

ENVIRONMENTAL ASSESSMENT

HABITAT RESTORATION AT THE LUCY FERRIL ELA WILDLIFE SANCTUARY (Grand Valley Audubon Society)

Prepared by

**Bureau of Reclamation
Western Colorado Area Office
Grand Junction, Colorado**

for

**Upper Colorado River Endangered Fish Recovery Program
Denver, CO**

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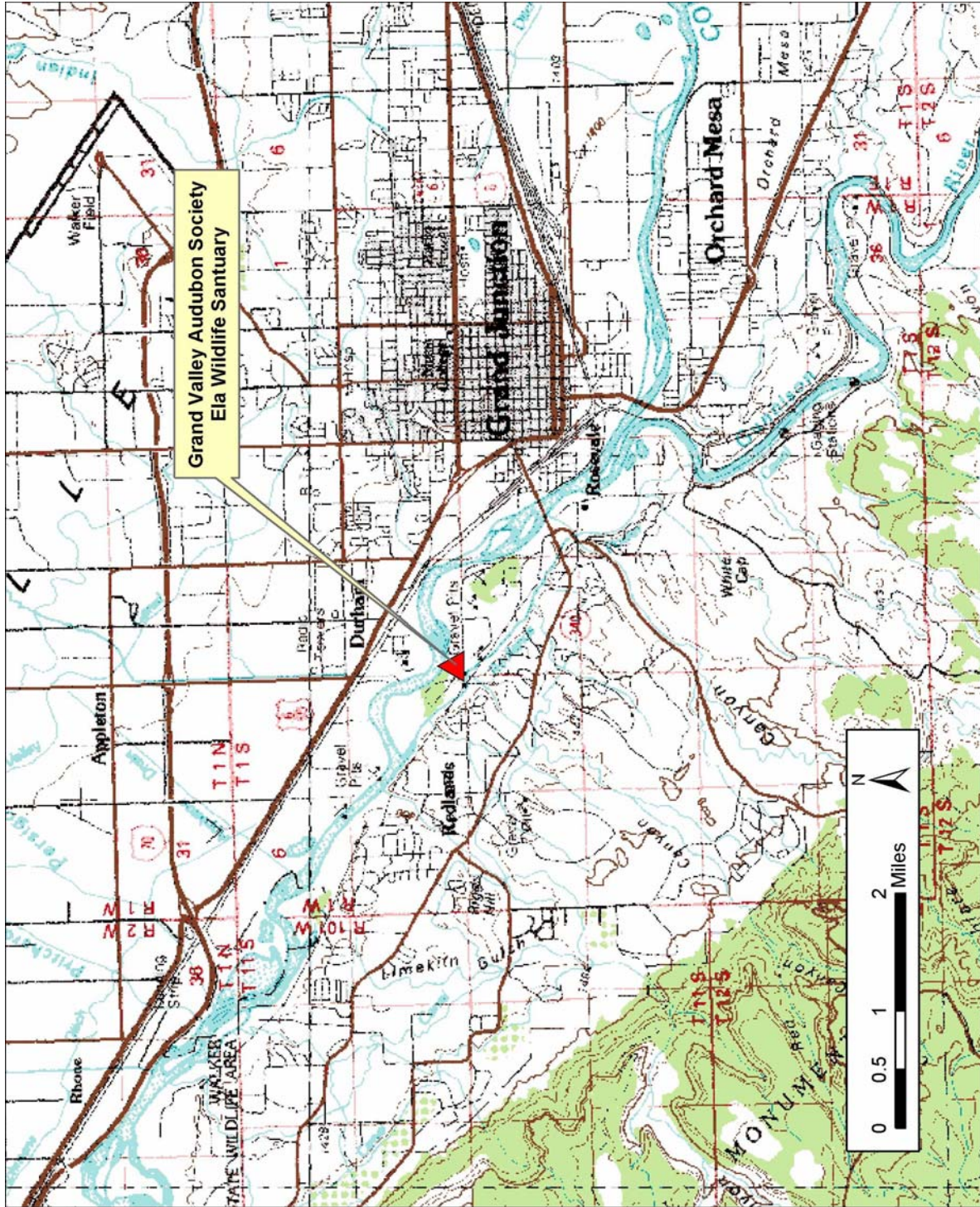


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CHAPTER 1 – INTRODUCTION

Proposed Action

The Upper Colorado River Endangered Fish Recovery Program (Recovery Program) is proposing to restore endangered fish habitat at the Lucy Ferril Ela Wildlife Sanctuary (Ela Wildlife Sanctuary) adjacent to the Colorado River near Grand Junction in Mesa County, Colorado (See Figure 1). By notching an existing levee that separates the ponds from the Colorado River, the proposed action would allow endangered fish larvae to drift from the river into the ponds of the Ela Wildlife Sanctuary, and use the ponds as a nursery habitat.



Figure 1-Ela Wildlife Sanctuary Looking South from the Existing Levee

Need for and Purpose of Action

This Final Environmental Assessment (EA) evaluates effects on the human environment from notching the earthen levee to entrain endangered fish larvae into the Ela Wildlife Sanctuary ponds. The property is located in Mesa County, near Grand Junction, Colorado and is owned by the Grand Valley Audubon Society (Frontispiece Map). The Bureau of Reclamation

(Reclamation) prepared this EA in cooperation with other federal and state agencies to comply with the National Environmental Policy Act (NEPA), Endangered Species Act, and related U.S. Department of the Interior policies and regulations. If, based on this analysis, Reclamation concludes the proposed action would have no significant impact on the human environment; preparation of an Environmental Impact Statement would not be required before the action could be implemented.

In 1988, the Governors of Colorado, Utah and Wyoming; the Secretary of the Interior; and the Administrator of Western Area Power Administration entered into a cooperative agreement to initiate the Recovery Program. The Recovery Program is a cooperative partnership involving Federal and State agencies, environmental groups and water and power user organizations. Pursuant to the Endangered Species Act of 1973 (16 USC 1531 et seq.), the Recovery Program seeks to recover four species of endangered fish (Colorado pikeminnow, razorback sucker, humpback chub, and bonytail) while water development proceeds in accordance with Federal and State laws. Recovery is defined as achieving and maintaining natural self-sustaining populations of the species.

Recovery Program elements include:

- Habitat management including identifying and acquiring instream flows, changing operations of Federal dams, and operating other reservoirs in a coordinated manner to benefit endangered fish.
- Habitat development including restoring floodplain/wetland habitats, constructing fish passageways around dams and other barriers in the river, and installing screens to prevent entrainment of endangered fish into diversion canals.
- Native fish propagation and genetic management involving establishing facilities to hold adult brood stock to prevent extinction of these rare fish and maintain their genetic resources; develop growout ponds; conduct research to improve survival of endangered fish raised in captivity and stocked in the wild; and support appropriate stocking and reintroduction efforts.
- Nonnative species and sportfishing entailing managing detrimental nonnative fish species in habitat considered “critical” to endangered fish. This also involves educating and distributing information to anglers to reduce accidental capture of endangered fish.
- Research, monitoring and data management provides information about what these fish need to survive, grow, and reproduce in the wild. Efforts include compiling data on the number, sizes, and locations of endangered fish; monitoring endangered fish population trends; and making river flow recommendations.

Need: The loss of floodplain habitat is a factor that has contributed to the decline of the endangered fishes of the Upper Colorado River Basin. To reverse this trend, the Recovery Program seeks opportunities to restore, enhance, and protect floodplain habitats that will support recovery of the species.

