. Section 404 of the Clean Water Act requires permits (issued by the U.S. Army Corps of Engineers) for the discharge of dredged or fill material into waters of the United States, including wetlands.

**Compatibility Policy (2000) 603 FW 2:** Incorporates the compatibility provisions of the National Wildlife Refuge System Improvement Act of 1997, which amends the National Wildlife Refuge System Administration Act of 1966. The Compatibility Policy is for determining whether proposed and existing uses, which the Service has jurisdiction over and are occurring on national wildlife refuges, are compatible (i.e., will not detract from or materially interfere) with the purpose(s) of the refuge or with the Refuge System's mission. The policy is to ensure that we (the Service) administer proposed and existing national wildlife refuge uses according to laws, regulations, and policies concerning compatibility and provides procedures for documentation and periodic review of existing refuge uses.

**Comprehensive Conservation Plans (2000) 602 FW 3:** As required by the National Wildlife Refuge System Improvement Act of 1997, comprehensive conservation plans (CCPs) describe the desired future conditions of a refuge and provide long-range guidance and management direction to achieve refuge purposes; help fulfill the Refuge System mission; maintain and,

where appropriate, restore the ecological integrity; and meet other mandates. The purpose of developing the CCP is to provide the refuge manager with a 15-year management plan for the conservation of fish, wildlife, and plant resources and their related habitats, while providing opportunities for compatible wildlife-dependent recreational uses.

**Cooperative Research and Training Units Act (1960; 16 U.S.C. 753a-753b), as amended:** Authorizes the Secretary of the Interior to enter into cooperative agreements with colleges and universities, state fish and game agencies, and non-profit organizations for the purpose of developing adequate, coordinated, cooperative research and training programs for fish and wildlife resources.

**Criminal Code Provisions of 1940 (18 U.S.C. 41), as amended:** Provides for fines and penalties for the unlawful taking, disturbing, hunting, trapping, capturing of *"...any bird, fish, or wild animal of any kind whatever, or takes or destroys the eggs or nest of any such bird or fish, on any lands or waters which are set apart or reserved as sanctuaries, refuges or breeding grounds for such birds, fish, or animals under any law of the United States or willfully injures, molests, or destroys any property of the United States on any such lands or waters..."*

**Emergency Wetlands Resources Act of 1986 (16 U.S.C. 3901-3932, as amended):** The purpose of this act is to promote wetlands conservation for the public benefit and to help fulfill international obligations in various migratory bird treaties and conventions. The act authorizes the purchase of wetlands from Land and Water Conservation Fund monies. The act also requires the Secretary of the Interior to establish a National Wetlands Priority Conservation Plan, requires the states to include wetlands in their Comprehensive Outdoor Recreation Plans, and transfers funds from import duties on arms and ammunition to the Migratory Bird Conservation Fund.

**Endangered Species Act of 1973, as amended:** The main purposes of the Endangered Species Act are to: 1) provide a means whereby ecosystems of threatened and endangered species may be conserved; and 2) provide a program for the conservation of threatened and endangered species. The provisions of the Endangered Species Act include but are limited to land acquisition, cooperative programs with the states, and interagency cooperation (Section 7). Section 7(a)(1) directs Federal agencies to carry out programs for the conservation of threatened and endangered species.

**Executive Order 11514; Protection and Enhancement of Environmental Quality (1970):** This directs that the *"...Federal Government shall provide leadership in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life. Federal agencies shall initiate measures needed to direct their policies, plans and programs so as to meet national environmental goals..."*

**Executive Order 11644; Use of off-road vehicles on the public lands (1972):** Requires that the Service designate areas as open or closed to off-highway vehicles in order to protect refuge resources, promote safety, and minimize conflict among the various refuge users; monitor the effects of these uses once they are allowed; and amend or rescind any area designation as necessary based on the information gathered.

**Executive Order 11987; Exotic organisms (1977):** Executive agencies shall, to the extent permitted by law, restrict the introduction of exotic species into the natural ecosystems on lands and waters which they own, lease, or hold for purposes of administration; and shall encourage

the states, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the United States.

**Executive Order 11988; Floodplain Management (1977):** This directs that each Federal agency *"...shall provide leadership and take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains...,"* in carrying out its responsibilities.

**Executive Order 11989; Off-Road Vehicles on Public Lands (1977):** Requires the Service to close areas to off-highway vehicles when we determine that the use causes or will cause considerable adverse effects on the soil, vegetation, wildlife, habitat, or cultural or historic resources.

**Executive Order 11990; Protection of Wetlands (1977):** This directs that each Federal agency *"...shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities..."*

**Executive Order 12996; Management and General Public Use of the National Wildlife Refuge System (1996):** This spells out the mission of the National Wildlife Refuge System, along with establishing guiding principles to help insure the long-term enjoyment of the Refuge System for present and future generations. The order directs the Secretary of the Interior to recognize compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation as priority general public uses on the Refuge System (i.e., the big six).

**Executive Order 13112; Invasive Species (1999):** This order was established to address the growing ecological and economic damage caused by invasive species. Executive Order 13112 requires Federal agencies to: 1) identify actions that might affect the status of invasive species and prevent introductions of invasive species; 2) not authorize, fund, or carry out actions likely to cause the introduction or spread of invasive species; 3) detect and respond rapidly to control invasive species populations; 4) monitor and conduct research on invasive species; 5) restore native species and habitat conditions in ecosystems that have been invaded; and 6) promote public education on invasive species.

**Executive Order 13186; Responsibilities of Federal agencies to protect migratory birds (2001):** Provides guidance for Service programs relative to the management and conservation of migratory birds. Its purpose is to minimize the potential adverse effects of migratory bird take, with the goal of striving to eliminate take while implementing our mission. This guidance includes but is not limited to: 1) integrating migratory bird conservation measures into our activities; 2) restoring and enhancing the habitat of migratory birds; 3) ensuring our actions and/or plans promote migratory bird conservation; 4) promoting inventory, monitoring, research, management studies, and information exchange related to migratory birds; 5) promoting education and outreach related to migratory birds; 6) identifying special migratory bird habitats; and 7) strengthening non-Federal partnerships to further bird conservation.

**Executive Order 13514; Federal Leadership in Environmental, Energy, and Economic Performance (2009):** Provides guidance for Federal agencies to increase energy efficiency;

reduce greenhouse gas emissions; design, construct, maintain, and operate high performance sustainable buildings, etc.

**Federal Aid in Wildlife Restoration Act (1937; 16 U.S.C. 669-669i), as amended:** Commonly called the "Pittman-Robertson Act," this provides Federal aid to states for management and restoration of wildlife. Funds from an 11-percent excise tax on sporting arms and ammunition are appropriated to the Secretary of the Interior and apportioned to states on a formula basis for paying up to 75 percent of the cost of approved projects. Project activities include acquisition and improvement of wildlife habitat, introduction of wildlife into suitable habitat, research into wildlife problems, surveys and inventories of wildlife problems, acquisition and development of access facilities for public use, and hunter education programs, including construction and operation of public target ranges.

**Federal Environmental Pesticide Control Act of 1972 (7 USC 136-136y), as amended:** This established, under the Administrator of the EPA, a program for controlling the sale, distribution, and application of pesticides through an administrative registration process. The amendments provided for classifying pesticides for "general" or "restricted" use. "Restricted" pesticides may only be applied by or under the direct supervision of a certified applicator. Amendments to this act also authorized experimental use permits and provided for administrative review of registered pesticides and for penalties for violations of the statute. States were authorized to regulate the sale or use of any pesticide within a state, provided that such regulation does not permit any sale or use prohibited by the act. The Federal Environmental Pesticide Control Act of 1972 amended the **1947 Federal Insecticide, Fungicide, and Rodenticide Act** (FIFRA). The 1947 statute (FIFRA) prohibited the sale or distribution of "*economic poisons*," provided for the registration of such materials, and authorized penalties for violation of the act. The Endangered Species Act later amended FIFRA to define imminent hazard to include situations involving *unreasonable hazard to the survival of a species declared by the Secretary of the Interior to be endangered or threatened*.

**Federal Noxious Weed Act (1990):** Requires the use of integrated management systems to control or contain undesirable plant species and an interdisciplinary approach with the cooperation of other Federal and state agencies.

**Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471-535), as amended:** Sets forth requirements for the management and disposal of government property, including excess property (property under the control of any Federal agency but which it no longer needs) and surplus property (excess property not required for the needs of any Federal agency).

**Fenced Animal Management (701 FW 8):** This chapter promulgates policy for fenced animal management on Service lands. By special acts of Congress or by special designation herein, five refuges, including Wichita Mountains Wildlife Refuge, are authorized to preserve and propagate remnant herds of nationally and/or historically significant animals. This chapter relates to the management of animal species now present on the refuges listed where these species have historically occurred and where reintroduction has been authorized.

**Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j, not including 742 d-l), as amended:** This established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges. The policy emphasizes the commercial fishing industry but also with a direction to administer the act with regard to the inherent right of every

citizen and resident to fish for pleasure, enjoyment, and betterment, and to maintain and increase public opportunities for recreational use of fish and wildlife resources. Among other things, the act directs a program of continuing research, extension, and information services on fish and wildlife matters, both domestically and internationally. A 1974 amendment to the Fish and Wildlife Act of 1956 abolished the Bureau of Sport Fisheries and Wildlife and re-designated it as the United States Fish and Wildlife Service (Public Law 93-271). In 1978, the Fish and Wildlife Act was amended to allow the Service to accept donations of both real and personal property. In 1998, the Fish and Wildlife Act of 1956 was further amended to promote volunteer programs and community partnerships for the benefit of national wildlife refuges. This also required the Secretary of the Interior to develop refuge education programs to provide outdoor classroom opportunities for students to promote understanding of the National Wildlife Refuge System and to improve scientific literacy in conjunction with both formal and informal education programs.

**Fish and Wildlife Coordination Act (1934), as amended:** Authorizes the Secretary of the Interior to assist Federal, state, and other agencies in development, protection, rearing, and stocking fish and wildlife on Federal lands and to study effects of pollution on fish and wildlife. The act also requires consultation with the U.S. Fish and Wildlife Service and the wildlife agency of any state wherein the waters of any stream or other water body are proposed to be impounded, diverted, channelized, or otherwise controlled or modified by any Federal agency or by any private agency under Federal permit or license; with a view to preventing loss of or damage to wildlife resources in connection with such water resource projects. The act further authorizes Federal water resource agencies to acquire lands or interests in connection with water use projects specifically for mitigation and enhancement of fish and wildlife.

**Fish and Wildlife Improvement Act of 1978 (16 U.S.C. 7421; 92 Stat. 3110), as amended:** Authorizes the Secretaries of the Interior and Commerce to establish, conduct, and assist with national training programs for state fish and wildlife law enforcement personnel. It also authorized funding for research and development of new or improved methods to support fish and wildlife law enforcement. The law provides authority to the Secretaries to enter into law enforcement cooperative agreements with state or other Federal agencies and authorizes the disposal of abandoned or forfeited items under the fish, wildlife, and plant jurisdictions of these Secretaries. It strengthens the law enforcement operational capability of the Service by authorizing the disbursement and use of funds to facilitate various types of investigative efforts.

**Flood Control Act of 1944, as amended:** This act, supplemented by other flood control acts and river and harbor acts, authorizes various U.S. Corps of Engineers water development projects. The Flood Control Act expressed congressional intent to limit the authorization and construction of navigation, flood control, and other water projects to those having significant benefits for navigation and which could be operated consistent with other river uses. This authorized the construction of numerous dams and modifications to previously existing dams. Several provisions of this act affect the responsibilities of the Service under the **Fish and Wildlife Coordination Act**.

**Freedom of Information Act (1966; 5 U.S.C. 552):** Requires all Federal agencies to make available to the public, for inspection and copying, administrative staff manuals and staff instructions; official, published and unpublished policy statements; final orders deciding case adjudication; and other documents. Special exemptions have been reserved for nine categories of privileged material, including but not limited to confidential matters relating to national defense

or foreign policy, law enforcement records, and trade or commercial secrets. The act requires the party seeking the information to pay reasonable search and duplication costs.

**Historic Sites, Buildings, and Antiquities Act (16 U.S.C. 461-462, 464-467), as amended.** Also known as the Historic Sites Act, this declared it a national policy to preserve historic sites and objects of national significance, including those located on refuges. It provided procedures for designation, acquisition, administration, and protection of such sites. Among other things, National Historic and Natural Landmarks are designated under authority of this act. As of January, 1989, 31 national wildlife refuges contained such sites.

**Lacey Act of 1900 (16 U.S.C. 701), as amended:** Makes it unlawful to import, export, sell, acquire, or purchase fish, wildlife or plants taken, possessed, transported, or sold: 1) in violation of U.S. or Indian law, or 2) in interstate or foreign commerce involving any fish, wildlife, or plants taken, possessed, or sold in violation of state or foreign law. The Lacey Act covers all fish and wildlife and their parts or products, and all plants protected by the Convention on International Trade in Endangered Species and those protected by state law. Commercial guiding and outfitting are considered to be a sale under the provisions of the act. The act also includes prohibitions on the importation of wild vertebrates and other animals listed in the act or declared by the Secretary of the Interior to be injurious to man or agriculture, wildlife resources, or otherwise, except under certain circumstances and pursuant to regulations. The Lacey Act includes penalties and fines for violations involving imports or exports or violations of a commercial nature.

**Land and Water Conservation Fund Act (1965):** Authorizes the use of the receipts from the sale of surplus Federal land, outer continental shelf oil and gas sales, and other sources for land acquisition. Section 7(a)(l) of this act provides authority to use Land and Water Conservation Fund money for acquisition of refuge areas under paragraph (5) of section 7(a) of the Fish and Wildlife Act of 1956.

**Migratory Bird Conservation Act (1929; 16 U.S.C. 715-715d, 715e, 715f-715r), as amended:** This established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds.

**Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712), as amended:** The Migratory Bird Treaty Act (MBTA) is one of the earliest Federal wildlife management laws enacted to protect migratory birds, which were rapidly declining from unregulated sport and commercial hunting. Specific provisions in the MBTA include the establishment of a Federal prohibition, unless permitted by regulations, to *"...pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention ...for the protection of migratory birds...or any part, nest, or egg of any such bird."*

**Migratory Bird Hunting and Conservation Stamp Act (1934; 16 U.S.C. 718-718j), as amended:** Known as the "Duck Stamp Act," this requires each waterfowl hunter 16 years of age or older to possess a valid Federal hunting stamp. Receipts from the sale of the stamp are deposited in a special Treasury account known as the Migratory Bird Conservation Fund and are not subject to appropriations. Funds appropriated under the Wetlands Loan Act (16 U.S.C.

715k-3 - 715k-5), as amended, are merged with duck stamp receipts and provided to the Secretary of the Interior for the acquisition of migratory bird refuges under provisions of the Migratory Bird Conservation Act (16 U.S.C. 715 et seq), as amended, and since August 1, 1958, for acquisition of "Waterfowl Production Areas."

**National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347), as amended:** The National Environmental Policy Act (NEPA) requires that all Federal agencies prepare detailed environmental impact statements for every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment. NEPA stipulates factors to be considered in environmental impact statements and requires that Federal agencies employ an interdisciplinary approach in related decision-making and develop means to ensure that unquantified environmental values are given appropriate consideration, along with economic and technical considerations.

**National Historic Preservation Act of 1966 (16 U.S.C. 470-470b, 470c-470n), as amended:** Provides for preservation of significant historical features (buildings, objects, and sites) through a grant-in-aid program to the states. It established a National Register of Historic Places (NRHP) and a program of matching grants under the existing National Trust for Historic Preservation (16 U.S.C. 468-468d). The act established an Advisory Council on Historic Preservation, which was made a permanent independent agency in 1976. That act also created the Historic Preservation Fund. Federal agencies are directed to take into account the effects of their actions on items or sites listed or eligible for listing in the NRHP. As of January, 1989, 91 historic sites on national wildlife refuges have been placed on the NRHP.

**National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee. (Refuge Administration Act):** Defines the National Wildlife Refuge System and authorizes the Secretary to permit any use of a refuge provided such use is compatible with the purposes for which the refuge was established. The Refuge Improvement Act clearly defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation); establishes a formal process for determining compatibility; establishes the responsibilities of the Secretary of Interior for managing and protecting the Refuge System; and requires a comprehensive conservation plan for each refuge by the year 2012. This act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

**North American Wetlands Conservation Act (1989; 16 U.S.C. 4401-4412), as amended:** Provides funding and administrative direction for implementation of the North American Waterfowl Management Plan and the Tripartite Agreement on wetlands between Canada, the U.S., and Mexico.

