

U.S. Fish & Wildlife Service

# Fish & Wildlife Resource Conservation Priorities

Region 3

January 2002



Version 2.0

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January 2002

## Introduction and Purpose

In late 1997, a group of Region 3 employees was brought together to address the Government Performance and Results Act (GPRA). GPRA requires the U.S. Fish and Wildlife Service (Service) to identify the most important functions that it performs and to direct its limited fiscal resources toward those functions.

The Federal government, through the Service, is responsible for conserving natural resources pursuant to a complex array of treaties, Federal laws, Federal statutes, Executive Orders, judicial decisions, and other instruments. Implementation of the GPRA is highly relevant to the Service because our conservation responsibilities dwarf the Agency's budget, demanding a clear and definitive identification of our highest fish and wildlife conservation priorities.

It was immediately apparent to the group that GPRA implementation in Region 3 must be based on National and Regional Service priorities. However, except for broad direction provided by policy and law, no such guidance is available. This document was conceptualized by the GPRA group at that moment.

The Fish and Wildlife Resource Conservation Priorities (RCP) table presented here identifies the 243 species considered to be in the greatest need of attention under the Service's full span of authorities. The identified strategies will contribute to the conservation, protection, and recovery of migratory birds, threatened and endangered species, and interjurisdictional fish, as well as the habitats on which they depend--thus fulfilling the Service's mission.

All strategies are achievable within the context of current laws and policies, although additional human and financial resources will be needed to implement some of the actions. The identified outcomes are the Region's goals, and conservation of our priority fish and wildlife resources is attainable if all Service programs work together.

## What Do We Mean By *Priorities*?

The Service may, under various circumstances, choose to apply its authorities and resources to addressing the needs of literally hundreds of species of fish, wildlife, and plants. While many species not included in the RCP list may be of importance for

various reasons, identifying priority species acknowledges the fact that a subset of the species occurring within Region 3 requires the Service's utmost attention. The fact that a species is not included in the list does NOT mean it is unimportant; it means only that when faced with the choice of addressing the needs of several species, the Service should place emphasis on those identified as priority from a Regional perspective. Many species that are not included in this document will receive incidental benefits from implementation of the strategies outlined herein.

## **Why Species Priorities?**

The basis of the Region's Resource Conservation Priorities is fish, wildlife, and plant species, populations, and strains, i.e., species of fish, wildlife, or plant, subspecies of fish, wildlife, or plant, and distinct population segments of vertebrates that interbreed when mature. Examples of within-species distinctions from the RCP table include the Canada goose (giant and migrant populations) and lake trout (lean and deepwater strains).

We recognized that there were at least two ways to approach the Service's conservation priorities - by focusing on species or by focusing on habitat. After long debate, the group chose the species approach for several reasons.

- *First*, species represent extremely valuable biological and genetic resources that must be considered of primary importance because, once extirpated, they cannot be replaced.
- *Second*, a focus on species conservation necessitates a concurrent focus on habitat in a way that highlights the specific ecological conditions that must be maintained for species survival.
- *Finally*, only by focusing first on species assemblages and identifying those areas where their ecological needs come together can we select the few key places on the broader landscape where our limited efforts will have the greatest impact.

The species-focused approach to identifying key habitats for conserving natural resources and biodiversity is described most effectively in The Nature Conservancy's 1998 publication, *Rivers of Life*, by Master, Flack, and Stein.

While the number of species on the RCP list has grown as the original (1999) list has been revised, it is important to remember that only a small percentage of the species occurring in the Region are on the RCP list. The list is biologically-based and, whenever possible, uses objective criteria for determining a species' inclusion. (In the case of birds, for example, the prioritization criteria are those used by national bird conservation initiatives and other Fish and Wildlife Service Regions.) The number of

RCP species occurring in a particular geographic area (e. g., refuge, state, or ecosystem), or affected by a particular issue (e. g., prairie restoration, tree cutting), will be a subset of the overall list, so one's "working list" will always be smaller than the total number of species on the RCP list. Further, for most purposes, especially habitat conservation activities, species are lumped into guilds, thus reducing the number of individual species that are actually dealt with.

## **Program Input to the Priorities**

The conservation priorities identified in this document were assembled by individuals representing each of the Service's programs from a species management perspective. While all species identified were eventually combined on a single list, the original input came primarily from three program areas through the processes described in Appendices II, III and IV. Additional information on each species group is provided in these appendices.

## **Uses of this Document**

The basis for developing Regional Fish and Wildlife Resource Conservation Priorities was associated initially with regional GPRA planning efforts. However, identification of Region 3's resource priorities has a number of stand-alone benefits, including:

- assisting Region 3 employees in prioritizing their workloads and opportunities, including annual work plans;
- helping to direct where in the Region we should focus application of the Service's many fish and wildlife conservation tools (authorities, programs, expertise, etc.);
- identifying research priorities and training needs;
- preparation of Refuge Comprehensive Conservation Plans and ecosystem plans; and,
- developing and allocating budgets, including flexible funds.

Ultimately, consideration of the Region's priorities in our day-to-day activities will lead to protection, enhancement, and restoration of the most important Regional resources through the efficient and wise application of the Service's people and funding.

Presenting our Regional Resource Conservation Priorities in a tabular format using a common set of habitat indicators, obstacles, strategies, and outcomes will facilitate

analyses and interpretation of species-specific data. The definitions and codes for the Priorities table are presented in Appendix I.

With these common codes, species may be sorted by broad habitat type or ecosystem, or identification of obstacles shared by a number of species may lead to development of strategies to address several species' needs on a broad, landscape scale. Information on habitat associations can be integrated into Geographic Information Systems to identify potential habitat for RCP species, thus allowing the delineation of geographic focus areas where the needs of multiple RCP species can be met. Such analyses and interpretations will help guide our planning and on-the-ground activities in a broader, multi-species context, which is one of the key elements of the Service's ecosystem approach.

To facilitate use of the RCP table, the information therein has been incorporated into a Filemaker Pro 5.0 database that may be searched or sorted in various ways. This database is available from the Regional Refuge Biologist or from the Lotus Notes database entitled R3 BIOLOGUE.