The razorback sucker is one of four species of Colorado River fishes that are in danger of becoming extinct. This species in particular is dependant upon floodplain habitat to ensure its

survival and recovery. Razorback suckers spawn on the ascending limb of the hydrograph during spring runoff. After eggs hatch, larvae begin to drift downstream. Larvae that drift into floodplain wetlands have a better chance of survival than those that remain in the main channel. Floodplain wetlands have warmer water temperatures, resulting in greater food production and faster growth rates for young fishes, thereby increasing the chances of survival because larger fish are less vulnerable to predation. Floodplain habitats also provide a quiet-water shelter from main channel river currents, which reduces energy expenditure that can be used for growth. Inundated wetland vegetation also offers hiding places for avoiding predators.

Construction of levees has disconnected many floodplain wetlands from the main river channel, thereby denying access to larvae that are drifting down the river. Without access to these nursery habitats, the few larvae are able to survive. The river environment is harsh compared to the floodplain wetland environment. Water temperatures are colder, food is relatively scarce, and there is no cover available to escape predation.

The plan for Ela Wildlife Sanctuary is to put a notch in the levee near the upstream end of the property. This would allow a portion of the Colorado River to flow through the property during spring runoff. Some of the razorback sucker larvae drifting down river at this time of year would become entrained in the ponds at Ela Wildlife Sanctuary. The ponds will provide important nursery habitat that may help prevent the extinction of this species.

Purpose: The purpose of the proposed action is to facilitate entrainment of drifting razorback sucker larvae into the Ela Wildlife Sanctuary ponds. In these types of environments, larvae are able to survive and grow until they are ready to leave for the river to join the adult population. Without these types of habitats, few razorback sucker larvae are able to survive.

Background Information

Lucy Ferril Ela Wildlife Sanctuary

The Ela Wildlife Sanctuary is located within the Grand Valley Audubon Society Nature Center in Mesa County, Colorado, about 1.5 miles west of downtown Grand Junction along the Colorado River (See Frontispiece Map). The Ela Wildlife Sanctuary comprises about 26 acres of the total 70 acre property. The Grand Valley Audubon Society has considered constructing a Nature Center using recycled materials, and powered and heated without external energy sources. The primary purposes, or goals for managing the Ela Wildlife Sanctuary is to preserve wildlife habitat, and serve as a resource for community education and riparian restoration research (Rare Earth Science, 2003). The property was historically mined for gravel, prior to creation of the wildlife area. A levee along the Colorado River was constructed during mining to protect the area from seasonal flooding. During high river flows, water backs up into the property and river flows overtop the levee at about the five year flood event frequency.

The Ela Wildlife Sanctuary provides wildlife habitat for more than 300 avian species including neo-tropical migrants. Winter resting areas for waterfowl is a major use.

Public Scoping

A public scoping letter was mailed to various agencies and adjoining landowners on June 19, 2003. In addition, a notice seeking public comments was published in the Grand Junction Daily Sentinel newspaper on June 29, 2003. Reclamation requested assistance in identifying issues and concerns associated with the proposed projects. Reclamation requested comments to be received by July 20, 2002. A draft environmental assessment was release for public review and comment on October 7, 2003 and was mailed to 30 agencies, organizations and local residents. Reclamation requested that written comments on the draft environmental assessment be received by November 7, 2003. No comments were received.

Additional information about public scoping is included in Chapter 4-Consulation and Coordination.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

Alternatives

Alternatives evaluated in this environmental assessment include a No Action and the Proposed Action.

No Action Alternative: Under the No Action Alternative, the Recovery Program would not take action to enhance endangered fish habitat at Ela Wildlife Sanctuary. A notch to entrain larval razorback sucker would not be constructed in the existing levee.

Proposed Action: Tetra Tech Inc. of Breckenridge, Colorado was contracted to prepare a habitat restoration report for the Ela Wildlife Sanctuary (Tetra Tech Inc, 2003a). Survey data were collected in August 2000. The purpose of the report was to determine the floodability characteristics of the Ela Wildlife Sanctuary and provide proposed modifications at the site to promote entrainment of larval endangered fishes from the river.

The proposed action would construct one notch to increase flow through frequency at the Ela Wildlife Sanctuary (Figures 2). Because the backwater currently controls inundation frequency (starting at less than the 1.11 year event), the flow through condition would have little change on inundation frequency. The approximate dimensions of the notch would be a 50 feet-wide bottom width along the left river bank, with 7:1 side slopes (Figure 3). The invert of the upstream notch would be set at elevation 4,536.0 feet. Elevation 4,536.0 feet represents a river discharge between 11,250 cubic feet per second (cfs) and 14,000 cfs. The notch would flow through approximately with the 1.11-year flow event. The natural backwater condition would provide a water surface elevation in the ponds of approximately 4,535.0 feet immediately before river water begins flowing through the notch. When the backwater reaches the notch invert elevation of 4,536.0 feet, approximately 1 foot of head would be over the invert and 160 cfs could pass through the notch. Approaching the 5-year flow event where the pond naturally connects to the river by levee overtopping, approximately 1,000 cfs could pass through the notch. At and above the 5-year event the notch would become submerged and flows overtopping the levee and road would be essentially the same as occurs under existing conditions.

The side slopes of the notch would be constructed with a 7:1 ratio to accommodate the pedestrian trail that currently exists at the project site and allow for construction and maintenance access. About 2,000 cubic yards (CY) of levee material would be excavated. Excavated materials would be used onsite to construct an offset levee that would maintain the existing level of flood protection (currently less than the 5-year return frequency flood) to adjacent properties after the project is completed. The offset levee would be constructed with an average top width of 8 feet and elevation of 4540.0 feet.

The notch would be constructed to withstand forces of the 100-year flood peak event to

minimize the potential of river capture through the pond. The notch would be lined and protected with 40 CY of 3-foot diameter boulders and 300 CY of 18-inch diameter riprap.

Construction of both the levee flow-through notch and subsequent section of raised levee would be accessed via Dike Road and the existing pedestrian trail. The trail would be rebuilt and aligned through the notch and along the offset levee. Construction of the notch would be completed in the fall of 2003 during low river flows.



Figure 2-Ela Wildlife Area Proposed Action Site Plan

Other Alternatives Considered:

Several preliminary alternatives were considered for enhancing endangered fish habitat at the Ela Wildlife Sanctuary. These included 1) lowering the backwater channel at the boat launch to increase the frequency of backwater into the site, 2) lowering the backwater channel and notching the levee to promote flow through the site, and 3) installing a culvert between the river and the Ela Wildlife Area's largest pond. These alternatives were discarded because they would not maximize entrainment of drifting larvae. In addition, using Redlands Canal water to fill and

maintain the ponds was also considered. This alternative was eliminated because of elevated selenium levels associated with the Gunnison River and Redlands water; and because this would not provide the seasonal connectivity with the Colorado River needed to entrain drifting larval razorback sucker.