**Protection Act (1922; 16 U.S.C. 594):** Provides for the Secretary of the Interior to protect and preserve, from fire, disease, or the ravages of beetles or other insects, timber on the public lands owned by the United States.

**Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4), as amended:** Authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the area's primary purposes. The act

provides for public use fees and permits and for penalties for violation of regulations. It also authorizes the acceptance of donations of funds and real and personal property to assist in carrying out its purposes. Amendments to the act authorize acquisition of lands and interests suitable for: 1) fish and wildlife-oriented recreation, 2) protection of natural resources, 3) conservation of endangered or threatened species, or 4) carrying out two or more of the previously stated purposes. Such lands were required to be adjacent to or within an existing conservation area. Acquisition was not permitted with duck stamp receipts for these purposes.

**Refuge Revenue Sharing Act of 1935 (16 U.S.C. 715s), as amended:** Provides for payments to county governments in lieu of taxes, using revenues derived from the sale of products from refuges. Revenues received from refuge products (e.g., animals, timber and minerals) or from leases or other privileges are required to be deposited in a special Treasury account and net receipts distributed to counties. Remaining monies are required to be transferred to the Migratory Bird Conservation Fund for land acquisition under provisions of the Migratory Bird Conservation Act. The act was later amended to expand the revenue sharing system to include National Fish Hatcheries and Service research stations. It also included receipts from the sale of salmonid carcasses in the Refuge Revenue Sharing Fund. Payments to counties were established as: 1) on acquired land, the greatest amount calculated on the basis of 75 cents per acre, three-fourths of one percent of the appraised value, or 25 percent of the net receipts produced from the land; and 2) on land withdrawn from the public domain, 25 percent of net receipts and basic payment, in lieu of taxes on public lands. Amendments to the act authorized appropriations to make up any difference between the amount in the Revenue Sharing Fund and the amount scheduled for payment in any year. Counties are also required to pass payments along to other units of local government within the county that suffer losses in revenues due to the establishment of Service areas.

**Refuge Trespass Act of 1948 (18 U.S.C. 41):** This act consolidated penalty provisions of various acts from 1905 through 1934, establishing and protecting fish and wildlife areas, and restated the intent of Congress to protect all wildlife within Federal sanctuaries, refuges, fish hatcheries and breeding grounds.

**Rehabilitation Act (1973):** Requires programmatic accessibility and physical accessibility for all facilities and programs funded by the Federal government to ensure that anybody can participate in any program.

**Secretarial Order No. 3226; Evaluating Climate Change Impacts in Management Planning (2001):** Directs each U.S. Department of Interior bureau to consider and analyze potential climate change impacts when undertaking long-range planning efforts or multi-year management plans.

**Transportation Equity Act for the 21st Century (TEA-21): 23 U.S.C., as amended:** In part, this established the Refuge Roads Program and requires that all projects funded under the Refuge Roads Program be consistent with the Service's comprehensive conservation plans and step-down management plans.

**Transfer of Certain Real Property for Wildlife Conservation Purposes Act of 1948 (16 U.S.C. 667b-d), as amended:** This act provides that, upon a determination by the Administrator of the General Services Administration, real property no longer needed by a Federal agency can

be transferred without reimbursement to the Secretary of the Interior if the land has particular value for migratory birds or made to a state agency for other wildlife conservation purposes.

**Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601 et seq.), as amended:** Provides for uniform and equitable treatment of persons who sell their homes, businesses, or farms to the Service. The act requires that any purchase offer be no less than the fair market value of the property.

**Volunteer and Partnership Enhancement Act (1998):** This amended the Fish and Wildlife Act of 1956 to promote volunteer programs and community partnerships for the benefit of national wildlife refuges and for other purposes.

**Wild and Scenic Rivers Act of 1964 (16 U.S. C. 1271-1287):** This act establishes a National Wild and Scenic Rivers System and prescribes the methods and standards through which additional rivers may be identified and added to the system. Section 5(d)(1) requires that in all planning by Federal agencies for the use and development of water and related land resources, consideration by given to potential wild, scenic, and recreation rivers. Rivers are added to the national system based on their free-flowing character and their outstandingly remarkable scenic, recreation, geologic, fish and wildlife, historic, cultural, ecological, or other values. Rivers in the system are managed to maintain and protect these outstandingly remarkable values for present and future generations.

**Wilderness Act of 1964 (16 U.S.C. 1131):** The purpose of this act is to preserve and protect wild lands in their natural condition *"...to secure for the American people of present and future generations the benefits of an enduring resource of wilderness.*" This directed Federal agencies such as the U.S. Fish and Wildlife Service to survey their roadless lands for possible wilderness designation. Wilderness areas are protected from development and the operation of motorized equipment. A Wilderness area is defined as an area with at least 5,000 acres of undisturbed, undeveloped land affected by the forces of nature and that may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

# H. Wichita Mountains Wildlife Refuge Evaluation Table

The following table will be reviewed and updated annually by Refuge staff.

| Plan Component | Performance Measure Response | Link to Refuge Step Down Plan | Plan Revision or Amendment Needed? | Plan Revision/Amendment Explanation |
|---|---|---|---|---|
| **Ecoregion Objectives** | | | | |
| Objective 1 – Climate Change<br>*Are management activities aimed at minimizing the Refuge's carbon footprint?* | | | | |
| Objective 2 – Air Quality<br>*Are management activities minimizing effects to air quality by mitigating smoke, dust, spray, and vehicle emissions?* | | | | |
| Objective 3 – Fragmentation and Land Protection<br>*Is the Refuge pursuing expansion opportunities?* | | | | |
| Objective 3 – Fragmentation and Land Protection<br>*Is the Refuge connecting and establishing relationships with potential partners and surrounding landowners?* | | | | |
| Objective 4 – Riparian Areas<br>*Is the Refuge educating about and promoting riparian health?* | | | | |

| Plan Component | Performance Measure Response | Link to Refuge Step Down Plan | Plan Revision or Amendment Needed? | Plan Revision/Amendment Explanation |
|---|---|---|---|---|
| Objective 5 – Water Quality<br>*Is the Refuge educating about and coordinating with partner agencies on water quality?* | | | | |
| **Habitat Objectives** | | | | |
| Objective 1 – Water Resources<br>*Is the Refuge prioritizing its water resource management activities toward the management of megafauna, followed by fisheries, migratory waterfowl, and shorebird species?* | | | | |
| Objective 2 – Spring Modification<br>*Is the Refuge maintaining springs for the management of confined Refuge animals?* | | | | |
| Objective 3 – Water Rights<br>*Is the Refuge working toward maintaining its water rights?* | | | | |
| Objective 4 – Water Conservation<br>*Is the Refuge participating in agency and State water planning and conservation efforts?* | | | | |
| Objective 5 – Fire Ecology and Management<br>*Is the Refuge burning up to 14,000 acres per year?* | | | | |

| Plan Component | Performance Measure Response | Link to Refuge Step Down Plan | Plan Revision or Amendment Needed? | Plan Revision/Amendment Explanation |
|---|---|---|---|---|
| Objective 6 – Invasive/Non-Native Flora<br>*Is the Refuge controlling, eradicating, or confining invasive and non-native flora?* | | | | |
| Objective 7 – Native Fauna<br>*Is the Refuge using techniques to manage native fauna at targeted levels?* | | | | |
| Objective 8 – Federal Trust Species<br>*Is the Refuge managing Federal Trust Species according to BMPs?* | | | | |
| Objective 9 – Non-Native Fauna<br>*Is the Refuge decreasing its non-native populations?* | | | | |
| Objective 10 – Permitted Grazing<br>*Has the Refuge boundary fence been moved, and, if so, is the Refuge phasing out permitted grazing?* | | | | |
| **Special Areas Objective** | | | | |
| Objective 1<br>*Has the Refuge worked to designate the Special Use Area as a Research Natural Area?* | | | | |
| **Public Use Objectives – Refuge Wide** | | | | |
| Objective 1 – Hunting<br>*Is the Refuge continuing to manage hunts cooperatively based on population and habitat management objectives?* | | | | |

| Plan Component | Performance Measure Response | Link to Refuge Step Down Plan | Plan Revision or Amendment Needed? | Plan Revision/Amendment Explanation |
|---|---|---|---|---|
| Objective 2 – Special Uses<br>*Is the Refuge managing commercial or other special use activities through Special Use Permit?* | | | | |
| **Public Use Objectives – Public Use Area** | | | | |
| Objective 1 – Fishing<br>*Is the Refuge managing fishing for increased opportunities and improved experiences?* | | | | |
| Objective 2 – Wildlife Observation<br>*Is the Refuge allowing public access and providing facilities that contribute to spectacular viewing opportunities?* | | | | |
| Objective 3 – Photography<br>*Is the Refuge allowing public access and providing facilities that contribute to spectacular photography opportunities?* | | | | |
| Objective 4 – Environmental Education<br>*Is the Refuge making progress toward developing the Environmental Education Center as an educational training facility?* | | | | |
| Objective 4 – Environmental Education<br>*Has the Refuge increased emphasis on environmental education from 6 percent to 10 percent of contacts from staff-led activities?* | | | | |

| Plan Component | Performance Measure Response | Link to Refuge Step Down Plan | Plan Revision or Amendment Needed? | Plan Revision/Amendment Explanation |
|---|---|---|---|---|
| Objective 5 – Interpretation<br>*Has the Refuge updated interpretive facilities and programs?* | | | | |
| Objective 6 – Bicycling<br>*Has the Refuge created and improved bicycling opportunities on approximately 13 miles of road?* | | | | |
| Objective 7 – Boating<br>*Are boating activities managed to allow for high quality opportunities and improved experiences?* | | | | |
| Objective 8 – Camping<br>*Is the Refuge providing developed camping opportunities on-Refuge?* | | | | |
| Objective 8 – Camping<br>*Is the Refuge promoting alternative camping options off-Refuge?* | | | | |
| Objective 9 – Hiking<br>*Are hiking opportunities managed to provide for better experiences?* | | | | |
| Objective 10 – Picnicking<br>*Is the Refuge providing developed picnicking opportunities at established picnic grounds?* | | | | |
| Objective 10 – Picnicking<br>*Is the Refuge promoting alternative picnicking options off-Refuge?* | | | | |

| Plan Component | Performance Measure Response | Link to Refuge Step Down Plan | Plan Revision or Amendment Needed? | Plan Revision/Amendment Explanation |
|---|---|---|---|---|
| Objective 11 – Rock Sports<br>*Are rock sport opportunities administered to provide for better protection of Refuge resources?* | | | | |
| **Public Use Objectives – Special Use Area** | | | | |
| Objective 1 – Interpretation<br>*Is the Refuge allowing up to 80 interpretive tours annually?* | | | | |
| **Public Use Objectives – Wilderness Area** | | | | |
| Objective 1 – Wildlife Observation<br>*Is the Refuge managing for spectacular viewing opportunities by improving Wilderness conditions?* | | | | |
| Objective 2 – Photography<br>*Is the Refuge managing for spectacular photography opportunities by improving Wilderness conditions?* | | | | |
| Objective 3 – Environmental Education<br>*Has the Refuge limited environmental education in Wilderness?* | | | | |
| Objective 4 – Interpretation<br>*Is the Refuge allowing for individual and limited organized interpretation opportunities?* | | | | |

| Plan Component | Performance Measure Response | Link to Refuge Step Down Plan | Plan Revision or Amendment Needed? | Plan Revision/Amendment Explanation |
|---|---|---|---|---|
| Objective 5 – Camping<br>*Is the Refuge providing opportunities for limited backcountry camping?* | | | | |
| Objective 6 – Hiking<br>Is the Refuge managing and improving hiking opportunities by increasing trail maintenance on 3.5 miles of trail? | | | | |
| Objective 7 – Rock Sports<br>*Are rock sport opportunities administered to provide for better protection of Refuge resources?* | | | | |
| **Facilities Objectives – Refuge-Wide** | | | | |
| Objective 1 – Public Use Facilities<br>*Is the Refuge building, updating, and/or maintaining public use facilities for accessibility, comfort, and fulfillment of the Refuge's purpose?* | | | | |
| Objective 2 – Administrative Facilities<br>*Is the Refuge building, updating, and/or maintaining administrative facilities for accessibility, comfort, and fulfillment of the Refuge's purpose?* | | | | |
| Objective 3 – Cultural Resources<br>*Is the Refuge identifying and protecting archaeological, historical, and cultural resources?* | | | | |

| Plan Component | Performance Measure Response | Link to Refuge Step Down Plan | Plan Revision or Amendment Needed? | Plan Revision/Amendment Explanation |
|---|---|---|---|---|
| **Administrative Areas** | | | | |
| Objective 1 – Holy City<br>*Is the Refuge managing the SUP with Holy City to minimize impacts to natural resources and recreational users?* | | | | |
| Objective 2 – Job Corps<br>*Is the Refuge working in cooperation with the Treasure Lake Job Corps to minimize impacts on natural resources and recreational users?* | | | | |

# Glossary

**accessibility -** The state or quality of being easily approached or entered, particularly as it relates to complying with the Americans With Disabilities Act (ADA).

**accessible facilities -** Structures accessible for most people with disabilities without assistance; facilities that meet Uniform Federal Accessibility Standards; ADA-accessible parking lots, trails, pathways, ramps, picnic and camping areas, restrooms, boating facilities (e.g., docks, piers), fishing facilities, exhibits, audiovisual programs, and wayside sites.

**adaptation -** Adjustment to environmental conditions.

**adaptive management -** The process of treating the work of managing natural resources as an experiment, making observations and recording them, so the manger can learn from the experience.

**alternative -** A reasonable way to fix an identified problem or satisfy a stated need [40 CFR 1500.2 (cf. "management alternative")].

**animal unit month (AUM) -** Amount of forage needed to sustain an animal for one month.

**appropriate use -** A proposed or existing use on a refuge that meets at least one of the following three conditions:

1. the use is a wildlife-dependent one;
2. the use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the National Wildlife Refuge System Improvement Act was signed into law; or
3. the use has been determined appropriate as specified in section 1.11 of that act.

**aquatic -** Growing in, living in, or dependent upon water.

**best management practices -** Land management practices that produce desired results; usually describing forestry or agricultural practices effective in reducing non-point source pollution, like reseeding skidder trails or not storing manure in a flood plain. In a broader sense, practices that benefit target species.

**biological diversity or biodiversity -** The variety of life and its processes; includes the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.

**biological integrity -** Biotic composition, structure, and functioning at genetic, organism, and community levels comparable with historic conditions, including the natural biological processes that shape genomes, organisms, and communities.

**$C_3$ plant -** A plant that utilizes the $C_3$ carbon fixation pathway in photosynthesis.

**$C_4$ plant -** A plant that utilizes the $C_4$ carbon fixation pathway in photosynthesis.

**compatible use -** The term "compatible use" means a wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge. (National Wildlife Refuge System Improvement Act of 1997 [Public Law 105-57; 111 Stat. 1253]).

**compatibility determination -** A required determination for wildlife-dependent recreational uses or any other public uses of a refuge.

**comprehensive conservation plan -** Mandated by the 1997 Refuge Improvement Act, a document that provides a description of the desired future conditions and long-range guidance for the project leader to accomplish purposes of the Refuge System and the refuge. CCPs establish management direction to achieve refuge purposes. (P.L. 105-57; FWS Manual 602 FW 1.4).

**concern -** see “issue.”

**connectivity -** Community occurrences and reserves have permeable boundaries and thus are subject to inflows and outflows from the surrounding landscape. Connectivity in the selection and design of nature reserves relates to the ability of species to move across the landscape to meet basic habitat requirements. Natural connecting features within the ecoregion may include river channels, riparian corridors, ridgelines, or migratory pathways.

**conservation -** Managing natural resources to prevent loss or waste. Management actions may include preservation, restoration, and enhancement.

**designated wilderness area -** An area designated by Congress as part of the National Wilderness Preservation System (FWS Manual 610 FW 1.5).

**desired future condition -** The qualities of an ecosystem or its components that an organization seeks to develop through its decisions and actions.

**disturbance -** Any relatively discrete event in time that disrupts ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment.

**ecological system -** Dynamic assemblages of communities that occur together on the landscape at some spatial scale of resolution, are tied together by similar ecological processes, and form a cohesive, distinguishable unit on the ground. Examples are spruce-fir forest, Great Lakes dune and swale complex, Mojave desert riparian shrublands.

**ecoregion -** A territory defined by a combination of biological, social, and geographic criteria rather than geopolitical considerations; generally, a system of related, interconnected ecosystems.