**REGION 3 FISH AND WILDLIFE RESOURCE CONSERVATION PRIORITIES**  
**January 2002**

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
<b>MAMMALS</b>						
Gray bat <i>Myotis grisescens</i>	OHR, OZW, UMR	Caves	Endangered	1, 2, 4, 6, 7, 9, 10, 11, 12, 13	1, 2b, 3, 7, 9, 10, 11	1a, 1b, 1c, 2b, 4, 6, 7, 8, 9, 10
Indiana bat <i>Myotis sodalis</i>	GRL, LMO, OHR, OZW, UMR	Caves, Barren lands (mines), Forests	Endangered	1, 2, 4, 6, 9, 10, 11, 12, 13	1, 3, 4, 7, 9, 10, 11	1a, 1b, 1c, 2b, 4, 6, 7, 8, 9, 10
Ozark big-eared bat <i>Plecotus townsendii ingens</i>	ARR, OZW	Caves	Endangered	1, 2, 4, 9, 10, 11, 13	1, 4, 7	1a, 1b, 6, 7, 8, 9
Canada lynx <i>Lynx canadensis</i>	GRL	Forest (coniferous)	Threatened	1, 2, 9, 13	1, 4, 10, 11	1a, 1b, 1c, 6, 8, 9
Gray wolf <i>Canis lupus</i>	GRL, MSH, UMR	Forests	Endangered, Threatened (recovering species), Tribal trust	2, 4, 6, 9, 10, 11, 12, 13	9, 10	1a, 1b, 1c, 6, 7, 8, 9, 10
<b>BIRDS</b>						
Common Loon <i>Gavia immer</i>	GRL, MSH, UMR	Lacustrine	Rare/declining (status assessment underway)	1, 2, 4, 8, 9, 10	1, 5, 7, 9, 11	1a, 1b, 1c, 4, 6, 8, 9
Double-crested Cormorant <i>Phalacrocorax auritus</i>	GRL, MSH, UMR	Lacustrine, Riverine (large rivers, shorelines), Barren lands (islands), Forests (islands), Aspen Parkland	"Nuisance" (management plan in preparation)	1, 3, 4, 6, 10, 11, 13	1, 9, 10, 11	1a, 1c, 5, 7, 8, 9, 10, 11
American Bittern <i>Botaurus lentiginosus</i>	GRL, MSH, UMR	Palustrine, Grasslands, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
Least Bittern <i>Ixobrychus exilis</i>	GRL, MSH, UMR	Palustrine	Rare/declining	1, 2, 4, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
Black-crowned Night-Heron <i>Nycticorax nycticorax</i>	ARR, GRL, LMO, LMS, MSH, OHR, UMR	Lacustrine, Palustrine, Riverine (shorelines), Forests (islands, bottomland), Aspen Parkland	Rare/declining	1, 2, 4, 7, 9, 10	1, 2c, 6, 7, 8, 9, 11	1a, 1b, 1c, 3b, 5, 6, 8, 9
Snow Goose <i>Chen caerulescens</i>	LMO, MSH	Lacustrine, Palustrine, Aspen Parkland	Recreational/economic value, "Nuisance" (management plan in preparation)	1, 3, 4, 6, 10, 11, 12, 13	1, 3, 9, 10, 11	1a, 1c, 2a, 5, 7, 8, 9, 10
Canada Goose - Resident Populations (Giants & Urban Giants) <i>Branta canadensis</i>	ARR, GRL, LMO, LMS, MSH, OHR, OZW, UMR	Lacustrine, Palustrine, Aspen Parkland	Recreational/economic value, "Nuisance" (management plan in preparation)	1, 2, 3, 4, 10, 11, 12, 13	1, 3, 9, 10	1a, 2a, 5, 7, 8, 9, 10, 11