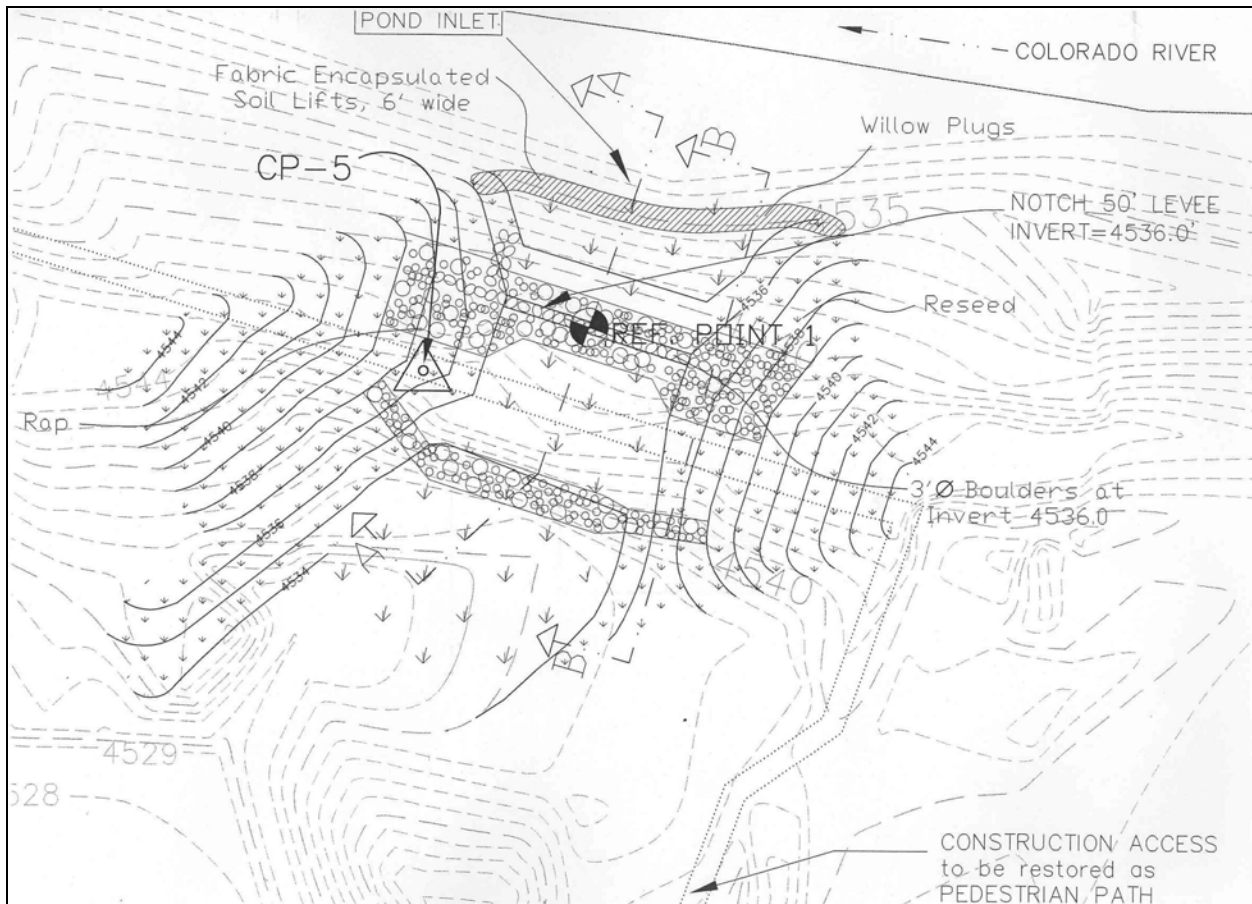


Figure 3-Drawing of Proposed Notch (Tetra Tech, Inc. 2003a)

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

General

This chapter discusses resources that may be affected by the proposed action of notching the levee at the Ela Wildlife Sanctuary. During the preparation of this Draft EA, information on issues and concerns was received from project-area residents and Colorado State Parks (see Chapter 4, Consultation and Coordination, for further details).

For each resource, the potentially affected area and/or issues are identified, existing conditions are described, and impacts expected under the No Action and Action Alternative is discussed. This chapter concludes with a summary comparison of the alternatives and a list of mitigation measures.

The project area is located in Mesa County, Colorado, along the Colorado River, which includes the Ela Wildlife Sanctuary. Mesa County has a population of about 119,281 (U.S. Census, 2001). Grand Junction, founded in 1881, is the largest city in the area with a population of about 41,986. Although agriculture remains important in Mesa County today, some light manufacturing and service industries influence the economy. Tourism is also a significant source of economic activity for the area.

Streamflow and floodplain habitat of both the Colorado and Gunnison rivers have been significantly altered by water diversions and uses, infringement by railroads, gravel operations, highways and bridges, flood control levees, channelization, and by the operation of upstream storage reservoirs.

Land Use and Recreation

The Ela Wildlife Sanctuary is located about 1.5 miles west of Grand Junction, Colorado, along the Colorado River (See Frontispiece Map). The area totals about 26 acres in size. The property was purchased by the Grand Valley Chapter of the Audubon Society to preserve wildlife habitat, and to provide for environmental education and riparian restoration research (Rare Earth Science, 2003). Before the property was purchased by Audubon, it was mined by United Companies for gravel. One large and five small ponds are remnants of past mining activities. A pedestrian trail around the property provides access for birding and nature walks.

In 2003, the Recovery Program purchased an easement from the Grand Valley Chapter of the Audubon Society to enhance endangered fish habitat on the property by creating larval nursery habitat for razorback sucker. Colorado pikeminnow are also expected to benefit from the habitat enhancement.

The Ela Wildlife Sanctuary is a popular area for bird watching and nature walks. The property is located adjacent to Colorado State Parks-Connected Lakes. Under both the No Action and Proposed Action, the property would continue to provide recreational opportunities.

Adjoining land uses include Colorado River State Parks-Connected Lakes, agricultural and residential properties, and the Grand Valley Audubon Society's Nature Center site (Figure 4). Connected Lakes provides fishing, picnicking, and hiking recreation opportunities to the surrounding community. A State Park boat ramp is located on the Colorado River just west of the Ela Wildlife Area. During spring runoff, the boat ramp becomes submerged as Colorado River water backs up the existing channel. Under the proposed action, the boat ramp would continue to be inundated with Colorado River backwater during high spring runoff. The proposed action is predicted to have no effect on the boat ramp (Tetra Tech 2003b). A letter dated September 2, 2003 from Robert Muth, Director for the Upper Colorado River Endangered Fish Recovery Program to David Fox, Colorado Division of Parks, provided assurances that if any unexpected problems do occur that are directly attributable to the notch in the levee, the Recovery Program would take appropriate corrective action (Recovery Program, 2003).

Ela Wildlife Sanctuary and the adjoining properties are within the 100-year floodplain of the Colorado River. As the river rises, water begins to back up a drainage near the State Park's boat launch. As the river continues to rise, water also inundates a portion of the State Park and water backs up along Dike Road. The proposed action would not increase or decrease this occurrence and would provide no additional flood protection for adjoining landowners. The proposed action includes the construction of an offset levee just upstream of the notch to maintain the existing levels of flood protection to upstream adjoining landowners. Adjoining landowners would continue to experience flooding at the five-year frequency; however the proposed action would not increase the frequency of flooding on adjoining properties.

Temporary construction access across Grand Valley Audubon's property would be needed to allow heavy equipment to notch the levee. Disturbance to the existing hiking trail could be minimized if additional construction access were also granted from the adjoining landowner. If soil compaction occurs from heavy equipment use, disking may be necessary to revegetate the temporary access.

Land use would not change as a result of the proposed action and surrounding landowners would continue to be susceptible to seasonal flooding on about a five year flood frequency.