**ecosystem -** A natural community of organisms interacting with its physical environment, regarded as a unit.

**emergent wetland -** Wetlands dominated by erect, rooted, herbaceous plants

**endangered species -** A Federal- or State-listed protected species in danger of extinction throughout all or a significant portion of its range

**endemic -** A species or race native to a particular place and found only there.

**environment -** The sum total of all biological, chemical, and physical factors to which organisms are exposed.

**environmental education -** Curriculum-based education aimed at producing a citizenry that is knowledgeable about the biophysical environment and its associated problems, aware of how to help solve those problems, and motivated to work toward solving them.

**Environmental Assessment** (EA) a public document that discusses the purpose and need for an action, its alternatives, and provides sufficient evidence and analysis of its impacts to determine whether to prepare an environmental impact statement or a finding of no significant impact (40 CFR 1508.9).

**exotic species -** A species that is not native to an area and has been introduced intentionally or unintentionally by humans; not all exotics become successfully established.

**fauna -** All animal life associated with a given habitat, country, area, or period.

**federal land -** Public land owned by the Federal government, including national forests, national parks, and national wildlife refuges.

**federal-listed species -** A species listed either as endangered, threatened, or a species at risk (formerly, a "candidate species") under the Endangered Species Act of 1973, as amended.

**fen -** A type of wetland that accumulates peat deposits. Fens are less acidic than bogs, deriving most of their water from groundwater rich in calcium and magnesium.

**Finding of No Significant Impact** (FONSI) **-** supported by an environmental assessment, a document that briefly presents why a Federal action will have no significant effect on the human environment, and for which an environmental impact statement, therefore, will not be prepared (40 CFR 1508.13).

**fire regime -** The characteristic frequency, intensity, and spatial distribution of natural fires within a given ecoregion or habitat.

**fish passage project -** Providing a safe passage for fish around a barrier in the upstream or downstream direction.

**flora -** All the plants found in a particular place.

**flyway -** Any one of several established migration routes of birds.

**focal species -** A species that is indicative of particular conditions in a system (ranging from natural to degraded) and used as a surrogate measure for other species of particular conditions. An element of biodiversity selected as a focus for conservation planning or action. The two principal types of targets in conservancy planning projects are species and ecological communities.

**forest association -** The community described by a group of dominant plant (tree) species occurring together, such as spruce-fir or northern hardwoods.

**forested land -** Land dominated by trees.

**fragmentation -** The disruption of extensive habitats into isolated and small patches. Fragmentation has two negative components for biota: the loss of total habitat area; and, the creation of smaller, more isolated patches of habitat remaining.

**geographic information system** (GIS) - a computerized system to compile, store, analyze and display geographically referenced information. GIS can overlay multiple sets of information on the distribution of a variety of biological and physical features.

**groundwater -** Water in the ground that is in the zone of saturation, from which wells and springs and groundwater discharge are supplied.

**guild -** A group of organisms, not necessarily taxonomically related, that are ecologically similar in characteristics such as diet, behavior, or microhabitat preference, or with respect to their ecological role in general.

**habitat fragmentation -** The breaking up of a specific habitat into smaller, unconnected areas. A habitat area that is too small may not provide enough space to maintain a breeding population of the species in question.

**habitat conservation -** Protecting an animal or plant habitat to ensure that the use of that habitat by the animal or plant is not altered or reduced.

**habitat -** The place or type of site where species and species assemblages are typically found and/or successfully reproduce. An organism's habitat must provide all of the basic requirements for life, and should be free of harmful contaminants.

**historic conditions -** The composition, structure, and functioning of ecosystems resulting from natural processes that we believe, based on sound professional judgment, were present prior to substantial human-related changes to the landscape.

**hydrologic or flow regime -** Characteristic fluctuations in river flows.

**hydrology -** The science of waters of the earth: their occurrences, distributions, and circulations; their physical and chemical properties; and their reactions with the environment, including living beings.

**Hypsithermal Period -** The period about 4,000 to 8,000 years ago when the Earth was apparently several degrees warmer than it is now. More rainfall occurred in most of the subtropical desert regions and less in the central Midwest United States.

**impoundment -** A body of water, such as a pond, confined by a dam, dike, floodgate, or other barrier, which is used to collect and store water for future use.

**indicator species -** A species used as a gauge for the condition of a particular habitat, community, or ecosystem. A characteristic or surrogate species for a community or ecosystem.

**indigenous -** Native to an area.

**indigenous species -** A species that, other than a result as an introduction, historically occurred or currently occurs in a particular ecosystem.

**interjurisdictional fish -** Populations of fish that are managed by two or more States or national or tribal governments because of the scope of their geographic distributions or migrations.

**interpretive facilities -** Structures that provide information about an event, place, or thing by a variety of means, including printed, audiovisual, or multimedia materials (e.g., kiosks that offer printed materials and audiovisuals, signs, and trail heads.)

**interpretive materials -** Any tool used to provide or clarify information, explain events or things, or increase awareness and understanding of the events or things. Examples include printed materials like brochures, maps or curriculum materials; audio/visual materials like video and audio tapes, films, or slides; and, interactive multimedia materials, CD-ROM or other computer technology.

**invasive species -** An alien or native species whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

**inventory -** A list of all the assets and liabilities of an organization, including physical, financial, personnel, and procedural aspects.

**invertebrate -** Any animal lacking a backbone or bony segment that encloses the central nerve cord.

**issue -** Any unsettled matter that requires a management decision (e.g., a Service initiative, an opportunity, a management problem, a threat to the resources of the unit, a conflict in uses, a public concern, or the presence of an undesirable resource condition). A CCP should document, describe, and analyze issues even if they cannot be resolved during the planning process (FWS Manual 602 FW 1.4).

**lacustrine -** Of, relating to, formed in, living in, or growing in lakes.

**Lake -** an inland body of fresh or salt water of considerable size occupying a basin or hollow on the earth's surface, and which may or may not have a current or single direction of flow

**Land Protection Plan (LPP) -** A document that identifies and prioritizes lands for potential Service acquisition from a willing seller, and also describes other methods of providing protection. Landowners within project boundaries will find this document, which is released with environmental assessments, most useful.

**landscape -** A heterogeneous land area composed of a cluster of interacting ecosystems that are repeated in similar form throughout.

**landscape approach -** An approach to managing for species communities that focuses on landscape patterns rather than processes and manages landscape elements to collectively influence groups of species in a desired direction. This approach assumes that by managing a landscape for its components, the naturally occurring species will persist.

**late-successional -** Species, assemblages, structures, and processes associated with mature natural communities that have not experienced significant disturbance for a long time.

**limiting factor -** An environmental limitation that prevents further population growth.

**limits of acceptable change -** A planning and management framework for establishing and maintaining acceptable and appropriate environmental and social conditions in recreation settings.

**local land -** Public land owned by local governments, including community or county parks or municipal watersheds.

**local agencies -** Generally, municipal governments, regional planning commissions, or conservation groups.

**long-term protection -** Mechanisms like fee title acquisition, conservation easements, or binding agreements with landowners that ensure land use and land management practices will remain compatible with maintaining species populations over the long term.

**macroinvertebrates -** Invertebrates large enough to be seen with the naked eye (e.g., most aquatic insects, snails, and amphipods).

**management alternative -** A set of objectives and the strategies needed to accomplish each objective (FWS Manual 602 FW 1.4).

**management concern -** Issue (e.g., migratory nongame birds of management concern).

**management plan -** A plan that guides future land management practices on a tract. In the context of an environmental impact statement, for example, management plans may be designed to produce additional wildlife habitat along with primary products like timber or agricultural crops.

**management strategy -** A general approach to meeting unit objectives. A strategy may be broad, or it may be detailed enough to guide implementation through specific actions, tasks, and projects (FWS Manual 602 FW 1.4).

**mesic soil -** Sandy-to-clay loams containing moisture-retentive organic matter, well drained (no standing matter).

**Mesonet -** A combination of the words "mesoscale" and "network." Mesonet is a network of environmental monitoring stations designed and implemented by scientists at the University of Oklahoma and Oklahoma State University.

**mission statement -** A succinct statement of the purpose for which the unit was established; its reason for being.

**mitigation -** Actions to compensate for the negative effects of a particular project. For example, wetland mitigation usually restores or enhances a previously damaged wetland or creates a new wetland.

**mosaic -** An interconnected patchwork of distinct vegetation types.

**National Environmental Policy Act of 1969** (NEPA) - Requires all Federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in planning and implementing environmental actions. Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision-making (40 CFR 1500).

**National Wildlife Refuge System** (Refuge System) - All lands and waters and interests therein administered by the Service as wildlife refuges, wildlife ranges, wildlife management areas, waterfowl production areas, and other areas for the protection and conservation of fish and wildlife, including those that are threatened with extinction.

**native -** A species that, other than as a result of an introduction, historically occurred or currently occurs in a particular ecosystem.

**native plant -** A plant that has grown in the region since the last glaciation, and occurred before European settlement.

**natural disturbance event -** Any natural event that significantly alters the structure, composition, or dynamics of a natural community: e.g., floods, fires, and storms.

**natural range of variation -** A characteristic range of levels, intensities, and periodicities associated with disturbances, population levels, or frequency in undisturbed habitats or communities.

**niche -** The specific part or smallest unit of a habitat occupied by an organism.

**Neotropical migrant -** Birds, bats, or invertebrates that seasonally migrate between the Nearctic and Neotropics.

**non-consumptive, wildlife-oriented recreation -** Wildlife observation and photography and environmental education and interpretation.

**non-native species -** See "exotic species."

**non-point source pollution -** A diffuse form of water quality degradation produced by erosion of land that causes sedimentation of streams, eutrophication from nutrients and pesticides used in agricultural and silvicultural practices, and acid rain resulting from burning fuels that contain sulfur.

**Notice of Intent** (NOI) - An announcement we publish in the Federal Register that we will prepare and review an environmental impact statement (40 CFR 1508.22).

**nutrient cycling -** A concept that describes how nutrients move from the physical environment into living organisms, and subsequently are recycled back to the physical environment.

**objective –** A concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives are derived from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Objectives should be attainable, time-specific, and measurable.

**partnership -** A contract or agreement among two or more individuals, groups of individuals, organizations, or agencies, in which each agrees to furnish a part of the capital or some service in kind (e.g., labor) for a mutually beneficial enterprise.

**passive management -** Protecting, monitoring key resources and conducting baseline inventories to improve our knowledge of the ecosystem.

**payment in lieu of taxes -** Revenue Sharing Act of 1935, Chapter One, Legal Context

**pH -** A measure of acidity, based on the concentration of hydrogen ions in solution.

**point source -** A source of pollution that involves discharge of waste from an identifiable point, such as a smokestack or sewage-treatment plant.

**population -** An interbreeding group of plants or animals. The entire group of organisms of one species.

**population monitoring -** Assessing the characteristics of populations to ascertain their status and establish trends on their abundance, condition, distribution, or other characteristics.

**prescribed fire -** The application of fire to wildland fuels, either by natural or intentional ignition, to achieve identified land use objectives (FWS Manual 621 FW 1.7).

**priority public use -** A compatible wildlife-dependent recreational use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation.

**private land -** Land owned by a private individual or group or non-government organization.

**private landowner –** See "private land."

**private organization -** Any non-government organization.

**proposed wilderness -** An area of the Refuge System that the Secretary of the Interior has recommended to the President for inclusion in the National Wilderness Preservation System.

**public -** Individuals, organizations, and non-government groups; officials of Federal, State, and local government agencies; Native American tribes, and foreign nations—includes anyone outside the core planning team, those who may or may not have indicated an interest in the issues, and those who do or do not realize that our decisions may affect them.

**public involvement -** Offering an opportunity to interested individuals and organizations whom our actions or policies may affect to become informed; soliciting their opinions. We thoroughly study public input, and give it thoughtful consideration in shaping decisions about managing refuges.

**public land -** Land owned by the local, State, or Federal government.

**pyric herbivory -** Herbivory promoted through the use of fire. The fire-grazing interaction is critical in maintaining heterogeneity of grassland ecosystems and that heterogeneity increases biodiversity and maintains system sustainability.

**recharge -** Refers to water entering an underground aquifer through faults, fractures, or direct absorption.

**recommended wilderness -** Areas studied and found suitable for wilderness designation by both the Director (Service) and Secretary (Department of the Interior), and recommended by the President to Congress for inclusion in the National Wilderness System (FWS Manual 610 FW 1.5 [draft]).

**refuge goals -** Descriptive, open-ended, and often broad statements of desired future conditions that convey a purpose but do not define measurable units.

**refuge purposes -** The terms 'purposes of the refuge' and 'purposes of each refuge' mean the purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge subunit (National Wildlife Refuge System Improvement Act of 1997).

**refuge lands -** Lands in which the Service holds full interest in fee title or partial interest like an easement.

**riparian -** Referring to the interface between freshwater habitats and the terrestrial landscape.

**runoff -** Water from rain, melted snow, or agricultural or landscape irrigation that flows over a land surface into a water body.

**species -** The basic category of biological classification intended to designate a single kind of animal or plant. Any variation among the individuals may be regarded as not affecting the essential sameness which distinguishes them from all other organisms.

**species assemblage –** The combination of particular species that occur together in a specific location and have a reasonable opportunity to interact with one another.

**species of concern –** A species not Federal-listed as threatened or endangered, but about which we or our partners are concerned.

**sport rappelling –** Sport rappelling is hiking or walking to the top of or edge of any rock formation or structure and rappelling downward.

**state agencies –** Natural resource agencies of State governments.

**state land –** State-owned public land.

**state-listed species -** A species listed either as endangered, threatened, or a species at risk.

**step-down management plan -** A plan for dealing with specific refuge management subjects, strategies, and schedules, e.g., cropland, wilderness, and fire (FWS Manual 602 FW 1.4).

**stopover habitat -** Habitat where birds rest and feed during migration.

**strategy -** A specific action, tool, technique, or combination of actions, tools, and techniques for meeting unit objectives.

**surface water -** All waters whose surface is naturally exposed to the atmosphere, or wells or other collectors directly influenced by surface water.

**terrestrial -** Living on land.

**territory -** An area over which an animal or group of animals establishes jurisdiction.

**threatened species -** A Federal-listed, protected species that is likely to become an endangered species in all or a significant portion of its range.

**trust resource -** A resource that the government holds in trust for the people through law or administrative act. For example, a Federal trust resource is one for which responsibility is given wholly or in part to the Federal government by law or administrative act. Generally, Federal trust resources are nationally or internationally important no matter where they occur, like endangered species or migratory birds and fish that regularly move across state lines. They also include cultural resources protected by Federal historic preservation laws, and nationally important or threatened habitats, notably wetlands, navigable waters, and public lands like state parks and national wildlife refuges.

**vision statement -** A concise statement of what the unit could achieve in the next 10 to 15 years.

**watershed -** The geographic area within which water drains into a particular river, stream, or body of water. A watershed includes both the land and the body of water into which the land drains.

**wilderness study areas -** Lands and waters identified by inventory as meeting the definition of wilderness and being evaluated for a recommendation they be included in the Wilderness System (see "recommended wilderness"). A wilderness study area must meet these criteria: 1. generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; 2. have outstanding opportunities for solitude or a primitive and unconfined type of recreation; 3. have at least 5,000 contiguous, roadless acres, or sufficient size to make practicable its preservation and use in an unimpaired condition. (FWS Manual 610 FW 1.5 [draft]).

**wilderness –** See "designated wilderness."

**wildfire -** A free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands (FWS Manual 621 FW 1.7).

**wildland fire -** Every wildland fire is either a wildfire or a prescribed fire (FWS Manual 621 FW 1.3).

**wildlife-dependent recreational use -** A use of a national wildlife refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation (National Wildlife Refuge System Administration Act of 1966).

**wildlife management -** Manipulating wildlife populations, either directly by regulating the numbers, ages, and sex ratios harvested, or indirectly by providing favorable habitat conditions and alleviating limiting factors.