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Canada Goose - Migrant Populations <i>Branta canadensis</i>	GRL, LMO, LMS, MSH, OHR, OZW, UMR	Lacustrine, Palustrine, Aspen Parkland	Recreational/economic value	1, 2, 4, 8, 9, 10, 11, 12	1, 5, 7, 9, 10	1a, 1b, 1c, 2a, 4, 6, 8, 9, 10
Trumpeter Swan <i>Cygnus buccinator</i>	GRL, MSH, UMR	Lacustrine, Palustrine, Riverine	Rare/declining, Recreational/economic value	1, 2, 4, 5, 6, 7, 8, 9, 10	2c, 5, 6, 7, 9	1a, 2c, 4, 5, 6, 8, 9, 10
Wood Duck <i>Aix sponsa</i>	GRL, LMO, LMS, MSH, OHR, UMR	Palustrine, Riverine (shorelines), Forests (mature, bottomland), Aspen Parkland	Recreational/economic value	1, 2, 4, 8, 9, 10, 12	1, 5, 7	1a, 1b, 2a, 4, 6, 7, 8, 9
American Black Duck <i>Anas rubripes</i>	GRL	Lacustrine, Palustrine (shrub/scrub), Aspen Parkland	Recreational/economic value	1, 2, 4, 8, 9, 10, 12	1, 2c, 5, 7, 9	1a, 1b, 1c, 2a, 4, 6, 7, 8, 9
Mallard <i>Anas platyrhynchos</i>	GRL, LMO, LMS, MSH, OHR, UMR	Palustrine, Grasslands, Forests (mature, bottomland), Aspen Parkland	Recreational/economic value	1, 2, 4, 8, 9, 10, 12	1, 2a, 5, 7	1a, 1b, 1c, 2a, 3a, 4, 6, 7, 8, 9
Blue-winged Teal <i>Anas discors</i>	MSH, UMR	Palustrine, Grasslands, Aspen Parkland	Recreational/economic value	1, 2, 4, 8, 9, 10, 12	1, 2a, 5, 7	1a, 1b, 1c, 2a, 3a, 4, 6, 7, 8, 9
Northern Pintail <i>Anas acuta</i>	MSH	Palustrine, Grasslands, Aspen Parkland	Recreational/economic value, Rare/declining	1, 4, 8, 9, 10, 12	1, 2, 4, 5, 7	1a, 1b, 1c, 2a, 3a, 4, 6, 7, 8
Canvasback <i>Aythya valisineria</i>	GRL, MSH, UMR	Lacustrine, Palustrine, Riverine, Aspen Parkland	Recreational/economic value	1, 2, 4, 8, 9, 10, 12	1, 5, 7	1a, 1b, 2a, 4, 6, 7, 8, 9, 10
Lesser Scaup <i>Aythya affinis</i>	GRL, MSH, UMR	Lacustrine, Palustrine, Riverine (large rivers, shorelines), Aspen Parkland	Recreational/economic value, Rare/declining	1, 2, 4, 8, 9, 10, 12	1, 5, 7	1a, 1b, 1c, 2a, 3a, 4, 6, 7, 8
Bald Eagle <i>Haliaeetus leucocephalus</i>	ARR, GRL, LMO, LMS, MSH, OHR, OZW, UMR	Lacustrine (Great Lakes, impoundments, reservoirs), Riverine (large rivers, impoundments, shorelines), Forests (mature, bottom-land, upland, islands), Aspen Parkland	Proposed Rule (Delist from ESA), Tribal trust	1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 13	5, 7	4, 6, 7, 8, 9, 10
Northern Harrier <i>Circus cyaneus</i>	ARR, GRL, LMO, MSH, OHR, UMR	Palustrine, Grasslands, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Northern Goshawk <i>Accipiter gentilis</i>	GRL, MSH, UMR	Forests (mature upland), Aspen Parkland	Rare/declining	1, 2, 4, 9, 10, 11, 13	1, 2a, 7, 9, 10, 11	1a, 1b, 1c, 3a, 6, 8, 9, 11
Red-shouldered Hawk <i>Buteo lineatus</i>	GRL, LMS, MSH, OHR, OZW, UMR	Forests (mature upland and bottomland)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9, 10, 11	1a, 1b, 1c, 6, 8, 9
Swainson's Hawk <i>Buteo swainsoni</i>	ARR, LMO, MSH, UMR	Grassland, Savannas	Rare/declining	1, 2, 4, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Peregrine Falcon <i>Falco peregrinus anatum</i>	GRL, MSH, OHR, UMR	Palustrine (marshes, swamps), Riverine (bars, shorelines), Grasslands, Forests, Barren lands (beaches, bare rock, talus cliffs, unvegetated islands)	Rare/declining, ESA Delisted, Recreational/economic value	2, 4, 5, 10, 13	7, 11	1a, 1b, 2c, 6, 7, 8, 9, 10, 11
Yellow Rail <i>Coturnicops noveboracensis</i>	GRL, MSH	Palustrine (wet meadow), Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
Black Rail <i>Laterallus jamaicensis</i>	GRL, UMR	Palustrine	Rare/declining	1, 2, 4, 9, 10	1, 4, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
King Rail <i>Rallus elegans</i>	GRL, LMO, LMS, MSH, OHR, UMR	Palustrine	Rare/declining	1, 2, 4, 9, 10	1, 4, 7, 9, 10, 11	1a, 1b, 1c, 2a, 6, 8, 9
Common Moorhen <i>Gallinula chloropus</i>	GRL, LMO, LMS, MSH, OHR, UMR	Palustrine	Rare/declining	1, 2, 4, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
Whooping Crane - Eastern Population <i>Grus americana</i>	GRL, OHR, UMR	Palustrine	Threatened (non-essential experimental population)	1, 2, 4, 5, 6, 9, 10, 11, 12, 13	1, 4, 5, 7, 9, 10	1c, 2c, 4, 6, 7, 8, 9
Piping Plover (Great Lakes population) <i>Charadrius melodus</i>	GRL, LMO	Barren lands (beaches)	Endangered	1, 2, 4, 9, 10, 11, 13	1, 2a, 3, 4, 7, 9, 10	1a, 1b, 1c, 2b, 3a, 6, 7, 8, 9, 10
Piping Plover (Northern Great Plains population) <i>Charadrius melodus</i>	GRL, LMO	Lacustrine, Palustrine, Riverine (shorelines, bars), Barren lands	Threatened	1, 2, 4, 9, 10, 11, 13	1, 2a, 3, 4, 7, 9, 10	1a, 1b, 1c, 2b, 3a, 6, 8, 9
Greater Yellowlegs <i>Tringa flavipes</i>	ARR, GRL, LMO, LMS, MSH, OHR, UMR	Lacustrine, Palustrine, Riverine (shorelines), Aspen Parkland	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Upland Sandpiper <i>Bartramia longicauda</i>	ARR, GRL, LMO, MSH, OHR, UMR	Grasslands, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Whimbrel <i>Numenius phaeopus</i>	GRL, LMO, MSH, UMR	Lacustrine, Palustrine, Riverine, Grasslands	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Hudsonian Godwit <i>Limosa haemastica</i>	GRL, LMO, MSH, UMR	Lacustrine, Palustrine, Riverine (shorelines), Aspen Parkland	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Marbled Godwit <i>Limosa fedoa</i>	GRL, LMO, MSH, UMR	Lacustrine, Palustrine, Grasslands, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Stilt Sandpiper <i>Calidris himantopus</i>	ARR, GRL, LMO, LMS, MSH, OHR, UMR	Lacustrine, Palustrine, Riverine, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9



PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Buff-breasted Sandpiper <i>Tryngites subruficollis</i>	ARR, GRL, LMO, MSH, OHR, UMR	Lacustrine, Palustrine, Riverine, Grasslands	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Short-billed Dowitcher <i>Limnodromus griseus</i>	ARR, GRL, LMO, LMS, MSH, OHR, UMR	Lacustrine, Palustrine, Riverine (shorelines), Aspen Parkland	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9
American Woodcock <i>Scolopax minor</i>	GRL, MSH, OHR, UMR	Palustrine (wet meadow and shrub/scrub), Forests (early successional), Aspen Parkland	Recreational/economic value, Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9, 10	1a, 1b, 1c, 2a, 6, 7, 8, 9
Wilson's Phalarope <i>Phalaropus tricolor</i>	GRL, LMO, MSH, LMS, UMR	Lacustrine, Palustrine, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10, 12, 13	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Common Tern - Great Lakes Population <i>Sterna hirundo</i>	GRL, MSH	Lacustrine, Barren lands (beaches and islands)	Rare/declining (status assessment underway)	1, 2, 4, 6, 9, 10, 13	1, 2a, 2c, 7, 9, 11	1a, 1b, 1c, 3a, 3b, 6, 8, 9
Forster's Tern <i>Sterna forsteri</i>	GRL, LMO, MSH, UMR	Lacustrine, Palustrine, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
Least Tern - Interior Population <i>Sterna antillarum</i>	LMO, LMS, UMR	Palustrine, Barren lands	Endangered	1, 2, 4, 9, 10, 11, 12, 13	1, 3, 7, 8, 9, 10	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Black Tern <i>Chlidonias niger</i>	GRL, MSH, UMR	Lacustrine, Palustrine, Aspen Parkland	Rare/declining (status assessment completed and conservation needs identified)	1, 2, 4, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i>	ARR, GRL, LMO, LMS, MSH, OHR, UMR	Forests, Shrublands, Savannas, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Barn Owl <i>Tyto alba</i>	ARR, LMO, LMS, OHR, OZW, UMR	Grasslands	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Long-eared Owl <i>Asio otus</i>	ARR, GRL, LMO, MSH, OHR, OZW, UMR	Forests, Savannas	Rare/declining	1, 2, 4, 10	1, 9	1a, 1b, 1c, 8, 9
Short-eared Owl <i>Asio flammeus</i>	GRL, LMO, OHR, MSH	Grasslands, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Chuck-will's-widow <i>Caprimulgus carolinensis</i>	ARR, LMO, LMS, OHR, UMR	Forests	Rare/declining	1, 2, 4, 10	1, 9	1a, 1b, 1c, 8, 9
Whip-poor-will <i>Caprimulgus vociferus</i>	ARR, GRL, LMO, LMS, MSH, OHR, OZW, UMR	Forests, Savannas, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Forests (deciduous, bottomland), Savannas, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Northern Flicker <i>Colaptes auratus</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Forests, Savannas, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Olive-sided Flycatcher <i>Contopus cooperi</i>	GRL, MSH, UMR	Forests (coniferous)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Acadian Flycatcher <i>Empidonax vireescens</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Forests (deciduous)	Rare/declining	1, 2, 4, 6, 7, 9, 10	1, 6, 7, 9	1a, 1b, 1c, 5, 6, 8, 9
Loggerhead Shrike <i>Lanius ludovicianus</i>	ARR, GRL, LMO, LMS, MSH, OHR, OZW, UMR	Grasslands, Shrublands	Rare/declining (status assessment completed and conservation needs identified, decision on Candidate elevation pending)	1, 2, 4, 9, 10, 13	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
Bell's Vireo <i>Vireo bellii</i>	ARR, GRL, LMS, LMO, OHR, OZW, UMR	Palustrine (shrub/scrub), Shrublands	Rare/declining	1, 2, 4, 6, 7, 9, 10	1, 6, 7, 9	1a, 1b, 1c, 5, 6, 8, 9
Bewick's Wren <i>Thryomanes bewickii</i>	ARR, LMS, LMO, OHR, OZW, UMR	Shrublands, Forests (early successional)	Rare/declining	1, 2, 4, 9, 10	1, 2c, 7, 9	1a, 1b, 1c, 6, 8, 9
Sedge Wren <i>Cistothorus platensis</i>	GRL, MSH, UMR	Palustrine (wet meadows), Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Wood Thrush <i>Hylocichla mustelina</i>	ARR, GRL, LMO, MSH, OHR, OZW, UMR	Forests (upland)	Rare/declining	1, 2, 4, 9, 10	1, 6, 7, 9	1a, 1b, 1c, 3b, 5, 6, 8, 9
Blue-winged Warbler <i>Vermivora pinus</i>	ARR, GRL, LMS, LMO, OHR, OZW, UMR	Shrublands, Forests (early successional)	Rare/declining (status assessment underway)	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Golden-winged Warbler <i>Vermivora chrysoptera</i>	GRL, MSH, OHR, UMR	Shrublands, Forests (early successional), Aspen Parkland	Rare/declining (status assessment underway)	1, 2, 4, 9, 10	1, 2c, 7, 9, 10	1a, 1b, 1c, 6, 8, 9
Cape May Warbler <i>Dendroica tigrina</i>	GRL	Forests (coniferous)	Rare/declining	1, 2, 4, 10	1, 9	1a, 1b, 1c, 8, 9
Black-throated Blue Warbler <i>Dendroica caerulescens</i>	GRL	Forests (mixed)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Kirtland's Warbler <i>Dendroica kirtlandii</i>	GRL	Forests (coniferous)	Endangered	1, 2, 3, 4, 6, 7, 9, 10, 11, 13	1, 2c, 3, 6, 9, 10	1a, 1b, 1c, 2b, 3a, 5, 6, 7, 8, 9, 10