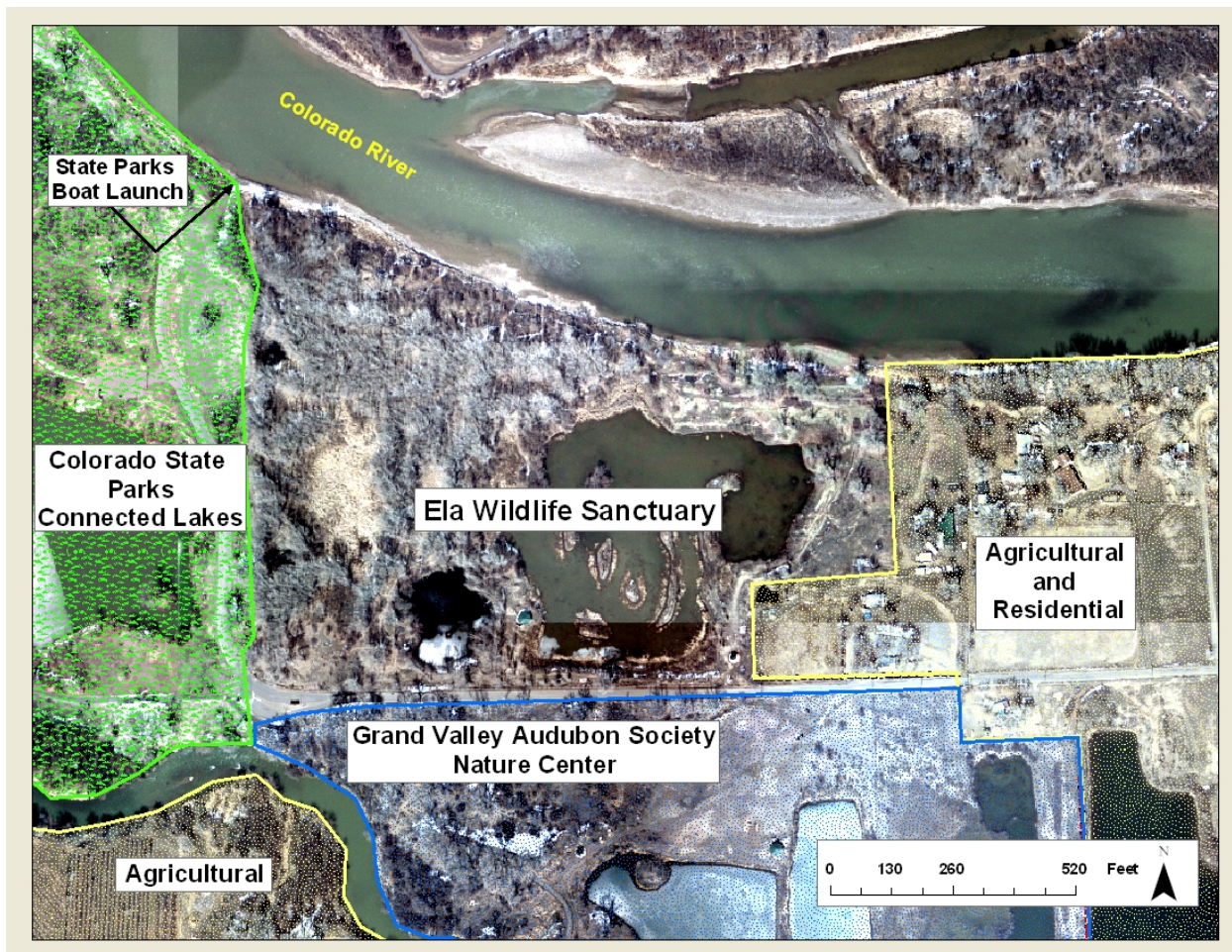


Figure 4-Existing Land Uses

Vegetation

The Ela Wildlife Sanctuary can be characterized as a disturbed river bottomland site. Rare Earth Science, LLC (2003) identified nine major plant communities within the Ela Wildlife Sanctuary. These communities were 1) young cottonwood forest, 2) mixed riparian forest 3) mixed riparian scrub-shrub, 4) mixed Tamarisk scrub, 5) semi-desert shrubland, 6) pond banks and dikes, 7) river bank, 8) ephemeral pond basin and 9) weedy barrens and slash zones. Species found included Rio Grande cottonwood (*Populus deltoids* ssp. *Wislizenni*), Tamarisk (*Tamarix ramosissima*), Russian olive (*Eleganus angustifolia*), skunkbrush (*Rhus trilobata*), Russian knapweed (*Acroptilon repens*), bittersweet nightshade (*Solanum dulcamara*), groundsel tree (*Baccharis salicina*), Russian knapweed (*Salsola australis*), kochia (*Bassia* sp.), common rabbitbrush (*Chrysothamunus nauseosus*), greasewood (*Sarcobatus vermiculatus*), alkali sacaton (*Sporobatus airoides*), poverty weed (*Iva axilaris*), broadleaved cattail (*Typha latifolia*), saltmarsh bulrush (*Bolboschoenus maritimus*), tule sedge (*Schoenoplectus pungens*), saltgrass (*Distichlis spicata*), sandbar willow (*Salix exigua*), whiplash willow (*Salix lasiandra*), Arizona

centaury (*Centaureum calycosum*), cocklebur (*Xabtgayn strumarium*), paintbrush (*Castilleja* sp.), virgin's bower (*Clematis ligusticifolia*), pale smartweed (*Persicaria lapathifolia*), flax-leaved rabbitbrush (*Chrysothamnus linifolius*), barnyard grass (*Echinochloa crus-galli*), reed canary grass (*Phalaroides arundinae*), muhly (*Muhlenbergia asperifolia*), red-rooted cyperus (*Cyperus erythrorhizos*), spikerush (*Eleocharis macrostachya*), sprangletop (*Diplachne fascicularis*).

Species composition is not expected to change at Ela Wildlife Sanctuary, however, the distribution will likely change as a result of flow-through, scouring and deposition. One of Audubon's goals is riparian restoration which includes plans to remove and control tamarisk and Russian olive. The proposed action will complement Audubon's activities.

In consultation with the U.S. Army Corps of Engineers (Corps), the levee notching would require authorization under Section 404 of the Clean Water Act. Because fill material will be placed below the ordinary high water line (OHW), the activity would be within the jurisdiction of the Clean Water Act. Because the desired outcome is to provide seasonal connectivity between the pond and the Colorado River, the exposed sides of the notches in the levee will need protection. The proposed action would protect the notches with riprap material. Reclamation would request authorization from the Corps under Regional General Permit No. 57, Projects Beneficial to the Recovery of the Upper Colorado Endangered Fish Species. This proposed action would have no effect on jurisdictional wetlands.

Fish and Wildlife Resources

Fish and Wildlife resources are diverse at the Ela Wildlife Sanctuary. A detailed list of species is available in the "*Environmental Summary Report, Grand Valley Audubon Society Nature Center Site, Grand Junction, Colorado*" (Rare Earth Science, 2003).

Common terrestrial species to riparian areas along the Colorado River include Northern sagebrush lizard (*Sceloporus graciosus graciosus*), Northern whiptail (*Cnemidophorus tigris septentrionalis*), gopher snake (*Pituophis catenifer*), great blue heron (*Ardea herodias*), Canada goose (*Branta canadensis*), mallard (*Anas platyhynchos*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), common nighthawk (*Chordeiles minor*), black-chinned hummingbird (*Archilochus alexandri*), tree swallow (*Tachycineta bicolor*), black-billed magpie (*Pica pica*), Amercian robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), Western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euhagus cyanocephalus*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), masked shrew (*Sorex cinereus*), Western small-footed myotis (*Myotis californicus stephensi*), long-legged myotis (*Myotis volans interior*), hoary bat (*Lasiurus cinereus cinereus*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), white-tailed jackrabbit (*Lepus townsendii*), least chipmunk (*Tamias minimus*), Northern pocket gopher (*Thomomys talpoides*), Ord's kangaroo rat (*Dipodmys ordii sanrafaeli*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), common muskrat (*Ondatra zibethicus*), coyote (*Canis latrans*), long-tailed weasel (*Mustela frenata*), striped skunk (*Mephitis mephitis*), bobcat (*lynx rufus*), mule deer (*odocoileus hemionus*), tiger salamander (*Ambystoma tigrinum*), Woodhouse's toad (*Bufo woodhousii*

woodhousii), bullfrog (*Rana catesbeiana*), and Northern leopard frog (*Rana pipiens*) (CDOW 2002).