## Acronyms and Abbreviations

**ADA** – Americans with Disabilities

**AQRV** – Air Quality Related Value

**ARPA** – Archaeological Resources Protection Act

**ATV** – All-terrain Vehicle

**AUM** – Animal Unit Month

**BCR** – Bird Conservation Region

**BCV** – Black-Capped Vireo

**BMP** – Best Management Practices

**C** – Celsius

**CAA** – Clean Air Act

**CAP** – Contaminant Assessment Process

**CCC** – Civilian Conservation Corps

**CCP** – Comprehensive Conservation Plan

**CFR** – Code of Federal Regulations

**cm** – centimeters

**CMGP** – Central Mixed-Grass Prairie

**$CO_2$** – Carbon Dioxide

**CP/PLR** – Central Plains/Playa Lakes Region

**CSTP** – Crosstimbers and Southern Tallgrass Prairie Ecoregion

**CWCS** – Comprehensive Wildlife Conservation Strategy

**CWD** – Chronic Wasting Disease

**DCP** – Data Collection Platform

**DM** – Departmental Manual

**DOI** – U.S. Department of the Interior

**EA** – Environmental Assessment

**EE** – Environmental Education

**EIS** – Environmental Impact Statement

**EMP** – Environmental Management Plan

**EMS** – Environmental Management System

**EO** – Executive Order

**EPA** – Environmental Protection Agency

**EPTOX** - Extraction Procedure Toxicity

**ES** – Ecological Services

**F** – Fahrenheit

**FACA** – Federal Advisory Committee Act

**FIFRA** – Federal Insecticide, Fungicide, and Rodenticide Act

**FMP** – Fire Management Plan

**FR** – Federal Register

**FONSI** – Finding of No Significant Impact

**FTE** – Full-Time Equivalent

**FY** – Fiscal Year

**GIS** – Geographic Information System

**GPCA** – Grasslands Priority Conservation Area

**GPLCC** – Great Plains Landscape Conservation Cooperative

**GS** – General Schedule (Federal pay series)

**HMP** – Habitat Management Plan

**HVAC** – Heating, Ventilation, and Air Conditioning

**IMPROVE** - Interagency Monitoring of Protected Visual Environments Program

**IPCC** – International Panel on Climate Change

**IPMP** – Integrated Pest Management Plan

**IUCN -** International Union for Conservation of Nature

**km** – kilometer

**lbs** – pounds

**LCC** – Landscape Conservation Cooperative

**LE/O** – Law Enforcement/Officer

**LETRA** – Lake Elmer Thomas Recreational Area

**LPP** – Land Protection Plan

**MBTA** – Migratory Bird Treaty Act

**MDN** – Mercury Deposition Network

**MOA** – Memorandum of Agreement

**MOU -** Memorandum of Understanding

**MRA -** Minimum Requirement Analyses

**NAAQS** – National Ambient Air Quality Standards

**NABCI** – North American Bird Conservation Initiative

**NAWMP** – North American Waterfowl Management Plan

**NEPA** – National Environmental Policy Act

**NHPA -** National Historic Preservation Act

**NOAA** – National Oceanic and Atmospheric Administration

**NPP** – Net Primary Production

**NRCS** – National Resources Conservation Service

**NRHP** – National Register of Historic Places

**NWPS** – National Wilderness Preservation System

**NWR** – National Wildlife Refuge

**NWRS** – National Wildlife Refuge System

**OCS** – Oklahoma Climatological Survey

**ODWC** – Oklahoma Department of Wildlife Conservation

**OKDEQ** – Oklahoma Department of Environmental Quality

**OPJV** – Oaks and Prairies Joint Venture

**PFT** – Permanent Full Time

**PIF** – Partners in Flight

**PLJV** – Playa Lakes Joint Venture

**PPE** – Personal Protective Equipment

**PPP** – Preliminary Project Proposal

**PUP** – Pesticide Use Proposal

**PVC -** Polyvinyl chloride

**RNA** – Research Natural Area

**RONS** – Refuge Operations Needs System

**RV** – Recreational Vehicle

**SAMMS** – Service Asset Maintenance Management System

**Service** – U.S. Fish and Wildlife Service

**SCA** – Student Conservation Association

**SCEP** – Student Career Experience Program

**SEER -** Seasonal Energy Efficiency Ratio

**SHC** – Strategic Habitat Conservation

**SHPO** – State Historic Preservation Office

**STEP** – Student Temporary Employment Program

**SUA** – Special Use Area

**SUP** – Special Use Permit

**TNC** – The Nature Conservancy

**USDA** – U.S. Department of Agriculture

**USGS** – U.S. Geological Survey

**USFWS** – U.S. Fish and Wildlife Service

**WHEP** – Wildlife Habitat Education Program

**WMCC** – Wichita Mountains Climbers Coalition

**WPA** – Works Progress Administration

**WRIA** –Water Resource Inventory and Assessment

**WSA** – Wilderness Study Area

**WSP** - Wilderness Stewardship Plan

**YCC** – Youth Conservation Corps

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## Wichita Mountains Wildlife Refuge Staff

| Staff Member | Title |
|---|---|
| Tony Booth | Refuge Manager |
| Jeff Rupert | Former Refuge Manager |
| Ralph Bryant | Deputy Refuge Manager |
| Walter Munsterman | Supervisory Biologist |
| Ralph Godfrey | Regional Fire Ecologist/ Former Fire Management Officer |
| Susan Howell | Visitor Services Specialist |
| Chip Kimball | Former Biologist |
| Vicki Swier | Former Assistant Refuge Manager |
| Jeremy Dixon | Biologist |
| Bruce Booth | Former Facilities Manager |
| Kelly Moran | Law Enforcement Officer |
| Scott Johnson | Assistant Refuge Manager |

## Southwest Region Staff

| Staff Member | Title |
|---|---|
| Jose Viramontes | Chief of Planning |
| Roxanne Turley | Natural Resource Planner |
| Monica Kimbrough | Former Assistant Natural Resource Planner |
| Katie Boyer | Former Natural Resource Planner Intern |
| Sarah Ledford | Former GIS Intern |
| Rob Campellone | Former Chief of Planning |
| Carol Torrez | NEPA Coordinator |
| Ken Garrahan | Chief of Visitor Services |
| Art Needleman | Visual Information Specialist |
| Peter Burck | Water Resources Specialist |

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# L. Wichita Mountains Wildlife Refuge Response to Comments

This appendix identifies public comments received on the Wichita Mountains Wildlife Refuge Draft Comprehensive Conservation Plan (Draft Plan) and Environmental Assessment (EA) and the U.S. Fish and Wildlife Service's response to those comments.

The Notice of Availability for the Draft Plan/EA was published in the Federal Register on August 9, 2012 (Volume 77, Number 154, pp. 47657-47660). The public comment period was open for 30 days and closed on September 10, 2012. The Service received 86 total responses that included letters, emails, phone calls, and comment forms submitted during the public meetings. All responses were analyzed using a process called content analysis. Content analysis organizes and groups comments made during the public comment period to reflect different resource issues. A number of issues were identified in the public's response to the Draft Plan/EA. Respondents were self-selected (i.e., they voluntarily provided comments); therefore their comments do not necessarily represent the sentiments of the public as a whole.

### Geographic Representation

Geographic representation was tracked for each respondent (Table 1).

Table 1. Geographic Representation of Response by State

| State | Number of Respondents |
|---|---|
| Oklahoma | 52 |
| Texas | 5 |
| Unspecified | 21 |
| Colorado | 3 |
| Arizona | 1 |
| Missouri | 1 |
| Illinois | 1 |
| New Hampshire | 1 |
| Washington D.C | 1 |
| **Total** | **86** |

### Organization Affiliation

Responses were received from various organizations and unaffiliated individuals. Organization types were tracked for each letter and email received. Organization Types, and the number of respondents in each category, are identified in Table 2.

Table 2. Number of Responses by Organizational Affiliation

| Organization Type | Number of Respondents |
|---|---|
| General Public | 63 |

| | |
|---|---|
| Federal Agency | 4 |
| Local Government (City/County) | 6 |
| University/Education Institution | 4 |
| Preservation / Conservation Organization | 1 |
| Recreation Organization | 5 |
| Tribe | 3 |
| **Total** | **86** |

**Response to Public Comments**

The Service's response to public comments is shown in the following table. Some of the Service's response to public comments did not warrant changes to the CCP while others did. The comment portion of this table may contain a summarized and/or clarified version of the actual comment submitted. All comments are on file in the Wichita Mountains Wildlife Refuge CCP Administrative File located in the Southwest Regional Office.

## Ecoregion

### Climate Change

**Comment:**
While Defenders of Wildlife is not able to submit detailed comments on the draft CCP, we would like the Refuge to refer to criteria developed for evaluating how well climate change is incorporated into CCPs. The Defenders of Wildlife fact sheet "Climate Change and National Wildlife Refuge Planning" provides the criteria we used to ensure that climate change is comprehensively considered and addressed.

**Response:**

The USFWS recognizes the serious threats of potential impacts of climate change on our natural resources. The Refuge integrated climate change throughout the CCP which addresses most, if not all, of the criteria developed by the Defenders of Wildlife. For more information please refer to the following sections of the CCP:

Chapter 1, Section 1.3.3.1 Climate Change

Chapter 1, Section 1.3.3.2 National Plans and Initiatives

Chapter 3, Section 3.3.1.5 Estimated Future Habitat Conditions due to Climate Change

Chapter 3, Section 3.3.2.9 Concerns Regarding Wildlife Populations

Chapter 4, Section 4.2.1 Objective 1: Climate Change

Chapter 5, Section 5.8 Monitoring Plan for CCP Implementation

## Habitat

### Grazing

**Comment:**
Ban all grazing. National taxpayers who own this land want to get the grazing off the land. The rates paid to use the land by cattle ranchers are nonexistent and amount to nothing to help our treasury. In addition, the cattle destroy the land and no wildlife can use this land.

**Response:**
Grazing is necessary to manage wildlife and habitat on the Refuge. It is currently accomplished by free-ranging herds of bison, elk, and longhorns on Refuge lands within the exterior boundary fence. We permit private landowners to graze 5 small tracts of Refuge lands that are outside of the Refuge boundary fence. In the CCP (Chapter 4, Section 4.3.1; Chapter 5, Section 5.5.2.2), we proposed moving the Refuge boundary fence to the true Refuge boundary, which will allow us to graze all Refuge lands with free-ranging herds of bison, elk and longhorn, and eliminate private cattle grazing.

## Non-Native Fauna

**Comment:**
Wild hog populations should be eliminated.

**Comment:**
On my last few visits to the Refuge I have both seen wild hogs and also seen the signs of their presence. I have observed this in several locations within the Charons Gardens area. This was a large concern because of the safety issues related to this animal and also the damage they were causing to this area of the Refuge.

**Comment:**
Consider hog hunts. Biologists almost never win the battle against invasive species, but sport hunters might succeed by virtue of their greater numbers.

**Response:**
We recognize the problems with feral hog populations and agree with that they need to be eliminated. The CCP does address this concern (Chapter 3 Section 3.3.2.9; Chapter 4, Section 4.3.1; and Chapter 5, Section 5.5.2.2). The Refuge is actively working to try to eliminate its feral hog populations, but this effort will be ongoing due to their high reproductive rates and perpetual immigration from populations outside the Refuge. However, the proposed action does not provide for sport hunt for feral hogs. Hog hunting by the public has been shown ineffective at reducing populations. We recognize the potential safety concerns with feral hogs, but so far we have no record of feral hog attacks on people on the Refuge.

**Comment:**
It is recommended that aggressive preventative steps be taken to preclude or limit exposure of waters on the Refuge to the introduction of the destructive and expensive to control zebra mussel. This invasive species is especially destructive to public water supplies and associated water management infrastructure.

**Response:**
We agree and are very concerned about the risk for zebra mussel infestations. Chapter 4, Section 4.3.1, Objective 9 (Non-Native Fauna) and Chapter 5, Section 5.5.1.1 and Section 5.5.2.1 of the CCP includes strategies to reduce risks of such infestations. They include continued monitoring for zebra mussels, coordination with ODWC on specific actions to prevent infestations, and consideration for adding boat washing stations at the boat ramps on Lake Elmer Thomas where the highest potential for zebra mussel infestations exists. The Refuge will also place interpretive signs about the danger of accidental zebra mussel introduction at lake access points.

## Hunting - General

**Comment:**
I want to take a second and say that I feel that elk and deer hunting is wonderful to help cultivate the herds and manage it into something great I'm an Oklahoma native and always stand and support any wildlife management in any wildlife refuge in this great state.

**Comment:**
I am glad to see that the Wichita Mountains Wildlife Refuge will keep Elk and Deer hunting as the way to control the herds. My hunt was a life time experience.

**Comment:**
I'm writing to send my support for keeping elk and deer hunting as core values of this national wildlife refuge.

**Comment:**
I Support Keeping Elk and Deer Hunting as Core Values of this National Wildlife Refuge.

**Comment:**
Hunting is very important to the land and the animals living there. In 1972 while going to college, I did a paper on the impact of hunting and presented this paper in a speech class. I was surprised on how little many people know about the value of hunters in our environment. As I'm sure you know that we now have more large game than ever. Without hunters to help in population control and wildlife habitat, what would the quantity and quality of the wildlife look like in the future? Whatever you do in your plan for the future of the Refuge help keep traditions of hunting alive in the USA.

**Comment:**
I am proud to say I shot my first ever big game there. Thank you, it makes it possible for young hunters to hunt without having to go out of state.

**Comment:**
Appreciate your support in keeping elk and deer hunting as core values of the Wichita Mountains Wildlife Refuge. It is only through the continued support that our children and grandchildren will be able to experience and know what our grandfathers and great grandfathers enjoyed.

**Comment:**
I and all my friends are in support of keeping elk and deer hunting as core values of this national wildlife refuge.

**Comment:**
Hunters have to replace the original predators that held populations in control. Without thinning herds periodically, the animals are subject to tics and all manner of disease, including over grazing of foods. Please do what is possible to protect the hunting of Wildlife.

**Comment:**
Controlled hunting is the best way to manage the elk and deer herds in the Refuge.

**Comment:**
Just to let you know that I support the plan for Wichita Mountains Wildlife Refuge Recommends for Elk and Deer Hunting in Oklahoma. Although I may not be able to participate in the hunting, I realize that hunters are the reason we have such abundance in wildlife resources in America.

WE support the regulation of game by hunting rather than allowing overpopulation and disease to encroach into herds that can completely devastate them.

**Comment:**

I strongly support of keeping elk and deer hunting as core values of this national wildlife refuge. Thank you for including it in the excellent plan. It is valuable as population management, cost effective, and provides a unique outdoor experience of a traditional American heritage. I have participated in hunts on the Wichita Mountains Wildlife refuge, and they are among the highest-quality outdoor experiences of my life. One fall deer hunt in the Hollis Canyon area was particularly memorable, as the trees were vivid yellow with fall color and the weather was perfect to showcase the natural beauty. This was the only time I saw this striking beautiful canyon, as it is in the part closed except for the brief fall hunts. A cow elk with her calf lived in the canyon, and I got to watch them for many hours. The whitetail deer there were obviously overpopulated, and I culled an old whitetail doe on the last day of the hunt. I didn't want to cut short my time in Hollis canyon!

**Comment:**

I would like to encourage you in the continuation of both the elk and deer hunts for controlling the population of the respective populations.

**Comment:**

Please continue to keep the Wichita Mountains Wildlife Refuge open to elk and deer hunting.

**Comment:**

Just writing to show my support for continued hunting of deer & elk in the areas mentioned above.

**Response:**

We agree that hunts are valuable economic tools for managing the Refuge’s elk and deer populations, and they provide the public a unique and high quality recreational opportunity. Hunting is identified by the 1997 Refuge System Improvement Act as a priority wildlife-dependent recreational use of national wildlife refuges and is needed as a population management tool. It is imperative for the Refuge to manage elk and deer populations to maintain habitat. The Refuge strives to provide a high quality hunting experience through a partnership with the Oklahoma Department of Wildlife Conservation (ODWC).

## Hunting - Limits

**Comment:**

Purposely growing deer and elk to make money off selling licenses for their dead bodies by gun wackos is a venal, vicious endeavor that the national taxpayers do not support. We want hunters off this land. This is 2012 not 1860. The wounding is 50%when you let these psycho gun wackos out on national land. In addition, you encourage venal, vicious psychotic gun wackos used to killing when you encourage hunting. This encouragement of violence leads to the horrific slaughters happening out west. Hunting is not compatible with any other use of this site so it should be shut down. The plan you have written is not a good one and needs to be changed.

**Response:**

Hunting is identified by the 1997 Refuge System Improvement Act as a priority wildlife-dependent recreational use of national wildlife refuges and is needed as a management tool for

some Refuge wildlife populations such as deer and elk. Wounding rates are very low on the Refuge and are far less than 50%.