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Prairie Warbler <i>Dendroica discolor</i>	ARR, LMS, OHR, OZW, UMR	Shrublands, Forests (early successional)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Cerulean Warbler <i>Dendroica cerulea</i>	GRL, LMS, OHR, OZW, UMR	Forests (mature upland and bottomland)	Rare/declining (status assessment completed and conservation needs identified, Service sponsored conservation actions underway or planned)	1, 2, 4, 9, 10	1, 7, 9, 10	1a, 1b, 1c, 6, 8, 9
Prothonotary Warbler <i>Protonotaria citrea</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Forests (bottomland)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Worm-eating Warbler <i>Helmitheros vermivorus</i>	ARR, LMS, OHR, OZW, UMR	Forests (deciduous)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Swainson's Warbler <i>Limnothlypis swainsonii</i>	ARR, LMS, LMO, OHR, OZW, UMR	Forests (bottomland)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Louisiana Waterthrush <i>Seiurus motacilla</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Riverine, Forests	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Kentucky Warbler <i>Oporornis formosus</i>	ARR, LMO, LMS, MSH, OHR, OZW	Forests (deciduous)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Connecticut Warbler <i>Oporornis agilis</i>	GRL, MSH	Palustrine (shrub/scrub), Forests (mixed)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Canada Warbler <i>Wilsonia canadensis</i>	GRL, MSH, UMR	Forests (mixed)	Rare/declining	1, 2, 4, 10	1, 9	1a, 1b, 1c, 8, 9
Bachman's Sparrow <i>Aimophila aestivalis</i>	LMS, OHR	Grasslands, Shrublands	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Field Sparrow <i>Spizella pusilla</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Shrublands, Grasslands	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Grasshopper Sparrow <i>Ammodramus savannarum</i>	GRL, LMO, MSH, OHR, UMR	Grasslands	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Henslow's Sparrow <i>Ammodramus henslowii</i>	ARR, GRL, LMO, LMS, MSH, OHR, OZW, UMR	Grasslands	Rare/declining (status assessment completed and conservation needs identified)	1, 2, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 6, 8, 9
Le Conte's Sparrow <i>Ammodramus leconteii</i>	GRL, MSH, UMR	Palustrine (wet meadows), Grasslands, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Nelson's Sharp-tailed Sparrow <i>Ammodramus nelsoni</i>	MSH	Palustrine (marshes), Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Dickcissel <i>Spiza americana</i>	ARR, GRL, LMO, MSH, OHR, UMR	Grasslands	Rare/declining	1, 2, 4, 9, 10	1, 3, 7, 9	1a, 1b, 1c, 2b, 6, 8, 9
Bobolink <i>Dolichonyx oryzivorus</i>	GRL, LMO, MSH, OHR, UMR	Grasslands	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Eastern Meadowlark <i>Sturnella magna</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Grasslands, Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Western Meadowlark <i>Sturnella neglecta</i>	ARR, GRL, LMO, MSH, UMR	Grasslands	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Rusty Blackbird <i>Euphagus carolinus</i>	ARR, LMO, LMS, OHR, OZW, UMR (wintering only)	Forests (bottomland)	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
Orchard Oriole <i>Icterus spurius</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Forests (early- and mid-successional), Shrublands, Savannas, Palustrine (shrub/scrub), Aspen Parkland	Rare/declining	1, 2, 4, 9, 10	1, 7, 9	1a, 1b, 1c, 6, 8, 9
<b>AMPHIBIANS</b>						
Hellbender <i>Cryptobranchus allenganiensis</i>	ARR, LMS, MSH, OHR, OZW	Riverine (streams)	Rare/declining (status assessment underway)	1, 4, 13	1, 11	1a, 1b, 1c, 6, 7, 8, 9
Ozark hellbender <i>Cryptobranchus allenganiensis bishopi</i>	OZW	Riverine (cobble/gravel, boulder substrate in medium to large streams)	ESA Candidate	1, 2, 4, 5, 9, 10, 11, 13	1, 4, 7, 9, 10, 11	1a, 1b, 1c, 2b, 2c, 6, 7, 8, 9, 10
<b>REPTILES</b>						
Timber rattlesnake <i>Crotalus horridus horridus</i>	OHR, UMR	Forests	Rare/declining (Service sponsored conservation actions underway or planned)	1, 4, 10, 13	1, 4, 7, 10, 11	1a, 1c, 6, 7, 8, 9
Eastern massasauga <i>Sistrurus catenatus catenatus</i>	GRL, LMO, OHR, UMR	Palustrine (wet meadow), Forests (upland), Grasslands	ESA Candidate	1, 4, 13	1, 7, 10, 11	1a, 1c, 6, 7, 8, 9
Copperbelly water snake - Northern population <i>Nerodia erythrogaster neglecta</i>	GRL	Palustrine (swamps), Forests (upland, bottomland)	Threatened	1, 2, 4, 9, 10, 11, 13	1, 2a, 2c, 3, 4, 7, 8, 9, 10, 11	1a, 1c, 2b, 3b, 6, 7, 8, 9, 10
Copperbelly water snake - Southern population <i>Nerodia erythrogaster neglecta</i>	OHR	Palustrine (swamps), Forests (upland, bottomland)	Rare/declining (conservation agreements in place that will sustain population)	1, 2, 4, 6, 9, 11, 12, 13	7, 9, 10	1a, 1b, 1c, 2b, 3b, 6, 7, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Lake Erie water snake <i>Nerodia sipedon insularum</i>	GRL	Palustrine, Barren lands	Threatened	1, 4, 10, 13	1, 7, 10, 11	1a, 1c, 6, 7, 8, 9
<b>FISH</b>						
Lean lake trout - Great Lakes population <i>Salvelinus namaycush</i>	GRL	Lacustrine (nearshore), Riverine	Rare/declining, Recreational/economic value, Tribal trust	1, 2, 4, 5, 6, 7, 8, 10, 11, 12, 13	2b, 2c, 6, 10	1a, 2a, 2c, 3a, 3b, 4, 5, 7, 8, 9
Deepwater lake trout - Lakes Michigan and Huron population <i>Salvelinus namaycush</i>	GRL	Lacustrine (deepwater)	Rare/declining	1, 2, 5, 7, 8, 9, 10, 11, 13	1, 4, 6, 10, 11	1a, 1b, 1c, 2c, 4, 5, 6, 7, 8, 9
Brook trout - Great Lakes population <i>Salvelinus fontinalis</i>	GRL	Lacustrine (nearshore), Riverine	Rare/declining, Recreational/economic value, Tribal trust	1, 2, 4, 5, 8, 9, 10, 11, 12, 13	1, 3, 4, 7, 10, 11	1a, 1b, 1c, 2a, 2c, 4, 6, 7, 8, 9
Brook trout - Inland population <i>Salvelinus fontinalis</i>	GRL, MSH, UMR	Riverine (small streams)	Rare/declining, Recreational/economic value, Tribal trust	1, 2, 5, 9, 10, 11, 12, 13	1, 2c, 4, 6, 7, 8, 10, 11	1a, 1b, 1c, 2c, 6, 7, 8, 9
Chinook salmon - Great Lakes population <i>Oncorhynchus tshawytscha</i>	GRL	Lacustrine, Riverine	Recreational/economic value	6, 8, 10, 11, 12	2b, 2c, 5, 10	3a, 4, 7, 8, 9
Coho salmon - Great Lakes population <i>Oncorhynchus kisutch</i>	GRL	Lacustrine, Riverine	Recreational/economic value	6, 8, 10, 11, 12	2b, 2c, 5, 10	3a, 4, 7, 8, 9
Lake whitefish - 1836 Ceded Territory and 1842 Ceded Territory population <i>Coregonus clupeaformis</i>	GRL	Lacustrine	Recreational/economic value, Tribal trust	1, 4, 9, 10, 12	3, 10	1a, 2a, 6, 7, 8, 9
Kiyi - Great Lakes population <i>Coregonus kiyi</i>	GRL	Lacustrine	Rare/declining	1, 2, 4, 9, 11, 13	1, 4, 11	1a, 1b, 6, 7, 8, 9
Shortjaw cisco - Great Lakes population <i>Coregonus zenithicus</i>	GRL	Lacustrine	Rare/declining (status assessment underway)	1, 2, 4, 9, 11, 13	1, 4, 11	1a, 1b, 6, 7, 8, 9
Rainbow trout - Lake Taneycomo population <i>Oncorhynchus mykiss</i>	OZW	Lacustrine (impoundment)	Federal mitigation, Recreational/economic value	12	4	2a, 2c, 9
Lake sturgeon - Great Lakes population <i>Acipenser fulvescens</i>	GRL	Lacustrine (nearshore), Riverine	Rare/declining, Recreational/economic value, Tribal trust	1, 2, 4, 5, 9, 10, 11, 12, 13	1, 4, 7, 8, 11	1a, 1b, 1c, 2a, 2c, 6, 7, 8, 9, 10