Wildlife would be impacted by increased noise and activity during construction, however this would be short-term. Construction activities would be precluded during the nesting season and during the winter months when migratory waterfowl congregate along the Colorado River.

Common fish species in the Colorado and Gunnison rivers include bluehead sucker (*Catostomus discobolus*), flannelmouth sucker (*Catostomus latipinnis*), roundtail chub (*Gila robusta*), common carp (*Cyprinus carpio linnaeus*), fathead minnow (*Pimephales promelas*), red shiner (*Cyprinella lutrensis*), sand shiner (*Noptropis stamineus*), and channel catfish (*Ictalurus punctatus*) (Burdick, 2001).

Riparian and wetland dependent wildlife species are predicted to benefit from the increased freshening flows into the ponds. Fish species are predicted to benefit from increased access to existing habitats.

Threatened and Endangered Species

Informal consultation with the U.S. Fish and Wildlife Service identified five threatened or endangered species that could be directly affected by the proposed action. These include: 1) Colorado pikeminnow (*Ptychocheilus lucius*), 2) razorback sucker (*Xyrauchen texanus*), 3) humpback chub (*Gila cypha*), 4) bonytail (*Gila elegans*), and 5) bald eagle (*Haliaeetus leucocephalus*).

For purposes of Section 7 Compliance with the Endangered Species Act, this EA also serves as the biological assessment for federally listed species.

Colorado pikeminnow and razorback sucker are known to occur in backwater habitats near the Ela Wildlife Sanctuary and the proposed project is designed to enhance designated critical habitat. Ela Wildlife Sanctuary is located within designated critical habitat for the Colorado pikeminnow and razorback sucker. In 2002, the Service documented larval razorback sucker in the Gunnison River upstream of the Ela Wildlife Sanctuary Site (McAda, 2002).

Humpback chub and bonytail have not been documented at either site. However, bonytail may be stocked in the area by the Recovery Program. If stocked, the proposed actions would also benefit bonytail. The proposed action may affect, not likely to adversely affect (Beneficial Effect), Colorado pikeminnow, razorback sucker, and bonytail; and would not adversely modify designated critical habitat. Incidental take of endangered species is not predicted to occur as a result of the proposed action. The proposed action would have no effect on humpback chub.

Preferred habitats for bald eagle occur adjacent to the project site. Mature cottonwood trees, which are preferred bald eagle winter roost sites are absent from the site. Two wintering bald eagles have been observed roosting in mature cottonwood trees at the confluence of the Colorado and Gunnison Rivers about 2 miles upstream of the project area (Shannon, 2003). The proposed action would have no effect on the bald eagle.

The Service issued written concurrence with Reclamation's determination that the proposed project may affect, but is not likely to adversely affect Colorado pikeminnow, razorback sucker or bonytail. A copy of the Service's concurrence letter is included in the Appendices.

Water Quality

Elevated salinity and selenium levels occurring in both the Colorado and Gunnison rivers have resulted in the implementation of federal programs to address water quality issues. Reclamation and the Natural Resource Conservation Service have implemented salinity control projects in both the Grand and Uncompahgre Valleys to reduce salt loads in the Colorado River mainstem as part of the Colorado River Salinity Control Program. Projects have been limited primarily to the lining of irrigation canals, piping laterals, and on-farm efficiency improvements. The proposed project is predicted to have no effect on salinity concentrations in the Colorado River or affect the Colorado River Salinity Control Program's ability to meet targeted salinity reductions in the lower Colorado River.

The National Irrigation Water Quality Program (NIWQP) evaluated selenium levels in selected backwater sites along the Colorado and Gunnison rivers. Elevated selenium levels were detected from samples collected from ponds in and near the Ela Wildlife Sanctuary (Krueger, 2003). The Gunnison River exceeds the State of Colorado selenium water quality standards and the Redlands Canal south of the property returns diverted Gunnison River water to the Colorado River. The proposed action is predicted to improve water quality conditions at the Ela Wildlife Sanctuary with increased flushing and dilution with Colorado River water.

Water Rights

The proposed action does not affect the amount of water or ability to divert water for consumptive uses in the Colorado River. Therefore, the proposed action is predicted to have no effect on water rights.

Historical and Cultural Resource Properties

Cultural resource inventories were conducted in 2003 by Reclamation staff, and it was determined that the proposed project would have no effect on historical or cultural resource properties. In the unlikely event that cultural or historic resources are encountered during construction, activities would be halted and consultation with the Colorado State Historic

Preservation Officer initiated.

Indian Trust Assets

Indian trust assets are legal interests in property held by the United States for Indian Tribes or individuals. Reclamation and other Federal agencies share the responsibility to protect these assets. There have been no trust assets identified in the project area, and therefore no impact on these assets is predicted.

Environmental Justice

Executive Order 12898 on Environmental Justice provides that Federal agencies analyze programs to assure that they do not disproportionately adversely affect minority or low income populations or Indian Tribes. There are no potentially affected minority or low income populations in the project area, and no adverse effects related to environmental justice are predicted.

Health and Safety/Disease Vectors

Standing water provides breeding habitat for mosquitoes and other biting flies. These insects can serve as potential disease vectors. The proposed action would likely reduce the amount of standing water by introducing river flow into and out of the Ela Wildlife Sanctuary Ponds. Therefore, the proposed action is predicted to have no effect on health and safety/disease vectors.

Socioeconomic

There is no direct socioeconomic effect to implementing the proposed action other than some limited employment opportunities during construction. Indirectly, the proposed project is designed to enhance fish habitat to increase the likelihood of endangered fish recovery, allowing continued water development in the Colorado and Gunnison River basins as identified in the Recovery Program Goals.

Cumulative Impacts

Cumulative impacts are impacts on the environment, which result from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Past and present activities that have affected river-related resources in the area include irrigation, urban development and recreational activities associated with construction and operation of the Aspinall Unit and the Uncompahgre Project, Grand Valley Project, and activities associated with the Upper Colorado River Endangered Fish Recovery Program.

Implementation of all or any of these projects has affected and continues to affect the human environment including but not limited to water quality, water rights, socioeconomic and wildlife resources. Incremental cumulative impacts associated with the implementation of the proposed action are anticipated to be too small to measure.

Summary and Environmental Commitments

In summary, the primary effect of the proposed action would be to improve habitat for the Colorado pikeminnow and razorback sucker at the Ela Wildlife Sanctuary.

The proposed actions would have no effect on land use, water quality, water rights, Indian trust assets, and historical and cultural resources. The proposed action would also have no effect on the bald eagle, or humpback chub. The proposed actions may affect, but is not likely to adversely affect the Colorado pikeminnow, razorback sucker and bonytail. In addition, the proposed action would not adversely modify designated critical habitat.