**Comment:**

My last visit was in October 2010 and I noticed a lack of wildlife roaming as they did back in my youth—I am now 60 years old. I asked my friend that always goes to the refuge to fish, "where are the Buffalo, Longhorn, Elk & Deer that once roamed all over this area" because of the abundance of TALL buffalo grass that never used to get 4' to 5' tall because there were enough animals to keep it shorter and he said that the management has cut down the amount of animals drastically. I would tend to believe that since my last visits were very disappointing as far as the viewing of any wildlife. I used to see herds of the aforementioned wildlife roaming all over the open areas—so my question is-- what happened to them? If I were a tourist wanting to visit this refuge because of the advertisements about this area and see these animals in the wild, I would be VERY disappointed. As far as keeping this refuge open to managed hunting to keep the population controlled, I'm in agreement only as long as there IS a real population explosion for which I don't agree is the issue due to the lack of wildlife viewing on my last 5 visits. I know ALL the areas within this refuge that they congregate and they were not there.

**Response:**

The Refuge has seen a two year drought and has weathered some massive wildfires in that time. Due to these occurrences the Refuge has observed some changes in feeding patterns. The Refuge incorporates population counts annually and populations have been mostly steady. Any changes in deer and elk may have been due to natural disturbances including an ice storm in late 2010 and drought, heat stress, and fires in 2011-2012. Bison and longhorn numbers will always fluctuate based on available forage. Excess bison and longhorn got to public auction. Hunting is still a necessary management tool because it allows the Refuge to maintain the health of elk and deer herds according to the Refuge's carrying capacity.

## Fisheries

**Comment:**

Place grass carp in ponds because they are being overrun from algae.

**Response:**

Most Refuge lakes do have grass carp. The Refuge will consider adding more in the IPMP.

## Riparian Areas

**Comment:**

EPA recommends that best engineering/management practices be implemented during and post construction of the proposed fish passage on West Cache Creek to prevent significant adverse deterioration of water quality, and to a lesser degree turbidity of the water in the creek which could impact fisheries. This potential problem should be temporary and cease completely upon completion of construction activities associated with building the structure. If the project will impact jurisdictional waters, an Individual Construction Permit must be obtained from the U.S. Army Corps of Engineers prior to the initiation of construction activities.

**Response:**

The Refuge agrees and will follow EPA's recommendations and required procedures for construction.

## Fire Management

**Comment:**
Burning 20-25% of the Refuge each year is questionable.

**Response:**
Prescribed fire is an important habitat management tool for the Refuge. The Refuge historically burned on average every 4-5 years, therefore the current management is to try to simulate natural burn frequencies. See Chapter 3, Section 3.2.5.1 or the Refuge's Fire Management Plan for more information.

**Comment:**
Contractors and/or the Refuge should be held accountable when their negligence causes millions of dollars worth of damage outside the refuge due to burning. No one in my community has been compensated for extreme losses that occurred from the Ferguson Fire in 2011.

**Response:**
The Refuge understands that one claim has been filed with the U.S. Fish and Wildlife Service pursuant to the Federal Tort Claims Act. That claim is being adjudicated in the U.S. District Court for the Western District of Oklahoma. Inasmuch as this matter is currently in litigation, the USFWS cannot comment.

## Special Use Area

**Comment:**
Consider opening the special use area to some public uses, such as hiking. It would be great if the public could have access to the special use area "more than just once a year on a tour."

**Comment:**
This area should be open to the public even if it is only open by permit. There are plenty of people who have the required skills and fitness to hike and explore this area, and it should not be limited to the privileged few. Wildlife, to include the black-capped vireo, thrives in areas frequented by people. So I think access to this area would be compatible.

**Comment:**
Rather than pave new areas of the Refuge for bikers, consider opening the Burma Road and perhaps some areas of the Special Use area. These areas are already impacted, cyclists would love them, and in this era of reduced spending the government could save some money.

**Response:**
In order to open the Special Use Area to more use the Refuge would have to improve or develop more facilities in that area such as roads, parking lots, bathrooms, etc. Building and maintaining these facilities would take resources the Refuge might otherwise use to manage habitat, wildlife, and public use opportunities in the Public Use Area on the Refuge. The Refuge will move forward with the Proposed Action of designating the Special Use Area as a Research Natural Area. This designation will ensure that the Refuge manages this area to maintain natural conditions as much as possible. To most effectively manage these conditions the Refuge will maintain restrictions on public uses in the area. Most of the Refuge System has areas that are closed to public use that act as a sanctuary for wildlife and habitat. We will continue to manage 24,088 acres of the Refuge as a Public Use Area which will remain open to a wide array of public uses.

# Wildlife

## Bison

**Comment:**

Increasing buffalo herd to 1,000 is extreme. Refuge is in worst condition than I have seen it in my 74 years. We are and have been in drought but in a good year the refuge grass will be grazed extensively.

**Response:**

The Refuge agrees that under current drought conditions this increase in the bison herd is not practical. The Refuge developed the CCP (beginning in 2009) with some assumptions about conditions for this increase. The Refuge will not expand the bison herd unless conditions change and we are able to decrease or eliminate the longhorn herd. These changes will be further evaluated in the Refuge's forthcoming Habitat Management Plan.

**Comment:**

Consider "lottery hunts" for bison. You are getting a relatively small amount of money for a relatively large amount of work when you auction these animals. Hunt lotteries for big game species have generated some impressive revenue in other areas.

**Response:**

Bison are managed for genetic diversity. Under this type of management, all bison are DNA tested as calves to establish a genetic data base for each individual. Most of the excess animals from the Refuge will be in the one- to two-year old category to reduce genetic drift as much as possible. The Refuge has many rare genes found only in WMWR bison. The Refuge would be forced to mark the animals acceptable to hunt that would otherwise be sold, or risk losing these genes forever. In addition, the Refuge bison are largely habituated to human activities. Therefore, a bison hunt would not be a quality sport hunting opportunity.

**Comment:**

EPA is not opposed to the sustainable increase, sale, or harvest of animal populations at target levels to allow for adequate protection of both the species and their habitat.

**Response:**

Thank you for your interest, comment, and support.

## Longhorn

**Comment:**

Hopefully the longhorn herd will not be reduced by a great number.

**Comment:**

One of the most interesting things for us to see out there is the Longhorn herd. I am also an amateur photographer, and they make spectacular, colorful subjects. I also know that many people do not have opportunities to see that unique breed, especially not in a large number. Nobody knows better than me about there not being enough forage available in this area right now to support our livestock, but I do NOT think it would be smart to dispose of these animals completely off of the WMWR range. People enjoy seeing them & there is a lot of history connected to that herd. Oklahoma's history is especially involved, as not far down the road is the Chisholm Trail. Thinning the herd is something I too am faced with right now with the extreme drought (2 yrs in a row) here in this area. So cull heavy & keep the best, but keep a herd. I know

that the longhorns are mostly on Ft Sill right now but Ft Sill SHOULD be offering some of their land for grazing, as they too (as well as the contractor from the bike trail construction) have started several of the WMWR fires. It's the least they can do.

**Response:**

The Refuge is congressionally mandated to maintain a herd of longhorn on the Refuge. Most of the Refuge's longhorn herd has been maintained on Fort Sill over the past year due to the effect of fires and drought conditions on Refuge habitat. The Refuge manages the herd through an annual auction. Any further reductions will be considered and evaluated in a Habitat Management Plan.

**Comment:**

The longhorns should be treated as an invasive species and eliminated from the Refuge. They are unsightly and eat food that should go to the bison and other grazers. This is especially apparent now that some of the longhorns are relocated temporarily to Fort Sill.

**Comment:**

Although I understand the cultural significance of longhorn, they are not wildlife and they are currently found on enough ranches throughout the West that I believe their numbers could be reduced or eliminated from the Refuge. Bison numbers could in turn be raised. If you want to keep a small bison (*sic*) herd, perhaps it would be appropriate to corral them in the area where the public once went to look at corralled elk- filling that odd desire of the public to see caged animals but also promoting bison over cattle on the Refuge.

**Response:**

The Refuge is congressionally mandated to maintain a herd of longhorn on the Refuge. This CCP addressed longhorn as a non-native species and discussed lowering or eliminating their population in order to increase the bison herd in the proposed action. This will be further considered and evaluated in a Habitat Management Plan.

**Comment:**

EPA is not opposed to the sustainable increase, sale, or harvest of animal populations at target levels to allow for adequate protection of both the species and their habitat.

**Response:**

Thank you for your interest, comment, and support.

## Elk

**Comment:**

Consider creating elk gates to allow some of these animals to leave the Refuge. Much of the surrounding area could also support a healthy elk population, particularly with the Refuge as a "seed" population, and I suspect the landowners and sportsmen of OK would welcome the increased herd size and access.

**Response:**

Elk and deer are able to negotiate the Refuge boundary fence in some areas. Sometimes there are fence maintenance issues the Refuge might not know about immediately as well. The Refuge was the seed population for the area and there is a well-established population outside of the Refuge now.

## Wolves

**Comment:**

Any introduction of wolves is strongly opposed. This would be another example of your lack of concerns to the landowners of this area.

**Response:**

The Refuge considered the introduction of wolves because the public involvement scoping period brought this concern to the planning team. The Refuge simply explored the idea, found that it was not feasible for many reasons (including the concern by surrounding landowners), and did not incorporate it as a proposed action.

## Northern Bobwhite (Quail)

**Comment:**

Biological research at the largely undisturbed habitat in the refuge could be invaluable in helping to determine what that level of decline is and whether quail are a threatened or an endangered species. Include biological research into the health of the Refuge's quail population as part of the CCP's commitment to conservation of wildlife and ecosystem protection. This research could be a collaborative approach with efforts already underway at OSU and could partner with biologists on Fort Sill to share resources. The advantage of having the Refuge involved in biological studies on what seems to be a disappearing species is that there is over 59,000 acres of crosstimber and mixed-grass prairie habitat there where the endogenous quail populations has thrived for hundreds of years that should be unaffected by agriculture practices, development, and the use of insecticides and herbicides. That habitat could serve as a biological control if those are the factors threatening quail survival and a lab to look at other factors that might.

**Comment:**

I have been an avid quail hunter for most of my life and like all quail hunters have witnesses the long term decline of the bobwhite quail population throughout the southern U.S. This brings me to the main point of my comments with regard to the CCP and EA document. It would be most encouraging to see as a component to the plan a full bodied comprehensive quail research program to be conducted on the Refuge. This could possibly be done in conjunction with Ft sill wildlife biologists and also the Oklahoma Department of Wildlife Conservation. I am also aware of the fact that Oklahoma State University and Texas Tech University are conduction ongoing research programs as well. I have quail hunted extensively in Oklahoma and I own a small ranch in the southwest part of Jackson County Oklahoma. Throughout the 1970s and the fist several years of the 1980s it was not uncommon to see 25 to 30 coveys of quail on the ranch during a days hunt. Since the mid-80s however it has been a different story. True enough, we have had some good years since then but not many. The habitat is the same and the only cultivation is for wildlife food plots and chemicals have been used very sparingly. This same decline trend has been consistent for the places we hunt in Comanche, Cotton, Tillman, Kiowa, and Greer Counties and also in TX. We did have a fairly good hatch this spring and summer in spite of the heat and drought so that is encouraging and we are hopeful the "new hatch" coveys survive the fall shuffle.

**Comment:**

The refuge appears to be an excellent site to study native quail populations and the factors that affect their survival. Perhaps we can discover the cause of the catastrophic decline in our quail

population.

**Response:**

Northern bobwhite (quail) is considered a priority species by the Refuge (Table 3-11 of the CCP). The Refuge intends to manage its focal species (described in Chapter 3, Section 3.3.2.2) which would benefit northern bobwhite. The Refuge will consider proposals for quail research in cooperation with ODWC and other partners.

## Black-Capped Vireo

**Comment:**

It is recommended that aggressive steps be taken to protect the black-capped vireo.

**Response:**

The Refuge agrees and proposed to manage Federal trust species according to or beyond best management practice standards (Chapter 4, Section 4.3.1). So far, management efforts have helped increase populations from less than 50 in 1988 to a current 4,500 nesting pairs.

## Species List

**Comment:**

In Appendix B of the Draft CCP, the taxonomic arrangement of invertebrates should certainly be arranged phylogenetically. Alphabetical arrangements are confusing, particularly to scientific endeavors. We considered only the members of Order Lepidoptera. Some species listed on the CCP should be omitted because they do not appear on Dr. John M. Nelson's 2012 list of species (www.biosurvey.ou.edu/ok_butterfly.html) known for Oklahoma and have never before been reported for the WMWR. These include: Schauss Swallowtail (page B-26 of CCP), Western Tiger Swallowtail (page B-26 of CCP), and White Admiral (page B-23 of the CCP). A few species that have been documented for the WMWR list do not appear on the CCP species list and should be added. These are: Whites and Yellows - Western White, Olympia White, Lyside Sulphur; Crescents and Checkerspots - Variable Checkerspot, Bordered Patch; Typical Brushfoots - Common Mestra, California Sister; Satyrs - Gemmed Satyr; Grass Skippers - Cobweb Skipper, Eufala Skipper; Spreadwing Skippers - Confused Cloudywing, Hoary Edge, Outis Skipper, Common Streaky-Sk. Thank you for considering our modifications. We have jointly conducted the annual WMWR NABA Butterfly Count since its inception in 1992.

**Response:**

The Refuge has revised the species list to include all of the recommended additions from and deleted all of the species that no longer occur on Dr. John M. Nelson's 2012 list of species. The Refuge has also rearranged the species list phylogenetically.

# Public Use

## General Use

**Comment:**

EPA is not opposed to the managed increase in public use through fishing, hunting, boating, bird watching, hiking, and such related activities. Such increases should be prudent to the carrying capacity of the Refuge for each specific activity, and limited or stopped prior to stressing the resources.

**Response:**

We agree and the Refuge has an inherent responsibility to monitor and manage uses to ensure

they are compatible with the purposes of the Refuge and the NWRS mission. The Refuge did not propose increased public use and instead tried to be proactive about managing the inevitable increase.

## Public Information

**Comment:**

At our B&B we get a large amount of people that are here specifically to visit the refuge. The most common complaint or observation over the years have been "poorly marked trails". In addition, a map that shows clearly where the trails are. The Narrows for example is one of our favorites and it isn't marked on any general map. So I have to write on your map to show them exactly where it is located. A specific hiking trail & maybe combination hiking/biking map would be great.

**Comment:**

Another comment is that I have lived here and visited the WMWR for more than 50 years. I still do not know where many things are located, or what I am looking at out there, because there are not many signs or markers. I realize vandalism and theft spoil these things for others, but if you would please mark the trails, put out pointers to a named mountain, to a cave, to a lake/pond, etc it would be quite helpful for me. This could easily be a job for the Friends of the Wichitas to make into a project or maybe the kids at the Treasure Lake Job Corp. It can be as simple as a boulder with a permanent marker/etching or a wooden marker with paint or whatever fits into the landscape. It doesn't have to be fancy or costly. There are no good complete maps out there that I can find on the internet or in a book, including in the brochure leaflet. I usually piece together info from the partial maps, the hiker forums, history off of the internet, etc. Just put up a little sign naming stuff. Say, Heart Rock, Bat Cave, whatever and point.

**Response:**

The Refuge has a couple of versions of trail maps available at the Visitor Center and also online. The Refuge proposed adding and/or improving interpretive and informational signs in the CCP (see Chapter 4, Section 4.4.2). The Refuge will consider additional markers or signs in its updated/revised Sign Plan.

## Bicycling

**Comment:**

Please consider opening Burma Road to mountain biking.

**Comment:**

Rather than pave new areas of the Refuge for bikers, consider opening the Burma Road and perhaps some areas of the Special Use area. These areas are already impacted, cyclists would love them, and in this era of reduced spending the government could save some money.

**Comment:**

Please consider adding an existing fire road under 4.4.2 Public Use Area Management, Objective 6: Bicycling. This existing gravel road had been open to cycling sometime in the past and is similar to the road around the north side of Mt. Scott where mountain biking is currently allowed. This would provide connectivity from HY-115 to Indiahoma road and also to the Dog Run Hollow/Boulder Camp area. The attached file shows the fire road areas in green. This would provide approximately 9.5 miles of currently disturbed surface along the south boundary of the refuge for mountain biking. Also, the City of Lawton currently has mountain biking trails on the

west side of Lake Lawtonka. These trails run near the Mt. Scott mountain bike trail but are separated by the refuge boundary fence. Connection of these two trail systems somewhere NE of Mt. Scott with a cattle guard/gate of some sort would provide a looped system for mountain biking as well as provide emergency vehicle access to the wooded area along the west side of Lake Lawtonka.