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Lake sturgeon - Inland population <i>Acipenser fulvescens</i>	GRL, LMO, LMS, MSH, OHR, UMR	Riverine	Rare/declining, Recreational/economic value, Tribal trust	1, 2, 4, 5, 9, 10, 11, 12, 13	1, 4, 7, 8, 9, 11	1a, 1b, 1c, 2a, 2c, 6, 7, 8, 9, 10
Pallid sturgeon <i>Scaphirhynchus albus</i>	LMO, UMR	Riverine (large rivers)	Endangered	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Shovelnose sturgeon <i>Scaphirhynchus platyrhynchus</i>	LMO, LMS, MSH, OHR, UMR	Riverine (large rivers)	Recreational/economic value	1, 4, 9, 10, 11, 13	3, 7, 10	1b, 2a, 6, 7, 8, 9, 10
Paddlefish <i>Polyodon spathula</i>	LMO, LMS, OHR, UMR	Riverine	Rare/declining, Recreational/economic value	1, 2, 4, 5, 9, 10, 11, 12, 13	1, 3, 7, 8, 9, 11	1a, 1b, 1c, 2a, 2c, 6, 7, 8, 9, 10
Walleye - 1836 Ceded Territory, 1837 Ceded Territory, and 1842 ceded Territory population <i>Stizostedion vitreum</i>	GRL, MSH, UMR	Lacustrine (nearshore), Riverine	Recreational/economic value, Tribal trust	10, 12	10	1a, 2a, 7, 8, 9
Yellow perch - Great Lakes population <i>Perca flavescens</i>	GRL	Lacustrine (nearshore)	Rare/declining, Recreational/economic value	1, 2, 4, 10, 11, 12, 13	1, 4	1a, 1c, 2a, 7, 8
Plains minnow <i>Hybognathus placitus</i>	LMO, UMR	Riverine (shallow channels)	Rare/declining	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Western silvery minnow <i>Hybognathus argyritis</i>	LMO, UMR	Riverine (backwaters, pools)	Rare/declining	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Arkansas darter <i>Etheostoma cragini</i>	ARR	Riverine (small creeks)	ESA Candidate	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Spotted darter <i>Etheostoma maculatum</i>	OHR	Riverine (riffles in medium to large streams)	Rare/declining (status assessment underway)	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Niangua darter <i>Etheostoma nianguae</i>	LMO	Riverine (streams)	Threatened	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Crystal darter <i>Ammocrypta asprella</i>	LMO, UMR	Riverine (streams)	Rare/declining (status assessment underway)	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Eastern sand darter <i>Ammocrypta pellucida</i>	OHR	Riverine (streams, main channels)	Rare/declining (status assessment underway)	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Longhead darter <i>Percina macrocephala</i>	OHR	Riverine (pools)	Rare/declining (status assessment underway)	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Muskellunge - 1837 Ceded Territory and 1842 Ceded Territory population <i>Esox masquinongy</i>	GRL, MSH, UMR	Lacustrine, Riverine	Recreational/economic value, Tribal trust	10, 12	10	1a, 2a, 7, 8, 9
Neosho madtom <i>Noturus placidus</i>	ARR	Riverine (streams)	Threatened	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Scioto madtom <i>Noturus trautmani</i>	OHR	Riverine (small creeks)	Endangered	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 3, 4, 7, 9, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Blue sucker <i>Cycleptus elongatus</i>	ARR, LMO, LMS, MSH, OHR, OZW, UMR	Riverine (large rivers)	Rare/declining	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Flathead chub <i>Hybopsis gracilis</i>	LMO, UMR	Riverine (large rivers, main channels)	Rare/declining (status assessment underway)	1, 2, 4, 5, 6, 9, 10, 11, 13	1, 4, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9
Logperch <i>Percina evermanni</i>	OHR	Lacustrine, Riverine (large rivers)	Rare/declining (status assessment underway)	1, 2, 4, 9, 10, 11, 13	1, 4, 9, 11	1a, 1b, 1c, 6, 8, 9
Logperch <i>Percina manitou</i>	OHR	Lacustrine, Riverine (large rivers)	Rare/declining (status assessment underway)	1, 2, 4, 9, 10, 11, 13	1, 4, 9, 11	1a, 1b, 1c, 6, 8, 9
Ozark cavefish <i>Amblyopsis rosae</i>	ARR, LMO, OZW	Caves	Threatened	1, 2, 4, 9, 10, 11, 13	1, 4, 8, 9, 10	1a, 1b, 1c, 2b, 6, 7, 8, 9
Northern cavefish <i>Amblyopsis spelaea</i>	OHR	Caves	Rare/declining (status assessment pending)	1, 2, 9, 13	1, 6, 7, 8, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Topeka shiner <i>Notropis topeka</i>	LMR	Riverine (small to medium streams, backwaters, pools, creeks, gravel and cobble substrate)	Endangered	1, 2, 3, 4, 5, 8, 9, 10, 11, 13	1, 2a, 4, 5, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2c, 3a, 4, 5, 6, 7, 8, 9
Sea lamprey <i>Petromyzon marinus</i>	GRL	Lacustrine, Riverine	"Nuisance"	1, 7, 13	2a, 6	1a, 1b, 5, 8, 9
Eurasian ruffe <i>Gymnocephalus cernuus</i>	GRL	Lacustrine, Riverine	"Nuisance"	1, 7, 13	1, 2c, 6, 9, 10, 11	1a, 3b, 5, 7, 8, 9, 10
Round goby <i>Neogobius melanostomus</i>	GRL	Lacustrine, Riverine	"Nuisance"	1, 7, 13	1, 2c, 6, 9, 10, 11	1a, 3b, 5, 7, 8, 9, 10
Bighead carp <i>Hypophthalmichthys nobilis</i>	LMO, LMS, OHR, UMR	Riverine (large rivers)	"Nuisance"	1, 7, 13	1, 2c, 6, 9, 10, 11	1a, 3b, 5, 7, 8, 9, 10
Grass carp <i>Ctenopharyngodon idella</i>	GRL, LMO, LMS, OHR, UMR	Riverine (large rivers)	"Nuisance"	1, 7, 13	1, 2c, 6, 9, 10, 11	1a, 3b, 5, 7, 8, 9, 10