Wildlife would be impacted by increased noise and activity during construction, however this would be short-term. Impacts associated with construction would be mitigated by restricting construction activities to avoid the normal nesting season. Riparian and wetland dependent wildlife and fish species would benefit from additional habitat access and freshening flows.

Vegetation resources impacts would be limited to temporary construction disturbances. Clean Water Act Section 404 authorization would be obtained to discharge riprap material to protect the newly created notch in the levee.

Mitigation Measures

- 1). Authorization would be obtained from Grand Valley Audubon to notch the existing levee.
- 2). Section 404 authorization would be obtained from the Corps prior to initiating construction activities. Removed levee material would be discharged in uplands sites above the ordinary high water line and used to construct the offset levee.
- 4). Construction and levee removal activities would be limited to before and after the spring runoff period when river levels are low.
- 5) Construction activities would occur outside the normal nesting season to protect nesting waterfowl and migratory birds.
- 6) Areas disturbed during construction would be revegetated with appropriate plant species (i.e. willows, grasses).

7) If any unexpected problems occur that are directly attributable to the notch in the levee, the Recovery Program would take the appropriate corrective action.

CHAPTER 4 – CONSULTATION AND COORDINATION

General

A public scoping letter was mailed to various agencies and adjoining landowners on June 19, 2003. In addition, a notice seeking public comments was published in the Grand Junction Daily Sentinel newspaper on June 29, 2003. Reclamation requested assistance in identifying issues and concerns associated with the proposed project. Reclamation requested comments to be received by July 20, 2002.

A total of four (4) comment letters were received during the public scoping process. Three of the comment letters were from adjoining land owners. Issues and concerns identified included 1) concerns about historical flooding of adjoining properties and increasing flood frequency, 2) notching the existing dike defeating its intended purpose and reducing its ability to protect floodway properties, 3) past non-native fish control efforts, and 4) suggested other alternatives using Redlands Canal water to fill ponds at the Ela Wildlife Sanctuary or using the existing breach created during the 1983 flood.

A comment letter was also received from Colorado State Parks regarding Connected Lakes State Park which is located immediately downstream of the Ela Wildlife Sanctuary. Concerns focused around effects to the existing boat launch, other park facilities, visitors and access roads. Specifically, State Parks identified concerns regarding increased velocity and inundation, sedimentation, turbulence and impairment to boat launching activities, and erosion of the levee at the launching area.

A meeting was held onsite on August 22, 2003 with representatives from the Grand Valley Audubon Society, the Upper Colorado River Endanger Fish Recovery Program, Colorado Division of Wildlife, Bureau of Reclamation and adjoining landowners. The purpose of the meeting was review the proposed action with adjoining landowners and address issues and concerns. Individuals attending the meeting included Bob Wilson and Steve Watson-Grand Valley Audubon Society, Pat Nelson-Upper Colorado River Endangered Fish Recovery Program, John Toolen-Colorado Division of Wildlife, Terry Stroh-Bureau of Reclamation, Ila Royle-adjoining landowner, Charles Adams-adjoining landowner, and Jane Maxon-adjoining landowner. Adjoining landowners were concerned about the potential for increased flooding, changes in the river floodway, loss of the existing levee's integrity, and odor from Audubon ponds.

A draft environmental assessment was release for public review and comment on October 7, 2003 and mailed to 30 agencies, organizations and local residents. Reclamation requested that written comments on the draft environmental assessment be received by November 7, 2003. No comments were received. The draft environmental assessment became the final environmental assessment without revisions.

Consultation with other Agencies

Reclamation staff continues to informally coordinate and consult with the U.S. Fish and Wildlife Service, Colorado State Parks and the Grand Valley Audubon Society. A copy of correspondence with Colorado State Parks is included in Attachment A. A complete list of Agencies is included in the Distribution List.

Distribution List

Appendix A contains the mailing list for this Final Environmental Assessment. The list includes all individuals, agencies, and organizations to which Reclamation sent the scoping document. In addition, others who have specifically provided written comments or requested a copy of the draft EA are included on the list.

REFERENCES

Burdick, B.D. 2001. Five-year evaluation of fish passage at the Redlands Diversion Dam on the Gunnison River near Grand Junction, Colorado: 1996-2000. Recovery Program Project Number CAP-4b. Final Report prepared for the Recovery Implementation Program for Endangered Fishes in the Upper Colorado River Basin. U.S. Fish and Wildlife Service, Colorado River Fishery Project, Grand Junction, CO. 57 pp + appendices.

Krueger, R. 2003. Personal communications with Rick Krueger, U.S. Fish and Wildlife Service Contaminants Specialist, on August 12, 2003. U.S. Fish and Wildlife Service, Grand Junction, Colorado.

Rare Earth Science, LLC. Environmental Summary Report, Grand Valley Audubon Society Nature Center Site, Grand Junction, Colorado. 109 pp. + attachments.

Shannon, C. 2003. Personal communication with Charley Shannon, Western Colorado Wildlife Habitat Association, on April 16, 2003.

Tetra Tech Inc, 2003a. Floodplain Habitat Restoration, Audubon (AU) Site, Colorado River, Grand Junction, Colorado, Flood Inundation Study, Final Report. Contract No. 1425-6-CA-40-1730A, Tetra Tech Inc. Project No. 10600.36, Breckenridge, CO.

Tetra Tech Inc, 2003b. Letter to David Fox, Colorado State Parks, from Jason Carey dated August 30, 2003.

ATTACHMENT A-CORRESPONDENCE

From: <ilamilo@juno.com>
To: <tstroh@uc.usbr.gov>
Date: 6/23/03 3:47PM
Subject: Proposed notch in the Dike by Ela Audubon Wildlife Sanctuary

After looking at the the map and seeing where you want to notch the Dike it don't look every good for the last house on Dike road, when we have had high water in the past the water has backed up close to that house coming right up Dike road to that place, I don't see a Dike going around that pond, why can't you pipe water from the Redlands Canal like the State Park did, it seems to work, and I notice that in the letter "the Subject": Request for input about FloodPlain Habitat Restoration we have been told over and over that down here it's the Floodway we was in the FloodPlain until they change it a few years ago, So being in the Floodway it seems a little risky to notch the Dike if anything it should be build up, Well that's my input, Thanks for asking

Sincerely
Ila Royle
533 Dike Road
Grand Junction Co 245-6252
245-6252

533 Dike Road
Grand Junction Co.
245-6252

From: <gfitch2000@juno.com>
To: <tstroh@uc.usbr.gov>
Date: 6/27/03 4:27PM
Subject: Habitat Restoration Project

Dear Mr Stroh,

It has come to our attention recently, by way of my wife's Parents who received your letter and by John Toolen (of the Audubon Society), that our input is requested for the "Recovery Program" project the Bureau of Reclamation would like to establish for the protection of endangered bottom feeders.

Didn't they just last summer make us suffer through the stench of decay so they could get rid of anything living in the waters of these areas? Or the ones at least that bordered our lands. And now your want to breach the dike and let anything and everything back there during the high waters? And since we were here in Winter of 1983, (just after the biggest flood we have ever experienced growing up just next door), and having to sandbag the encroaching waters, from the west, even though it was the next flood year. Then in 1993 & 1994 again watching the waters creeping towards us. You can understand our apprehension as to the possibilities. And if you were to search a picture taken from the air during those floods I am sure you could see that even if you dike your properties, there would be no protection from waters that would come to us by way of the road path. Anyway, why wouldn't you use the existing notch that the 1983 flood developed instead of creating another which would put us even more at risk during the high waters? But it is our preference that you find an alternative for the waters you need for your project. The canal perhaps? We would consider an alternative project where you would get your waters needed from the canal.