**Response:**

The Refuge did consider reopening the Burma Road to bicyclists. Mountain biking on the Burma Road, if kept on the road, would have few impacts on habitat conditions over and above the public foot travel and administrative vehicle use of the road. However, past experience with allowing mountain bikes in this location reveals that riders frequently leave the road and travel cross-country due to the enticing terrain and side trails, which results in soil compaction, vegetation damage, rutting, and erosion. It also impacts the quality of experience for other users who visit the Refuge to observe or enjoy the natural resources. Mountain biking is not considered a primary recreational use of the Refuge; it is only a secondary use that is allowed if we determine it to be appropriate, if we can manage it to be compatible with Refuge purposes and the Refuge System mission, and if it contributes to the primary wildlife-dependent uses. The Refuge already provides significant bicycling opportunities on the Refuge, including all paved roads and the 6-mile long Mt. Scott service road, and we are proposing some additional bicycling opportunities (see Chapter 4, Section 4.4.2). Therefore, the Refuge did not decide to allow expansion of this activity onto the Burma Road. The City of Lawton has recently expanded their mountain bike trail system which creates an additional opportunity for this use in the general area. The Refuge is also coordinating with the City of Lawton and the Friends of the Trail Bike Group to improve the access and connectivity to the Lawtonka Mountain Bike Trail.

**Comment:**

I heard that there is discussion about expanding bicycle trails at the refuge. I think this would be wonderful not only for the health and wellness of our community but also for the refuge. We are so proud to have the Wildlife Refuge right here and I hope we can continue to help it grow.

**Comment:**

Within the Lawton/Fort Sill region, the Wichita Mountains Wildlife Refuge (WMWR) stands magnificently as our greatest treasure, and also our greatest opportunity to provide the highest quality active outdoor experience. While I understand that the WMWR is first and foremost a sanctuary to save and protect wildlife, over the years refuge management has done an excellent job of designating those “public use” areas from those that are truly wild. With this contact, I would like to express my appreciation for the all work that has been and will continue to be done to preserve the WMWR for future generations. At the same time I would also express my absolute support for expansion of the Fit Kids Fitness Trail Way System and increased development of the on and off road bicycling opportunities within the “public use” areas of the WMWR.

**Comment:**

I support the Fit Kids Fitness Trail Way System at the Wildlife Refuge in the Lawton/Ft. Sill community. This bike path will not only add to our already historical and educational environment, but benefit countless patrons, kids and adults, in the fight against childhood obesity. Can you think of a more inviting atmosphere than a family biking through the Refuge enjoying the beautiful scenery and all the while becoming more healthy? I cannot. I support the

funding for this project and I sincerely hope you give it the consideration it warrants.

**Comment:**

I would like to voice my support for this project to expand the bicycle trails at the Wichita Mountains Wildlife Refuge just north of Lawton, Oklahoma. The unique combination of outdoor activities available at the refuge has made it a magnet for enthusiasts throughout the state. A well-conceived project such as this deserves the time and resources necessary to make it a reality.

**Comment:**

I support the Fit Kids Fitness Trailway System to be included in the future comprehensive conservation plan for exercise and enjoyment.

**Comment:**

Lawton Success By 6/ Smart Start highly supports the expansion of the Fit Kids Fitness Trail Way System (FKFTS) at the Wichita Mountains Wildlife Refuge as part of the "Comprehensive Conservation Plan" that the refuge will use to guide management at the refuge over the next 15 years. This project will create a bicycling opportunity for children and their families to have a healthy, active outdoor experience to not only observe first hand a piece of nature that was set aside in its pristine condition over a century ago for them and future generations, but also that they themselves can develop their own environmental ethic for conservation and preservation.

**Comment:**

I support the Trail Way at the Wichita Mountain Wildlife Refuge. I am a Registered nurse and the Volunteer coordinator for the Spirit of Survival races since its inception. I recognize that many people cannot run long distances but they can ride a bike. This Trail Way would provide many bikers a safe and scenic ride. I know the time and money is great that we are requesting. I believe the Trail Way will bring more bike riders to the area.

**Comment:**

Just a note that the Fit Kids Fitness Trail System at the Wichita Mountains Wildlife Refuge is one of the best projects we've seen for the promotion of health and fitness for the families and kids in southwest Oklahoma. The wildlife refuge is one of the best scenic areas for natural wildlife habitat in the Oklahoma and north Texas. We appreciate the time and effort needed for the support of the Trail Way. The Trail Way combines health and fitness with the opportunity to visit and view a diverse mix of wildlife in a natural setting.

**Comment:**

I live in Lawton Oklahoma – next to the Wichita Mtn Refuge. It is a beautiful refuge. As you probably know, they are working on "Fit Kids, Fitness Trailway System". We need this so badly!!! Biking in the refuge is a wonderful experience, and a great way for our children to enjoy this area. Lawton is a fairly isolated town with not much activity. We are always looking for healthy activities for the kids. Often I see parents trying to bike where there is no trailway - and due to the narrow roads…it is just not safe. Please, please support this idea.

**Comment:**

I support the Fit Kids Fitness Trail Way System (FKFTS), which is proposed for inclusion in the Wichita Mountains Wildlife Refuge. As an avid cyclist, I know first-hand about the benefits of regular exercise, especially cycling and the opportunities afforded by having access to the refuge. This year I have had wonderful opportunity to work directly with 14 young Tri-YMCA athletes

by teaching the Tri-youth on the proper techniques and physical conditioning involved in long distance cycling by volunteering my time as their cycling coach. The Wichita Mountains Wildlife Refuge is always my first choice as the location to introduce new cyclist to the sport. The Wichita Mountains Wildlife Refuge is an ideal place to combine family fitness with awareness of the need to conserve the natural beauty and wildlife protected at the Wichita Mountains Wildlife Refuge. The construction of the FKFTS would not only encourage families to stay healthy and fit but would also promote awareness of the purposes of the refuge and the need for its continued preservation. As a 30-year veteran of education, I can also visualize the educational opportunities that can be incorporated into the FKFTS. Youth activities involving conservation could be integrated into coordinated fitness efforts with local schools, churches, and community groups. Adding the Fit Kids Fitness Trail Way System will enhance the already-strong bonds between the communities and refuge by adding attractive and affordable fitness opportunities and integrated educational opportunities. The FKFTS seems to be a win-win for everyone. I am pleased to support the FKFTS and hope to see the project to fruition. Please give this project every consideration for inclusion in the Comprehensive Conservation Plan for the Refuge.

**Comment:**

Our community would like to extend our appreciation for the Fit Kids Fitness Trail Way System in the refuge. It's a very popular attraction and families in our community ride on the trail regularly. It not only creates a bicycling opportunity for children and their families to have a healthy, active outdoor experience but also allows them to observe first hand a piece of nature that was set aside in its pristine condition over a century ago for them and future generations to enjoy. We would appreciate any future funding that might be available for more trails in the refuge.

**Comment:**

I support expanding the bicycle trail way system in the Wichita Mountains Wildlife Refuge. My family and I go out at least once a month now for hiking, but would use a family friendly bike trail even more.

**Comment:**

As the Director of Parks and Recreation for the City of Lawton, I would like to share my support with other community leaders on the importance of your continued development of expanded bicycle trails in the Wichita Mountain Wildlife Refuge. It is significant to our location as a neighbor to the City of Lawton lake and mountain region here in Southwest Oklahoma and is at the top of our community priorities in importance. It makes our region a special place as a bicycling, mountain bicycling and trail hiking community. The community leaders of Lawton and Southwest Oklahoma are starting to pedal in the same direction towards a healthy, safe and connected community. With that being said, it now brings me to the reason of submitting this letter to your office. Your continued support in funding projects established on the mission of developing trails and bikeways is providing a greater quality of life to our citizens and our state. The tourist value that is promoted with your continued support is also much appreciated.

**Comment:**

I support the Wichita Mountains Wildlife Refuge and their efforts to provide additional bicycle trails through the Refuge. The Refuge is a gem in our community's backyard, and we are so thankful for the beautiful landscape and valuable resources the Refuge provides. As our community continues to focus collectively and collaboratively to improve health and fitness, the

Refuge becomes even more important to our community's well-being. The Refuge offers a number of recreational opportunities, and offering bicycle trailways throughout the Refuge will serve to connect these resources. On campus, we have set a goal to improve the health of our campus during our second century of changing lives through education. We are pleased to have the opportunity to partner with the Refuge in this effort, offering students, faculty and staff opportunities to engage in healthy physical activity while enjoying the beauty of nature.

**Comment:**

I am looking forward to the trail ways for bicycling being completed and here is why... As a mother, bicycling with my son is one of our favorite activities and so to have the opportunity to stay on a trail that is safe, convenient (close to home) with beautiful views of the Wichita Mountains Wildlife Refuge, this is exciting for us. We cannot wait to take advantage of this opportunity. As a member of the Lawton community, there has been a lot of talk on bringing in new business into the Lawton area. I feel this trail way will help us create a city that people WANT to move to. Companies aren't just looking for a plot of land to build a building they want to make sure their people are happy in the town they will live nearby too if not in. They want to make sure this is a town with commerce, and RECREATION and housing availability so their employees whether they are transferred or come from nearby stay in our southwest area. Adding bike trails is just one more way we can say look at us we are great place to live…We have a small town feel with, plenty of shopping choices, we have great Recreation areas including biking trails, and hiking trails through the nearby Wichita Mountains Refuge, we have reasonable home prices, etc. etc. As a member of the PTA, and a boy scout mom what a great opportunity for the schools and community groups to use these trail ways to teach the kids about plants, and wildlife, conservation and community service. My brother (a member of the Sierra Club) often talks about his club going through the trail ways in Chattanooga, TN to clear paths (clipping plants that may grow onto the path) and fix areas that may be deteriorating etc. I wonder if we could get some of our local groups to help in that same manner, when the time comes. United Way has a day of caring every year, maybe if you needed to you could sign up to be a project; local companies volunteer to come out and could help to maintain the paths. I think clubs would really like to participate and feel like they are doing some real good and making a difference in the world we live in. As a woman, who wants to look good but I would say doesn't get much exercise...this is a great opportunity for me. I'm not much for aerobics, but walking and riding a bike that I can do. I'm happy to exercise so long as it is easy and riding a bike is right in line with my capabilities. Having a place in a beautiful area to do that is just one more advantage to me.

**Comment:**

If the refuge would include the expansion of the cycling trail, trail maps, and bicycle rentals everyone could take on a new healthy adventure every time they come down to visit. I am in favor of expansion of the Fit Kids Fitness Trail Way System at the Wichita Mountains Wildlife Refuge. I myself go out to the mountain wildlife refuge occasionally on the weekends and run/walk on the current bike trail and it is absolutely wonderful not to have to worry about vehicles and enjoy the beautiful scenery. I think it would be an awesome idea to have a central location where visitors could pick up a map or view online all the different trails (dirt/paved) that currently exist with hopes of new ones to come. Signage designating each trail with proper mileage would be a great feature as well. I have always wanted to get into cycling so hopefully with the expansion and more opportunities to rent bikes my husband and I can make a weekend

of fitness and fun. Plus, with the expansion it would help reduce automobile travel in the refuge area which would help with environmental factors, keep the structure of the streets, all while encouraging physical activity. I help support and approve the efforts to seek funding and wisely utilize resources for the continued development of this existing trail. I look forward to the development of more miles of useable trail and look forward to someday joining our trail to other trails in adjacent counties/communities where they can be enjoyed by walkers, runners, bikers, and equestrians.

**Comment:**

Please accept my email correspondence as my show of support for the expansion of the Fit Kids Fitness Trail Way System at the Wichita Mountains Wildlife Refuge. Projects like this one are of particular interest to the United Way of Lawton-Fort Sill as we fund many agencies whose missions are centered around healthy families and communities. Some of these agencies include the Boy Scouts, Girl Scouts, and the YMCA. This project will allow families in Southwest Oklahoma an opportunity to enjoy our natural environment while enjoying a healthy activity. I do hope this project comes to fruition and we can all begin to enjoy the benefits it will offer.

**Comment:**

I am writing in support of the Fit Kids Fitness Trail Way System expansion planned for the Wichita Mountains Wildlife Refuge. As you complete the refuge's Comprehensive Conservation Plan, I hope you are able to build out the Fitness Trail Way throughout the refuge. We are extremely proud and appreciative of the current trail way. Expansion that will allow for our kids to gain greater exposure to outside activities will be significant as we continue to address our childhood obesity epidemic in our community, state and region. We are excited about the prospects of greater cycling opportunities at the refuge. An expanded Trail Way System will certainly increase participation and awareness. The idea of bike rental kiosks/businesses is an intriguing one. Imagine the children whose parents can't afford to purchase a bike being able to ride a bike throughout the Wichita Mountains. Not only will they gain the experience of witnessing the beautiful scenery and wildlife, but it will also get them away from the video game or computer for awhile and burn calories at the same time. Again, thank you for the wonderful Trail Way System that you have in place, and forgive my greediness in requesting you consider expanding this terrific program even farther.

**Comment:**

It is my pleasure to write a letter in support of the expansion of the Fit Kids Fitness Trail Way System (FKFTS) at the Wichita Mountains Wildlife Refuge in Southwest Oklahoma. Our museum has worked closely with Fit Kids of Southwest Oklahoma so I am very familiar with the organization's aim of promoting healthy lifestyles among children. The trail ways expansion would provide a better bicycling opportunity for children and their families and benefit many people. I graciously ask the U.S. Fish and Wildlife Service to do all it can to make this expansion a reality.

**Comment:**

Thank you for your fine efforts to support Fit For Kids and other fitness programs. We here in Lawton and the surrounding area, really are pushing the fitness thing for children and adults in Oklahoma, one of the fattest states in the country. Moving and keeping fit will melt the fat, and transform us into a Fit state, rather than a Fat state! As we age, (71 and 68), my husband and I are increasingly looking for ways to propel ourselves and keep fit, and save gas. We are moving

into a smaller home very close to the refuge, and we are looking forward to purchasing two bikes and riding the trails every day. Please keep working to extend our biking trail system and accessibility for all Oklahoma citizens!

**Comment:**

I am writing to express my support for the Fit Kids Fitness Trail Way System (FKFTS). I was born and raised in an active family who frequented the Wichita Mountain Wildlife Refuge on a regular basis. This was not only a fitness activity but a way our busy family found time to be together and a time to learn to appreciate the beauty of nature. It also taught us how important it is to conserve and preserve our land, water and wildlife areas. I have continued to instill these values, the love of nature, activity and conservation, in my children and grandchildren. In today's time, with families busier than ever and the lure of the outdoors not what it once was to children, what a wonderful project the FKFTS is! The Fit Kids Fitness Trail Way System will not only provide an opportunity to continue our traditions of appreciation of our wildlife refuge, it will provide a safe place for our children and ourselves to ride bikes.

**Comment:**

We are very supportive of the WMWR and love taking our youth to the Refuge for teambuilding activities. The work that is being done at the Refuge with lots of support from everyone there, but especially Tony Booth, is sincerely appreciated. We believe this work is making a difference in the overall wellness of our communities. As a parent I want to express my appreciation for all the work that is going on at the WMWR. My family and I love nothing more than being on the Refuge, whether it is picnicking, hiking the trails, biking around the Refuge or just sitting on top of Mount Scott, basking in the scenery. We appreciate and support all of the work that is going on there, including the expansion of the Fit Kids Fitness Trail Way System. We hope great things like this continue to happen at our WMWR.

**Comment:**

The community impact of the expansion of the Fit Kids Fitness Trail Way System at the Wichita Mountains Wildlife Refuge is significant. Inclusion of walking trails and pedestrian/bicycle facilities in the Wichita Mountains Wildlife Comprehensive Conservation Plan provides a safe opportunity for children and adults to be active outdoors. While providing opportunities for a safe and active environment the trail system also provides a non-motorized transportation link between communities.

**Comment:**

My family and I live in Medicine Park, just outside the Wichita Mountain Wildlife Refuge. We would LOVE to have a bicycle trail in the refuge. I grew up in Colorado, where family friendly bike trails abound. Unfortunately, we have found no trails that are safe for our children to ride on here. Recently, the shoulder of the main road through the refuge has been widened, and since then we have seen a definite increase in the amount of bike riders (all adults, of course!) riding through the refuge. Our family spends a lot of time hiking in the refuge and would also spend a lot of time biking there too, if there were safe trails for children. Thank you for you help in making such a project possible.