Whereas, it's possible that we are not understanding in full what your proposal is asking, as we do understand it, we can say without reservation that we are NOT in favor of this line of fish protection.

We know all creatures have a place and serve a purpose. But, if you could, please explain WHY these fish are so important that we must protect them at the expense of other fish that are eatable. We understand scavengers play an important part in the balance of nature, but just to set up one place here and there so they can survive as a species does not seem like the balance we understand. Balance to us means there's a place for every species as a mix.

How is it that we are to trust the findings of the Bureau of Reclamation's EA when they most certainly have an agenda?

And we would like to request at this time, a copy of the environment assessment you spoke of in your letter too, Please.

Respectfully Yours

Howard & Grace Fitch
602 Dike Rd.
Grand Jct., CO
81503

7-1-03

Mr Stroh,

Notch in the dike at the Ela Wildlife Sanctuary.

I do not think notching the dike will solve any problems. That old gravel pit has become a mud flat. The mud is 4 to 6 foot deep most of the time. Most of the time the mud in the pit is higher than the river. So, that leaves a stinking mud flat and mosquito breeding area when the water recedes.

This is a "Flood Way" area not a "Flood Plain" areas.

The dike was built for flood control. By notching it you have defeated it's purpose.

I think you should consider rebuilding where the dike is now breached.

Then piping water out of the Redlands Power Tail Race Canal into the Ela Wildlife Sanctuary. Then from there to an outlet and back into the river. That way you have control of the water level and fresh water all year for the fish recovery project.

Connected Lakes State Park, which adjoins the Ela Wildlife Sanctuary, has this set up and it works very well. The water is fresh and the lakes do not smell.

I have lived on Dike Road for about 60 years and I know the way Ela Wildlife Lake is breached. It is the first Floodway in the neighborhood. When we have high water the lake floods first, then the road on the west side of Ela Wildlife property. Then into the old County pit, which is now the Audubon property, on south side of the Dike Rd. Then it fills up and backs up into the neighborhood.

Charles Adams
550 Dike Rd.
Grand Jct., CO
81503



ROCKY MOUNTAIN REGION OFFICE & COLORADO RIVER STATE PARK
P. O. Box 700, Clifton, Colorado 81520 • Phone (970) 434-6862 • FAX (970) 434-6878 • www.parks.state.co.us

July 10, 2003

Terence Stroh
Bureau of Reclamation
2764 Compass Drive
Grand Junction, CO 81506

Re: Comments Regarding the Floodplain Habitat Restoration
Project at the Ela Wildlife Sanctuary

Dear Terry.

Colorado State Parks has received a copy of the Bureau's notice entitled "Request for Input about Floodplain Habitat Restoration at the Ela Wildlife Sanctuary – Grand Valley Audubon Society Property and a copy of the Flood Inundation Study Final Report prepared by Tetra Tech., Inc. Comments regarding this project are presented below.

Colorado State Parks operates a boat launching facility and parking lot directly adjacent to the northwest corner of the Ela Wildlife Sanctuary (EWS) property. The natural drainage from EWS flows onto State property adjacent to the launching and parking areas. Under existing conditions, this area is only affected by the main river channel and is somewhat protected by the levee. As river elevations fluctuate, the inundation areas of the boat launch and parking lot also change.

With the construction of the proposed notch, river flows of up to 1000 cfs will be diverted into EWS and flow through the launching and parking area. The project essentially creates a new river channel with the confluence located at the boat launch. Concern our agency has includes effects of increased velocity and inundation, sedimentation, turbulence and impairment to boat launching activities, and erosion of the levee at the launching area. Under Colorado water law, C.R.S. 37-84-101, it is the responsibility of a water holder, to return water to the river without flooding or damaging the premises of others.

Our agency is unclear about incremental flood affects caused by this project and its impacts to Park facilities, visitors, and access roads. In this regard, we believe the Bureau of Reclamation should provide assurances that they will be responsible for incremental damages and loss of revenue should an unforeseen event occur.

Thank for the opportunity for commenting on this project. If you have any question or wish to discuss these issues, please feel free to contact me at (970) 434-6862.

Sincerely,
David J. Fox, P.E.
Project Engineer

for

DJF/df

Cc: Kurt Mill
Brad Taylor
DNR

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7/23	TS	T. STROH	



TETRA TECH, INC.

INFRASTRUCTURE SOUTHWEST GROUP

410 S. French Street, P.O. Box 1659, Breckenridge, CO 80424
(970) 453-6394 ■ FAX (970) 453-4579

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FLDR	ELO Engineering, Inc.
CLASS	CCC Engineering, Inc. NAME
8/27/03	J. Shook
	PLANNING
	WILDLIFE

August 20, 2003

David Fox
Colorado State Parks
361 32 Road; POB 700
Clifton, CO 81520

Re: Reply to: Comments Regarding the Floodplain Habitat Restoration Project at the Ela Wildlife Sanctuary; letter from David Fox, July 7, 2003

Dear Mr. Fox,

This is a reply to comments made by Colorado State Parks in regard to "Request for Input about Floodplain Habitat Restoration at the Ela Wildlife Sanctuary - Grand Valley Audubon Society Property" and the "Flood Inundation Study Final Report" prepared by Tetra Tech., Inc.

The river channel adjacent to the Ela Wildlife Sanctuary has a dynamic bed and channel form (i.e., not fixed). Therefore, estimates of discharges herein required for connection and flow-through may vary depending on the varying dimensions of the adjacent river channel, which are a function of localized scour and deposition. However, this variability does not impact the accuracy of design. The design of the notch is based entirely on the physical conditions of the outlet, which will not be modified in the proposed design. The outlet is not proposed to be modified because it is considered stable with a very dense and wide corridor of established riparian vegetation. The invert of the proposed notch is set such that the outlet is submerged when the inlet begins flowing based on average hydraulic gradients. The variability in discharge estimates only results in a wider range of predictions for frequency of connection; however, that frequency is regulated by the physical conditions of the outlet. If the outlet was proposed to be modified, additional sediment transport analyses would be required.

The natural interaction of the river and the Ela Wildlife Sanctuary (EWS) currently starts at approximately 11,000 cfs when a backwater condition begins to submerge this area near the boat ramp with very low velocities and probably only depositing silts. As flows rise to approximately 35,000 cfs the existing degraded levee upstream of the boat launch is overtopped and essentially the main channel splits and flows through the

ponds and returns to the river at the boat ramp. Currently split flows only return to the river at the boat ramp when the boat ramp is submerged. This will be true for proposed conditions also.

The boat ramp and adjacent parking area and properties are not protected from any flood condition or any level of inundation by the existing levee because the boat ramp itself is a notch in the levee. The levee upstream prevents a split flow condition between approximately 11,000 and 35,000 cfs, when the boat ramp is submerged by a backwater. The backwater over the boat ramp above 11,000 cfs is the controlling water surface elevation for the proposed design, therefore that water surface elevation will not change from the existing levels experienced. No modifications are being performed at the outlet. The proposed change will be a flow through condition for flows between 11,000 and 35,000 cfs. Because the flows are routed through a pond and a floodplain area before returning to the main channel at the submerged boat ramp, increased sedimentation at the boat ramp due to flow through is not expected. In fact sediments associated with the former backwater condition may be reduced. With the submergence of the boat ramp during an induced flow-through condition, scour at the boat ramp is expected to be insignificant as the backwater curve will absorb the energy of the flow. Most energy of the induced flow-through will be dissipated in the constructed notch and in the first pond.

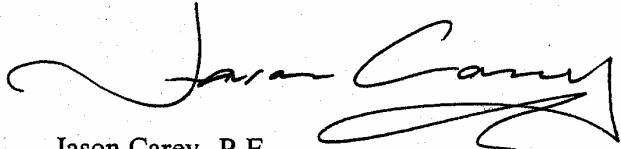
The 1,000 cfs estimate of flow through the notch is the maximum flow expected for conservative calculations of scour in the notch. This was estimated conservatively high at a 40,000 cfs discharge, and the entire boat ramp, parking area and road into the site will begin to be submerged when this occurs and the contribution of flows overtopping the existing levee low points will be as significant or greater than flows through the notch.

The launching and parking area currently experiences flow-through at flood levels, and inundation will be essentially the same under proposed conditions. The project does not create a new river channel because the channel currently exists which backwaters above 11,000 cfs and flows through above 35,000 cfs. The project allows it to flow-through between 11,000 and 35,000 cfs. Increased velocities at the boat ramp are possible, but insignificant because the area will be submerged whenever this occurs. Inundation will not change except within the Ela Wildlife Sanctuary as a mild slope of the water surface from the notch to the boat ramp.

Sedimentation will likely be reduced at the boat ramp, but as an insignificant change. Turbulence and impairment to boat launching activities will occur only during flood events similar to existing conditions. Flooding of the parking lot and boat ramp or any property other than the Ela Wildlife Sanctuary will not change since the levee has already been removed by construction of the boat ramp. The only possible impact outside of the Ela Wildlife Sanctuary associated with the project may be localized scour at the boat ramp and this is unlikely because of the submerged condition of the boat ramp during flow through conditions.

If you have any question or wish to discuss these issues, please feel free to contact me at (970) 453-6394.

Sincerely,

A handwritten signature in black ink that reads "Jason Carey". The signature is fluid and cursive, with a large, stylized flourish at the end.

Jason Carey, P.E.
Water Resources Engineer,

cc: Pat Nelson
Terry Stroh
Brad Taylor

Ralph Morgenweck
Chairman,
Implementation Committee



Upper Colorado River Endangered Fish Recovery Program

Robert Muth
Director,
Recovery Program

U.S. Fish and Wildlife Service • P.O. Box 25486 • Denver Federal Center • Denver, CO 80225 • (303) 969-7322 • Fax (303) 969-7323

ES\CO River Recovery Program\FY-03
Floodplain Restoration
Mail Stop 65115

SEP - 2 2003

Mr. David Fox
Colorado Division of Parks
P.O. Box 700
Clifton, Colorado 81520

Dear Mr. Fox:

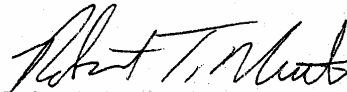
Thank you for your comments on the floodplain habitat restoration project at the Ela Wildlife Sanctuary. Tetra Tech ISG, Inc., has prepared a formal response to your comments and concerns. The proposed project will not change the flooding potential on adjacent properties. Water will still back up into the Ela Sanctuary ponds from the boat ramp approximately every year, and water will come over the existing low spot in the levee when flows are greater than the 3-year return flow. The river already overtops the entire levee when flows are greater than the 5-year return flow. With the new notch in the levee, water will begin to flow through the notch at the same time that water is backing into the ponds from the boat ramp.

Under existing conditions, some sediment deposition likely occurs at the boat ramp as water backs into the Ela Sanctuary during spring runoff. An upstream levee notch is not expected to result in any additional sediment deposition.

No scouring is anticipated at the boat ramp as a result of the levee notch. The backwater effect at the boat ramp, and the topography and vegetation between the notch and the outlet are expected to reduce velocities through the Ela Sanctuary ponds before getting to the outlet.

If, however, any unexpected problems do occur that are directly attributable to the notch in the levee, then the Upper Colorado River Endangered Fish Recovery Program will take the appropriate corrective action.

Sincerely,



Robert T. Muth, Director
Upper Colorado River Endangered Fish Recovery Program

CC: See following page

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7/8	BRU	Blumenberg
9/9	SM	McCall
	TE	Stor
		BAJama
		SPR

ATTACHMENT B-Distribution Mailing List

Grand Valley Audubon Society
P.O. 1211
Grand Junction, CO 81502-1211

Mr. John Toolen
Colorado Division of Wildlife
711 Independent Ave.
Grand Junction, CO 81505

Mr. Larry Abbott
Colorado Department of Transportation
222 South Sixth St.
Grand Junction, CO 81501

Mesa County Department of Planning and
Development
P.O. Box 2000
Grand Junction, CO 81502

Mr. Pat Nelson
U.S. Fish and Wildlife Service
P.O. Box 25486, DFC
Denver, CO 80225

Mr. Al Pfister
U.S. Fish and Wildlife Service
764 Horizon Dr., Bldg. B
Grand Junction, CO 81506

Mr. Marian Atkins
Bureau of Land Management
2815 H Rd.
Grand Junction, CO 81506

Mr. Steven Glazer
High Country Citizen's Alliance/Sierra Club
P.O. Box 459
Crested Butte, CO 81224

Mr. Dave Kanzer
Colorado River Water Conservation District
P.O. Box 1120
Glenwood Springs, CO 81602

Ms Dianna Leinberger
Club 20
P.O. Box 550
Grand Junction, CO 81502

Mr. Ken Jacobson
U.S. Army Corps of Engineers
400 Rood Ave., Room 142
Grand Junction, CO 81501

Mr. Chuck McAda
U.S. Fish and Wildlife Service
764 Horizon Dr., Building B
Grand Junction, CO 81506

Mr. Pat Oglesby
Trout Unlimited
3095 Evanston
Grand Junction, CO 81504

Mr. Randy Seaholm
Colorado Water Conservation Board
1313 Sherman St., Room 721
Denver, CO 80203

Ms. Penny C. Starr
Western Colorado Congress
124 Bristlecone Dr.
Ridgway, CO 81432

Mr. Everett Sunderland
Upper Colorado River Commission
355 S 400 E
Salt Lake City, UT 84111

Mr. Greg Trainor
City of Grand Junction
250 North Fifth St.
Grand Junction, CO 81501

Mr. Paul Von Guerard
U.S. Geological Survey
764 Horizon Dr., Rm 125
Grand Junction, CO 81506

Mr. Brad Taylor
Colorado State Parks
West Regional Office
361 32 Rd.
Grand Junction, CO 81520

Mr. John Gaarde
2384 N. San Miguel Dr.
Grand Junction, CO 81503-1416

Ms. Debra Green
476 E. Scenic Dr.
Grand Junction, CO 81503-1508

Mr. Clyde Maxson
600 Dike Rd.
Grand Junction, CO 81503-2714

Mr. Charles Adams
550 Dike Rd.
Grand Junction, CO 81503-2712

Ms. Ila Royle
533 Dike Rd.
Grand Junction, CO 81503-2711

Mr. Dale Reece
2065 Blue Water Dr.
Fruita, CO 81521-9419

Sheldon Real
2439 River Rd.
Denver, CO 80217-5567

Ms. Patoria Brewer
596 Dike Rd.
Grand Junction, CO 81503-2712

United Sand and Gravel Company
P.O. Box 3609
Grand Junction, CO 81502-3609

Mr. Ronald Johnson
P.O. Box 1373
Grand Junction, CO 81502-2373

Howard and Grace Fitch
602 Dike Road
Grand Junction, CO 81503