**Comment:**

The expansion efforts for the bicycle trails are greatly appreciated. We have a permanent party population of soldiers and families of approximately 30,000 annually, which does not include our families that visit. Our soldiers and families are not only bicyclists that are avid outdoor

adventurous and they appreciate the beauty of the Refuge. At LETRA I have a project planned to build three dedicated bike trails, which is based on the validated assessment we have made of customer needs. I plan to install trails that support a Rookie League, Minor League, and Major League type of competition for our bike enthusiast. The Rookie League course would be more challenging and geared toward the advanced rider. The Major League/competition course would be developed to host our annual "Mountains of Mayhem" race and provide a dedicated course for participation by our most advanced bikers. The trails I am looking at will provide opportunities for additional bike rallies and events, beyond the Hills of Mayhem, as well as a great opportunity to explore biking for the "everyday" and/or inexperienced biker. I am looking at an investment of LETRA at $100K. All of these trails, as well as expanding the Refuge bike trails, will not only address deficiencies but expand opportunities for outdoor recreation, and help generate revenue and foot traffic for all outdoor recreation programs in the area, which include LETRA, Wichita Wildlife, Medicine Park, Lawton. Providing quality bike trails is not only an enhancement to quality of life, it will prove a growth in economic development. Based on my current occupancy rate of LETRA which is 95% for the summer months, 70% for spring/fall, and 33% for the winter months, I see a positive rate of return financially for my business programs at LETRA of 7.14%. Thanks for your support, and I look forward to seeing positive results in the future as a direct result of your efforts.

**Response:**

The Refuge proposed allow bicycling opportunities using existing developments and disturbed areas, improving road shoulders, and improving the connectivity of existing routes including working on the connections between the Refuge and LETRA (see Chapter 4, Section 4.4.2 for more information). Fort Sill and the City of Lawton are proposing adding some new bicycle trails which will provide some additional local options for this activity. The Fit Kids trail network is much broader than the Refuge. While the Refuge is proposing to make some improvements and additions to its current trail system, the majority of this Fit Kids network will remain outside of the Refuge. Beyond those improvements the Refuge has not proposed adding any more new bicycle trails.

The Refuge does have a couple of versions of trail maps available at the Visitor Center and also online. The Refuge has proposed adding interpretive and informational signs in the CCP. The Refuge will be updating/revising its Sign Plan where additional markers or signs will be considered.

The Refuge does not allow horses on the Refuge due to the risk of the spread of disease to Refuge wildlife and the spread of invasive flora.

Any Refuge facility or improvement proposed in the CCP is contingent upon available funding and contracting requirements.

## Horseback Riding

**Comment:**

Why not put in a couple riding trails. People would need a permit like Sandy Sanders, but I know a lot of people who'd ride up there.

**Response:**

The Refuge did consider allowing horseback riding on the Refuge, whereby the public would be

allowed to bring their horses to the Refuge. This alternative was not considered further because the Refuge makes diligent efforts to avoid, to the extent possible, wildlife disease transmission on the Refuge through vaccination, monitoring, and testing of horses, bison, and longhorn. Allowing the public to bring horses on the Refuge significantly increases the risk of disease spread to Refuge wildlife, and risk of spread of invasive flora. Due to these concerns and the increased management that would be needed for this activity, this alternative was eliminated from further consideration. See Appendix G, Section 2.2.1.

## Rock Sports

**Comment:**

The CCP looks very good to me. One technical aspect of the document similar to “NO SPORT RAPPELLING” we rappel to get back to the ground in some situations after climbing (not sport rappelling). I just want to distinguish between gear assisted climbing, this is a technical point of pounding in pitons that damage the rock versus clean aid climbing using climbing gear that does not damage the rock. It would be better documented if Plan C read like the following. Eliminate Technical (gear assisted) rock climbing (pitons) that damage the rock, clean aid climbing permitted.

**Response:**

This comment appears to respond to the Refuge's Alternative C. The Refuge has selected Alternative B as its proposed action and edits to Alternative C are therefore unnecessary.

**Comment:**

I recently read your proposal and I agree with most of your recommendations but one. I do not agree with the proposed "sign in" at the refuge. For one, I don’t believe there is an issue at the present moment. What is wrong that a sign in procedure would fix? Why have to sign in?

**Comment:**

I am pleased to see that not only are you allowing technical rock climbing but you can see the value in it. I am sure those of us who travel long distances are outnumbered by those who live closer to your back yard who are breathing a sigh of relief to see you allowing us to scale the granite. The climbers I have spent time with are people who enjoy the exact ambiance this place offers. It is great to see the sunsets fill the sky and the free range buffalo, longhorns and elk on the prairie. It is my hope that the majority of climbers continue to respect the environment and the life within the park. I take it as an ongoing challenge to counsel the folks I am with to show good stewardship to the lands that you are charged to maintain. With the implementation of a registration for climbers may I put in my two cents? I have no qualms about some form of registration for you folks to track the actual climber usage to the park and hopefully our positive impact on the park. If the registration log books were located major trailheads it would be more accurate but also more convenient for us especially if we are there for several days. Maybe we should sign in and out so we could state the areas where we actually climbed. You folks would have accurate and valid record of our impact on the park. Those of us who are camping and going climbing several days in a row may want to avoid making multiple trips to the Visitor Center to register. I am in support of the proposed draft plan.

**Comment:**

I have read the summary of the CCP for the Wichitas project and appreciate the chance to give some feedback from a public user perspective. My wife and I are technical rock climbers who drive 3 hours from DFW Texas to climb in this area. It offers a wonderful mix of climbing types

and we are so glad to see that climbing will still be allowed. As far as the proposal goes, Plan B states: "Monitor participation by requiring participants to register on site." I completely understand the reasoning for this and would gladly register when we climb- I would ask for some consideration when it comes to the following: It is very hot in this part of the country for much of the year. When we drive out to Oklahoma, we want to start climbing as early as possible to beat the heat. The last time we did so, our two mile hike out (carrying all of our climbing gear ~40lbs each) was in 104F sun. We would love to be able to register online, or maybe via a drop box on the way in to the grounds, that way we would not have to wait for the ranger station to open. Every minute we get to climb in the shade is a blessing! I would be glad to answer any further questions that you may have. Again, thank you for the chance to offer input.

**Comment:**

The WMCC has long supported implementation of a trailhead registration system for backcountry users of the Refuge, both for user safety needs and to provide better information as to the numbers, types and designations of backcountry users. We believe that information is critical to developing reasonable and appropriate backcountry management policies to effectively manage the tremendous numbers of backcountry users of the Refuge and to ensure that Refuge resources, including Wilderness values, are protected. The WMCC further supports efforts by the USFWS to undertake a study based on that information to more specifically understand the nature and extent of backcountry use, including hiking and climbing, in order to develop additional management policies for minimizing the impacts of those uses on the social and natural environment of the Refuge, including the use of zoning strategies for effectively managing backcountry uses. We offer our assistance to Refuge Management in developing a study to evaluate any impacts of climbing on the social and natural environment of the Refuge.

**Response:**

The Refuge proposed individuals/groups sign in at major trailheads, rather than the Visitor Center, so that the Refuge could monitor use and public safety. This would help the Refuge collect data on type of uses, number of users and locations of use. This is also an opportunity for visitors to leave comments for the Refuge. It could also provide some information on where to search for missing or injured hikers. This is a common procedure on public lands. All other permits, such as for large groups and backcountry camping, will be available at the Refuge Visitor Center.

**Comment:**

I just want to thank you for keeping the taws open to climbing. This is an area that I hiked and climb in as a youth and a place that I hold dear to my heart. It would be a sad day if climbing was banned from the Wichita Wildlife Refuge.

**Comment:**

I wish to briefly express my support for the Wichita Mountains Wildlife Refuge draft CCP/EA. In particular, I find its strategy for managing recreation such as rock sports that facilitate supported public use of the Refuge most reassuring. I have long felt that access to the Refuge has provided important first exposure to the wilderness to young users. I had little appreciation for the outdoors prior to climbing in the Refuge. As a college-aged new rock climber, I spent many peaceful days in amazing and unique areas such as the Narrows and Charons Gardens. In that time, I grew to appreciate not only the treasures of the Refuge, but how scarce and fragile such an environment can be. My experiences in the WMWR led me on the path to conservation and responsible use across the United States. The inspiration of effort behind every piece of trash I

pick up and experience guiding inexperienced users through the wilderness may be traced back to my time climbing in the WMWR. It is no exaggeration to say that rock sports in the Refuge made me the engaged volunteer and supportive user of the nation's parks and other protected lands that I am today. While I have since moved from Oklahoma and am seldom blessed with the opportunity to venture into the Refuge, I am thrilled that future users may have the opportunity to gain a new perspective on wildlife and Nature as I have.

**Comment:**

As a technical rock climber I have looked over your draft with great interest, and I find it quite supportive of climbing as I know it that has been a traditional part of refuge use for decades. From my point of view your directives concerning technical rock climbing are quite fair and inclusive and will be easy for the climbing community to support. We revere the WMWR as a prime climbing destination of regional importance drawing from at least as far away as Dallas, OKC and even Wichita, KS and Tulsa.

**Comment:**

I am in support of the proposed alternative draft plan as it relates to climbing activities inside of the WWR. I am extremely pleased with the ongoing interaction between WWR officials and the Wichita Climbers Coalition to continue to provide technical rock climbing in a manageable and sustainable manner. I am specifically in favor of all the items below currently included per my understanding. It officially recognizes that the elimination of technical rock climbing would cause a significant negative impact due to the fact that the Refuge offers climbing resources that are not available anywhere else in the area. The Refuge’s wildlife is an important part of the overall climbing experience, and therefore there is a degree of wildlife-dependence for those engaged in technical rock climbing at the Refuge. The reviews and recommendations appear scientific, reasonable, and unbiased. For instance, group size limitations apply equally to climbers and hikers. Fixed anchors will continue to be allowed, and new fixed anchors will be allowed on a “limited” basis outside of the wilderness area and on a “very limited” basis inside the Charons Garden. Those terms are as previously agreed as being acceptable to the climbing community. One new regulation is that climbers must “register” at the Refuge to help them better understand who is climbing, when they are climbing, and where they are climbing in order to improve management of the activity.

**Comment:**

I want to encourage the continued availability of technical rock climbing in the Wichita Mountain Wildlife Refuge. I have reviewed the draft of the Comprehensive Conservation Plan and the terms are consistent with good climbing etiquette of which climbers are more than happy and able to comply. Please keep the existing language in the draft as you move forward.

**Comment:**

I am so glad that the voice of the Wichita Mountains Climbers Coalition is being heard in the issue at hand. I myself cut my teeth as a rock climber in the Wichita Mountains; it was the closest rock climbing to Amarillo Texas where I lived at the time. I have been many times and have always enjoyed the beauty of the Refuge. My partners and I are members of the Access Fund and pick up trash along the trail that we find as well as picking up trash round the climbing areas. These two climbing organizations are trustworthy and have assisted with maintaining the Refuge for climbers and hikers alike. I strongly encourage continued cooperation with The Wichita Mountains Climbers Coalition and the Access Fund, you are doing yourself a favor by supporting these organizations.

**Comment:**

I support the draft Comprehensive Conservation Plan for Wichita Mountain Wildlife Refuge. I am very happy that rock climbing is officially recognized as a valid recreational activity. Rock climbing at Wichita Mountain is truly a unique experience. The prairie and rock outcropings cannot be found at other places like it in Oklahoma and Texas. One of the reasons I climb is that I find it the best way to experience nature. I always find a visit to Wichita Mountain exciting with the expected viewing of bison, prairie dog and elk. I also appreciate that you will continue to allow fixed anchors, including the limited installation of new fix anchors. Safety is a critical element of rock climbing.

**Comment:**

I appreciate the work done regarding Rock Climbing identified in the Comprehensive Conservation Plan. As a long time (and old time) climber, camper, and hiker in the Wichita's, I would like to see the refuge continue to offer climbing availability. I have reviewed the draft of the Comprehensive Conservation Plan and the terms are consistent with good climbing etiquette of which climbers are more than happy and able to comply. Please keep the existing language in the draft as you move forward.

**Response:**

Thank you for your interest and support.

**Comment:**

It is heartening to see that the Plan recognizes rock climbing as a legitimate, existing, historic, and supportive recreational use of the Refuge. The Access Fund fully supports Alternative B (Proposed Action) and looks forward to providing climbing management expertise, conservation, and stewardship for the Refuge. The climbing policies within the plan are well-crafted, scientifically based, and should serve as a model for wildlife agencies across the country. I routinely use the Refuge as an example of the compatibility of climbing with wildlife focused management and the benefits of local climbers partnering with land managers. Between 1995 and 2004, the Access Fund provided over $10,000 in grant funding for trail work, relationship building with the local climbing community, and informational brochures at the Refuge. The Access Fund remains committed to conserving the unique natural resources and climbing opportunities at the Refuge. Climbing at the Refuge dates back to the 1940s; the wildlife and natural beauty of the area offer a truly unique climbing experience. Climbers have an will continue to be drawn to the Refuge. The Plan is a product of years of experience managing climbing and working with the WMCC. Below are several components of the Plan that highlight how far climbing management at the Refuge has come since the proposed ban in 1993: - Recognition that wildlife is an important part of the overall Refuge climbing experience and that rock climbing is acknowledged as a supportive use of the Refuge. - Rock climbers account for only a small fraction of total visitation and usage of the Refuge. - Eliminating rock climbing will cause a significant negative impact on the human environment because the Refuge offers climbing resources that are not available anywhere else in the region. - All reviews and recommendations are professional, scientific, reasonable, and unbiased.

- No significant changes are proposed for the management of rock sports on the Refuge. The replacement of existing anchors and the evaluation of new anchor placement will continue to be evaluated on a case-by-case basis in partnership with the Wichita Mountains Climbers Coalition Advisory Bolting Committee. The use density zones and group-size limits described for hiking

will also apply to rock sports. - Although the process is not explained, climbing activity will be monitored with a trail registration system and a study developed to determine the impacts of climbing on the social and natural environment. In addition to providing climbing management expertise, community outreach, and education, the Access Fund Preservation Grant Program and Conservation Team are available to support conservation and climbing management at the Refuge. Our Grant Program funds projects that preserve or enhance climbing access and opportunities and conserve the climbing environment throughout the United States and is a source of funding available to the Refuge and Wichita Mountains Climbers Coalition. The Conservation Team, Access Fund's newest stewardship program, helps maintain climbing areas throughout the United States by assessing climbing area conservation needs, working with locals to address those needs, and providing training on planning and stewardship best practices to keep those areas healthy. The Access Fund is connected to researchers experienced with studying the impacts associated with climbing and can help develop a study of climbing's impacts at the Refuge.

**Response:**

Thank you for your interest and support. We look forward to working with you.

**Comment:**

The American Mountain Guides Association (AMGA) thanks you for the opportunity to comment on the Draft CCP and EA for the WMWR. We are encouraged by seeing that the Refuge recognizes rock climbing as a historic, supportive recreational use, and that there are provisions in the Plan for the continuation of guided climbing and instruction. Several of our members and certified guides regularly climb and instruct at the Refuge, providing exemplary services and education to members of the public. The AMGA supports Alternative B, the preferred Alternative, and believes that the adaptive management strategy is the best way to realize the vision of the Refuge, as well as provide for public recreational opportunities. The AMGA supports the comments submitted by the Access Fund and the WMCC, as regard the proposed regulations for Rock Sports in general. We believe the relationship between local guides, the WMCC, and the Refuge is an outstanding example of collaboration with stakeholders, and demonstrates an effective method of managing fixed anchors. Specifically regarding commercial guiding in the Refuge, the AMGA is please to see that guides are recognized for the unique resource they are. While this relationship has been tenuous in the past, it is exciting to see recognition of guides' role as educator's aids in technical rescues and stewards to the resource. The AMGA acknowledges the important role of the Special Use Permits as a tool for protecting the natural resource and addressing potential user conflicts, and believes that appropriate regulation, such as limiting guided group size, is an effective management tool. An AMGA certified guide or accredited program is an important, and often underutilized, resource in the field. Wilderness ethics are ingrained into our training and assessment programs. Credentialed guides realize that preservation of the wilderness resource is not only inherently valuable, but is essential for their continued livelihood. It is our recommendation that strong consideration be given to SUP applicants who are AMGA certified guides or accredited programs, of that certification and/or accreditation be made a prerequisite for commercial climbing SUPs. This would ensure the highest standard of resource protection and safe climbing practices, as well as wildlife observation and interpretation in keeping with the role of climbing as a supportive recreational use in the Refuge.

**Response:**

Thank you for your comments and recommendation about requiring the certification of climbing guides. The Refuge can provide information on this certification but does not think it is appropriate to require this as a prerequisite.

**Comment:**

Under current USFWS management policies at the Refuge, sport rappelling is allowed throughout the Public Use Area, except for a prohibition on the activity in the Narrows. This policy has been in place since the last CD for technical climbing and related activities 1995. The WMCC notes that the current Narrows prohibition applies to sport rappelling specifically, and not to the occasional rappelling activity that may occur or be required as a means of safely returning to the ground after the ascent of a climbing route. In some instances, safe descent from a route may only be accomplished by rappelling or rope-assisted lowering to the ground after an ascent. We recommend clarifying in the CCP, EA, and CD documents where necessary that the prohibition on rappelling in the Narrows is specific as to sport rappelling and does not apply to the occasional rappelling activity that may be necessary as part of a climbing ascent or serves to protect Refuge resources by minimizing scrambling activity subsequent to an ascent. Further, the WMCC supports efforts by the USFWS to better manage the impacts of sport rappelling, which is frequently undertaken by those with little or no technical climbing experience and who often have little awareness of the importance of minimizing impacts to other users and Refuge resources.

**Response:**

Thank you for all the support and positive comments. The Refuge will clarify that sport rappelling is an activity that is competitive and focused on the rappel rather than on the climb.

## Facilities

### Campgrounds

**Comment:**

I enjoy camping on the Refuge. The Doris Campground can be hard to get into. There are limited facilities and camping spots are sometimes hard to come by and I cant always get in.

**Response:**

The Doris Campground does get full on high use weekends and holidays. The Refuge will work to identify additional camping opportunities off Refuge by working with partners to divert campers to adjacent campgrounds.

### Fences

**Comment:**

Fencing to include true boundary is much too expensive for value gained.

**Response:**

The Refuge proposed to bring 430 acres of Refuge lands back into its management for large ungulates. The Refuge finds this project worthwhile in order provide forage for these animals. If we leave this land isolated from the rest of the Refuge it has minimal value for wildlife management or public use purposes of the Refuge.

### Visitor Center

**Comment:**

Should have used microphone for presentation, q&a, and public input. Was hard to hear

discussion (during public meeting on August 14, 2012).

**Comment:**

Lighting in auditorium is very poor.

**Response:**

We apologize for the oversight. The Refuge will use the microphone and appropriate lighting when conducting meetings in the Visitor Center auditorium.

**Comment:**

EPA recommends that the Service contact the Oklahoma State Historic Preservation Office (SHPO) and the Oklahoma Archaeological Survey (OAS) prior to remodeling the Visitor Center and the Environmental Education Center to determine if the buildings may be protected under the National Historic Preservation Act.

**Response:**

The Visitor Center does not qualify for the National Register of Historic Places. Before any remodeling takes place on the EE Center the Refuge will contact the SHPO and OAS.

## Picnic Areas

**Comment:**

I would like to see the Boulder picnic area open at 7 am during the hot months.

**Response:**

The Refuge will look into shifting work schedules during the summer months to open public areas earlier.

## Hiking Trails

**Comment:**

The aspect of risk and safety is very much appreciated and one can understand concerns management would have when increasing people participation around the area of Mt Scott. I appreciate the opportunity to present a positive case for developing some new areas that could lead and encourage more people participations in the Mt Scott area. 1. A hiking trail laid out and marked from a trailhead located on the north side of HWY 49 and west of the exit traffic lane of Mt Scott road. The trail would travel along the south edge of Mt Scott's boy, crossing the boulder field northeast continuing around all four sides of the Mt Scott peak, arriving at the parking lot without crossing the road at any time. Participants would have the opportunities for viewing all four directions, N, W, S, E (the four winds trail). I personally have hiked this route. 2. Adding to the trail system a second trail with a trailhead located on the upper south side of Mt Scott. It would run northwest connecting with Mt Scott's Boy, traveling its apex on the return trip to the beginning trailhead. I have hiked most of this portion of the trail also. This would provide additional area to the system with less difficulty and shorter in distance. I believe a trail system such as this would eliminate most of the shot gun hiking trails up Mt Scott where most are crossing the road twice. 3. The picnic area could be used for parking and get the parked cars off Hwy 49. 4. A marked trail would provide a safer route and the additional shorter and less difficult trail would encourage the less physically conditioned hikers to utilize the east side of the Refuge and possibly take some pressure off the west side. See Map

**Response:**

The Refuge will select Alternative C for this use only (hiking in the Public Use Area) so that it

may *consider* additional hiking opportunities in the high density use zone in the future. The Refuge would also have to analyze the cost, impact to threatened and endangered species, and other factors as well at that time. A strategy was added to Chapter 4 of the CCP to consider additional developments in the high density use zone to relieve pressure in the medium density and low density use zones and to help preserve wilderness character.

## Roads, Parking, Pull-offs, and Gates

**Comment:**

In many areas west and southwest of the Refuge HQ, there are virtually no pull offs. I realize funding is an issue, but these are badly needed.

**Response:**

The CCP does not propose adding any additional pull offs or parking areas. The Refuge would like to keep its current developed footprint on the west side of the Refuge largely the same as it is now.

**Comment:**

The gate leading south from the main prairie dog town was closed last year. This was a great place to view and photograph wildlife and I recommend it be reopened.

**Response:**

The gated access road extends through the middle of the prairie dog town. Although vehicles are restricted, walking is still permitted.

**Comment:**

I would like to have more pull offs between the Indiahoma gate and Fawn Creek.

**Response:**

The CCP does not propose adding any additional pull offs or parking areas. The Refuge would like to keep its current developed footprint on the west side of the Refuge largely the same as it is now.

## Administrative Facilities

**Comment:**

If the HQ cost several million dollars it needs to be postponed until our gov is operating in the black.

**Comment:**

Hopefully the expense of new corrals will not be like the last ones constructed. They should have cost much less.

**Response:**

Any Refuge facility proposed in the CCP is contingent upon available funding and contracting requirements.

## Administrative Areas

**Comment:**

Better utilization of the Treasure Lake Job Corps would be practical and more feasible when doing work on the Jed Johnson Tower and/or the Ferguson House.

**Response:**

The Refuge did propose incorporating the efforts of the Job Corps on Refuge projects (see CCP Chapter 4, Section 4.6).

**Comment:**

How about swapping the Job Corps lands for some wildlife habitat currently outside the Refuge?

**Response:**

The Refuge proposed moving the Job Corps site off-Refuge as part of its Alternative C. The operation of the Treasure Lake Job Corps Center by the U.S. Fish and Wildlife Service has been in effect for over 40 years. Administration and operation of the Job Corps site by the Forest Service has minor effects on the Refuge. The existence of the Job Corps Center on the Refuge has provided many opportunities for assistance on maintenance and habitat improvement and enhancement projects. Although the operation of a Job Corps Center on a national wildlife refuge is not a typical use, it is compatible on the Wichita Mountains Wildlife Refuge.

**Comment:**

EPA supports partnership opportunities with Job Corps participants to increase environmental education, and other Refuge-specific activities and projects.

**Response:**

Thank you. We have proposed continued efforts with Job Corps.

**Comment:**

I do feel the management of Holy City is flawed. I think the site itself has historic value and you could justify its continued existence. I think the Passion Play is a legitimate 1st Amendment use of the area. What bothers me is that this is year-round religious outreach on Federal land. In particular, I believe strongly that the gift shop should not be run as a money-maker for what is essentially a Church. I would prefer that operation disappear entirely, but at a minimum it should be operated under contract with whomever enters the winning bid, just as your Campground and concessions within National Parks. The Federal government should be neutral toward religion, but here it appears that the Federal government is actively supporting one particular faith through its current management of this site.

**Response:**

In light of today's environmental standards and passage of several laws governing the Refuge System since 1935, it is likely that this activity would be considered inappropriate on a Federal wildlife refuge today. However, a commitment was made in the 1930s when President Franklin D. Roosevelt permitted construction and use of the Holy City at its present location within the Refuge. The Wallock Foundation's predecessor accepted responsibility for the maintenance and liability for the buildings, presumably in exchange for their continued use. Given the history, tradition, and strong attachment Oklahoma residents have for this activity, the Holy City site and Pageant have continued as an important part of the cultural heritage of the area. The Proposed Action in the CCP provides for continued renewal of five-year permit with the option of renewal in five-year increments at the Refuge Manager’s discretion (not to exceed 25 years) for use of a 65-acre site, including the Holy City, for the Pageant and related activities. Although there are only minor cumulative impacts anticipated with the preferred alternative, this issue may need to be revisited if use of the site significantly increases. Granting the five-year permit will allow for frequent reassessment of the permit terms and conditions to adjust for environmental and other

effects. The gift shop has been permitted as part of the Special Use Permit to help the Wallock Foundation's maintenance and operation of the facility.

## Refuge Vehicles

**Comment:**

It is suggested that all vehicles and motorized equipment used in construction activities of any kind be in compliance with regulations regarding the control of air pollution from mobile sources.

**Response:**

The Refuge will follow all regulations in regard to air quality.

## Cultural Resources

**Comment:**

The Service should consult with both the Oklahoma SHPO and the OAS concerning the identification and protection of protected cultural resources and historic properties within the Refuge.

**Response:**

The Refuge is currently doing this and will continue to communicate with these agencies.

# Administrative

## Process

**Comment:**

I am a strong advocate of science-based decision making and feel strongly that the Refuge was established for the protection of wildlife and that all other activities must be subordinate to that goal.

**Response:**

Thank you for that comment. All activities on a Refuge must be found compatible with the purposes of the Refuge and the mission of the NWRS (pull in language from Chap 1).

**Comment:**

The WMCC enthusiastically supports the findings and recommendations regarding Rock Sports and other recreational secondary uses presented in the CCP, EA, and CD documents. Further, we are pleased to officially endorse the Preferred Alternative regarding Rock Sports proposed under the Draft EA. We find the draft documents to be professional, scientific, unbiased, and thorough and the basis and rationale for the decisions to be reasonable, appropriate, measured and in the best interest of protecting Refuge resources while at the same time ensuring the continuation of longstanding compatible recreational opportunities that are critical for overall public and political support for the Refuge and the Refuge System.

**Comment:**

While the draft CCP, EA, and CD documents may appear to be the result of recent efforts by the USFWS to develop a CCP for the Refuge, the fact is that with regard to Rock Sports there has been a determined and ongoing effort since the last CD and EA for Technical Rock Climbing was approved in 1995 to continue to improve management efforts with regard to climbing related activities. Since then, thousands of volunteer hours have been provided to the Refuge by members of the WMCC and local climbing community in meeting with Refuge Management to discuss important resource issues, providing recommendations on fixed anchor use through an

advisory bolting committee, organizing trail construction and other conservation projects, offering advice with regard to additional recreational use management policies, and educating the public of the importance or minimizing impacts and protecting Refuge resources. Those efforts have spanned the terms of three different RMs, as well as numerous staff members, all of whom have contributed greatly to the success of USFWS' and WMCC's partnership efforts in managing recreational climbing and to the development of the current draft CCP.

**Response:**

Thank you for your involvement and support!

## General Information

**Comment:**

The Wichita Wildlife Refuge is a great place to take a family to hike, walk, jog, sight-see. When we have out-of-town guests, we always take them to the refuge. It would be such a blessing to have the resources to allow the refuge to stay in pristine condition and to allow families to camp, hike, etc.

**Response:**

The Refuge does manage public uses including those uses mentioned and will to do. Thank you for the comments. The Refuge will try to continue to manage public uses to maintain, as much as practical, the natural character of the land.

**Comment:**

My husband and I moved to Lawton, Oklahoma over a year ago from South Carolina. Experiencing a bit of culture shock and homesickness, we found the Wichita Mountain Wildlife Refuge to be a refuge for both animals and humans alike. The beauty the refuge displays is unmatched elsewhere in Southwest Oklahoma. The escape the wildlife refuge offers to military personnel stationed at Fort Sill and SW Oklahoma is a gem. The bicycle and hiking trails, fishing ponds, camping sites, and more are very much appreciated.

**Comment:**

I have read and reviewed the draft CCP for the Wichita Mountains Wildlife Refuge (WMWR). As a longtime user of the WMWR I fully support the draft CCP. I respectfully ask that you also provide your support for the draft CCP.

**Comment:**

The National Park Service has no comment on the subject project.

**Response:**

Thank you for your interest and support!

**Comment:**

I am one of the fortunate people here in Oklahoma who grew up in the backyard of the Wichita Wildlife Refuge. I have so many fond memories of times my family and friends gathered in the shadows of those old mountains, beside the streams and at the campgrounds for parties, picnics, hikes, swimming and many other activities. One of my fondest memories is of delivering groceries, with my dad, from my family's little grocery store at Cache, to Girl Scout campers throughout the summers in the 1950s. After becoming an adult, I have continued to enjoy the Refuge in many aspects - from seeing the animals, looking at the flowers in the spring and summer, taking my granddaughter for a walk down a trail to look at flowers, bugs, leaves or just

a Sunday drive to see the changes of the seasons. I have been so pleased to see more and more people enjoying the out-of-doors in the Refuge with the addition of the bike trail, hiking paths, improved campgrounds and maintenance of bison and longhorns. My husband and I have gone on several of the guided tours to look for wildlife and flora. We learned so much in a place we've lived all of our lives! The Refuge provides many opportunities for a variety of activities which are safe, healthy and contribute to families spending time together. As a member of several community organizations including the Cache School Board, the Comanche County Industrial Development Authority and the Cache Community Improvement Association, I appreciate the balance between preservation of the natural aspect of the area as well as opportunities for public use. I believe that the management of the WMWR does and excellent job in considering all the aspects of impact on the wildlife, archaeological sites and general environment. Throughout the years, I have witnessed the Refuge providing a natural habitat for the wildlife as well as being accessible for people to enjoy. I appreciate the limited, controlled accessibility in the Comprehensive Plan in order to preserve the wildlife and "natural state" of the habitat. As a child, one of the things I remember best about growing up in southwest Oklahoma is to be proud of living in Cache - the Gateway to the Wichitas. I am happy to say, I continue to be proud of the efforts of the people there to improve and enhance the enjoyment of the area and support their efforts to provide a wide variety of activities.

**Response:**

We appreciate your support and hope we can continue to be a gem in SW OK. Thank you

## Special Use Permits

**Comment:**

On many other Federal lands special use permits for photography are only required if the photographer intends to use models or props or interfere with normal activities. This is an excellent standard which works quite well in places like Yellowstone and the Grand Canyon- You might find it is appropriate here too.

**Response:**

Refuge regulations require a Special Use Permit for commercial uses of national wildlife refuges. The Refuge permits will allow the Refuge to monitor the use and track the impacts if any should occur.

## Tribal Consultation

**Comment:**

As I explained the staff has always worked well with the area Native American Tribal Governments as for the use and visitation of this facility, for their Native plants and resources. It is my hope that this will be a part of this new Comprehensive Conservation Plan, and that the work and relationship you have with area Tribal Governments will continue. I would also like to see an organization of Tribal Advisory Council meetings of area or regional Tribes and the US Fish & Wildlife Service, at least annually, to discuss the management and guidance to meet the needs of not only the Wichita Mountains Wildlife Refuge, but the other National Grassland Reserves in the Region. I say this not to co-manage these resources, but as Native Americans who have used these resources for many centuries and who look to you and these resources for our children to learn and use to help keep our Native Cultures alive for many more years. I personal will volunteer my time and efforts and my knowledge and experience working with these Tribal Governments to bring about this partnership and Government-to-Government

relationship because I know from past experience we can both set at the table and develop partnerships and strategies to conserve, protect, and help manage our natural resources for many generations to enjoy.

**Response:**

The Refuge looks forward to meeting with the tribes to discuss how we can better work together. The Refuge will work harder to involve all tribes and partner where we can.

**Comment:**

Secretary of the Interior has passed/approved a Consultation policy which directs federal agencies or those of Interior to consult directly with Indian tribes. This was approved the CY. Thus, need to comply. Tribes/tribal members have gathered plants from the Refuge areas and conducted ceremonies on high points, thus these opportunities should be allowed for tribes adjacent to the Refuge. The Refuge was taken from the Kiowa, Comanche, and Apache Indian Reservations. There are historic and cultural reasons to affect partnerships with the tribes and others.

**Response:**

The Refuge did invite tribes to participate in one-on-one meetings on the CCP during its scoping period and prior to the Draft CCP public comment period. One tribe replied. The Refuge will work harder to involve all tribes and partner where we can. The Refuge does allow and will continue to allow tribal use of the Refuge including the collection of natural resource items.

## Trash

**Comment:**

I was out at Wichita NWR today and I was pretty disappointed with the amount of trash in general in the lakes, on the trails, and in general. For somewhere as beautiful as that, and for as many cool animals that could be potentially affected by a number of different items blowing around, I would think that part of the dollars could go to cleaning up the park rather than just animal management.

**Response:**

The Refuge is aware of this problem and in the CCP the Refuge proposed additional trash/recycle facilities and increase trash collection. (See Chapter 4, Section 4.5.1)

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*Quanah Parker Lake, Wichita Mountains Wildlife Refuge.*
Walter Munsterman/USFWS

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