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
<b>MUSSELS</b>						
Spectaclecase <i>Cumberlandia mondonga</i>	LMO, OHR, UMR	Riverine (boulder/cobble/gravel/sand in large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Elktoe <i>Alasmidonta marginata</i>	ARR, GRL, LMO, MSH, OHR, OZW, UMR	Riverine (gravel/mixed sand/gravel in medium sized streams)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Slippershell <i>Alasmidonta viridis</i>	ARR, GRL, OHR, OZW, UMR	Riverine (sand/mud/fine gravel in creeks and headwaters)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Threeridge <i>Amblyma plicata</i>	ARR, LMO, LMS, MSH, OHR, UMR	Riverine (mud/sand/gravel in small to large rivers and impoundments)	Recreational/economic value	10	3, 10, 11	2a, 9, 10
Rock pocketbook <i>Arcidens confragosus</i>	LMO, LMS, OHR, UMR	Riverine (mud/sand pools in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Western fanshell <i>Cyprogenia aberti</i>	ARR	Riverine (gravel or sand/gravel substrate in small to medium streams)	Rare/declining (status assessment underway or planned)	1, 2, 3, 4, 7, 9, 10, 11, 13	1, 4, 7, 8, 9, 10	1a, 1b, 1c, 2a, 2b, 2c, 3a, 5, 6, 7, 8, 9, 10
Fanshell <i>Cyprogenia stegaria</i>	OHR	Riverine (gravel riffles in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Curtis' pearlymussel <i>Epioblasma florentina curtisi</i>	OZW	Riverine (streams)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
White cat's paw pearlymussel <i>Epioblasma obliquata perobliqua</i>	GRL, OHR	Riverine (sand/gravel in small streams and medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Purple cat's paw pearlymussel <i>Epioblasma obliquata obliquata</i>	OHR	Riverine (gravel riffles in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Northern riffleshell <i>Epioblasma rangiana</i>	OHR	Riverine (gravel riffles in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Tubercled-blossom pearlymussel <i>Epioblasma torulosa torulosa</i>	OHR	Riverine (large rivers)	Endangered (believed extirpated)	5	1, 4, 6, 7, 8, 10, 11	1a, 1b, 1c, 2c
Snuffbox <i>Epioblasma triquetra</i>	LMO, LMS, OHR, UMR	Riverine (gravel riffles in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Cracking pearlymussel <i>Hemistena lata</i>	OHR	Riverine (mud/sand/gravel in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 6, 7, 8, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10



PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Pink mucket pearl mussel <i>Lampsilis abrupta</i>	LMO, OHR	Riverine (gravel/sand in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Higgins' eye pearl mussel <i>Lampsilis higginsii</i>	UMR	Riverine (gravel/sand in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Neosho mucket <i>Lampsilis rafinesqueana</i>	ARR, LMO, OZW	Riverine (small to medium streams, riffles, gravel or gravel/sand substrate)	ESA Candidate	1, 2, 3, 4, 7, 9, 10, 11, 13	1, 7, 8, 9, 10	1a, 1b, 1c, 2a, 2b, 2c, 3a, 5, 6, 7, 8, 9, 10
Scaleshell mussel <i>Leptodea leptodon</i>	LMO, OHR, UMR	Riverine (mud substrate in large rivers)	Endangered	1, 4, 13	1, 7, 9, 11	1a, 1b, 1c, 6, 7, 8, 9
Black sandshell <i>Ligumia recta</i>	ARR, GRL, LMS, LMO, MSH, OHR, OZW, UMR	Riverine (gravel riffles in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Washboard <i>Megaloniais nervosa</i>	LMO, LMS, OHR, UMR	Riverine (mud/sand/gravel in medium to large rivers)	Recreational/economic value	10	3, 10, 11	2a, 9, 10
Ring pink mussel (=Golf stick) <i>Obovaria retusa</i>	OHR	Riverine (large rivers)	Endangered (believed extirpated)	5	1, 4, 6, 7, 8, 10, 11	1a, 1b, 1c, 2c
White wartyback mussel <i>Plethobasus cicatricosus</i>	OHR	Riverine (mud/sand/gravel in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 6, 7, 8, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Orange-foot pimpleback pearl mussel <i>Plethobasus cooperianus</i>	OHR	Riverine (large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 4, 6, 7, 8, 10, 11	1a, 1b, 1c, 2c, 5, 6, 7, 8, 9, 10
Sheepnose <i>Plethobasus cyphus</i>	LMO, OHR, UMR	Riverine (gravel/sand in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Clubshell <i>Pleurobema clava</i>	OHR	Riverine (gravel riffles in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Round pigtoe <i>Pleurobema coccineum</i>	ARR, LMO, LMS, MSH, OHR, OZW, UMR	Riverine (mud/sand/gravel in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Rough pigtoe <i>Pleurobema plenum</i>	OHR	Riverine (gravel/sand in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Fat pocketbook <i>Potamilus capax</i>	LMO, UMR	Riverine (mud/sand in large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Rabbit's foot <i>Quadrula cylindrica cylindrica</i>	ARR, OHR, OZW	Riverine (gravel/sand in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Winged mapleleaf <i>Quadrula fragosa</i>	MSH	Riverine (mud/sand/gravel in medium to large rivers)	Endangered	1, 2, 4, 6, 7, 9, 10, 13	1, 2a, 2b, 2c, 3, 4, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Monkeyface <i>Quadrula metanevra</i>	LMO, LMS, MSH, OHR, UMR	Riverine (gravel/sand in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Pimpleback <i>Quadrula pustulosa pustulosa</i>	ARR, LMO, LMS, OHR, OZW, UMR	Riverine (mud/sand/gravel in medium to large river)	Recreational/economic value (commercial)	10	3, 10, 11	2a, 9, 10
Mapleleaf <i>Quadrula quadrula</i>	LMO, LMS, MSH, OHR, UMR	Riverine (mud/sand/gravel in medium to large rivers), Lacustrine (reservoirs)	Recreational/economic value (commercial)	10	3, 10, 11	2a, 9, 10
Salamander mussel <i>Simpsonaias ambigua</i>	GRL, OHR, UMR	Riverine (mud/gravel bars in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Pistolgrip <i>Tritogonia verrucosa</i>	ARR, LMO, LMS, OHR, UMR	Riverine (mud/sand/gravel in medium to large rivers)	Rare/declining (range overlaps commercial harvested areas)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 8, 9, 10
Asiatic clam <i>Corbicula fluminea</i>	LMO, OHR, UMR	Riverine	"Nuisance"	1, 7, 13	1, 2c, 6, 9, 10, 11	1a, 1b, 3b, 5, 7, 8, 9, 10
Zebra mussel <i>Dreissena polymorpha</i>	GRL, LMO, LMS, MHS, OHR, UMR	Lacustrine, Riverine	"Nuisance"	1, 7, 13	1, 2c, 6, 9, 10, 11	1a, 1b, 3b, 5, 7, 8, 9, 10
<b>SNAILS</b>						
Frigid ambersnail <i>Catinella gelida</i>	GRL	Forests (algific slopes), Barren lands (talus cliffs)	Rare/declining (status assessment underway)	1, 2, 9, 13	1, 7, 11	1a, 1b, 1c, 6, 7, 8, 9
Tumbling creek cavesnail <i>Antrobia culveri</i>	OZW	Riverine (streams), Caves	Endangered (ESA emergency listed), Proposed Rule (Endangered)	1, 2, 4, 9, 10, 11, 13	1, 4, 7, 9, 11	1a, 1b, 1c, 6, 7, 8, 9
Iowa Pleistocene snail <i>Discus macclintocki</i>	UMR	Forests, Barren lands	Endangered	1, 2, 4, 9, 10, 11, 12, 13	1, 3, 4, 7, 9, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Briarton Pleistocene vertigo (snail) <i>Vertigo brierensis</i>	GRL	Forests (algific slopes), Barren lands (talus cliffs)	Rare/declining (status assessment underway)	1, 2, 9, 13	1, 7, 11	1a, 1b, 1c, 6, 7, 8, 9
Midwest Pleistocene vertigo (snail) <i>Vertigo hubrichti hubrichti</i>	GRL	Forests (algific slopes), Barren lands (talus cliffs)	Rare/declining (status assessment underway)	1, 2, 9, 13	1, 7, 11	1a, 1b, 1c, 6, 7, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Occult vertigo (snail) <i>Vertigo hubrichti variabilis</i> n. subsp.	GRL	Forests (algific slopes), Barren lands (talus cliffs)	Rare/declining (status assessment underway)	1, 2, 9, 13	1, 7, 11	1a, 1b, 1c, 6, 7, 8, 9
Iowa Pleistocene vertigo (snail) <i>Vertigo iowaensis</i> n. sp.	GRL	Forests (algific slopes), Barren lands (talus cliffs)	Rare/declining (status assessment underway)	1, 2, 9, 13	1, 7, 11	1a, 1b, 1c, 6, 7, 8, 9
Bluff vertigo (snail) <i>Vertigo meramecensis</i>	MSH	Forests (algific slopes), Barren lands (talus cliffs)	Rare/declining (status assessment underway)	1, 2, 9, 13	1, 7, 11	1a, 1b, 1c, 6, 7, 8, 9
Snail (no Common Name) <i>Vertigo bollesiana</i>	GRL, MSH	Forests (upland, bottomland, early successional), Aspen Parkland	Rare/declining (status assessment underway)	1, 2, 6, 9, 10	1	1a, 1b, 1c, 6
Snail (no Common Name) <i>Vertigo cristata</i>	GRL, MSH	Forests (upland, bottomland, early successional), Aspen Parkland	Rare/declining (status assessment underway)	1, 2, 6, 9, 10	1	1a, 1b, 1c, 6
Snail (no Common Name) <i>Vertigo morsei</i>	MSH	Palustrine (fens)	Rare/declining (status assessment underway)	1, 2, 6, 9, 10	1	1a, 1b, 1c, 6
Snail (no Common Name) <i>Vertigo paradoxa</i>	GRL, MSH	Forests (upland, bottomland, early successional), Aspen Parkland	Rare/declining (status assessment underway)	1, 2, 6, 9, 10	1	1a, 1b, 1c, 6
<b>INSECTS</b>						
American burying beetle <i>Nicrophorus americanus</i>	GRL, LMO, LMS, MSH, OHR, UMR	Forests (upland, bottomland, deciduous, coniferous), Shrublands, Grasslands	Endangered	1, 2, 4, 5, 6, 9, 10, 13	1, 2b, 2c, 4, 7	1a, 1b, 1c, 2c, 3a, 3b, 6, 8
Hungerford's crawling water beetle <i>Brychius hungerfordi</i>	GRL	Riverine	Endangered	1, 2, 4, 6, 7, 9, 10, 11, 12, 13	1, 2a, 2c, 3, 6, 7, 9, 11	1a, 1b, 1c, 2b, 3a, 3b, 5, 6, 7, 8, 9, 10
Kamer blue butterfly <i>Lycaeides melissa samuelis</i>	GRL, MSH, UMR	Forests (deciduous), Barren lands (dunes)	Endangered	1, 2, 4, 5, 6, 9, 10, 11, 12, 13	1, 2b, 2c, 3, 4, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 2c, 3b, 6, 7, 8, 9, 10
Mitchell's satyr butterfly <i>Neonympha mitchellii mitchellii</i>	GRL	Palustrine (fens)	Endangered	1, 2, 4, 5, 6, 9, 10, 11, 12, 13	1, 2c, 3, 4, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 2c, 3b, 6, 7, 8, 9, 10
Dakota skipper <i>Hesperia dactotae</i>	MSH	Grasslands	Rare/declining (status assessment underway)	1, 2, 6, 9, 10, 13	1, 6, 7, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8
Ottoo skipper <i>Hesperia ottoe</i>	GRL, MSH, UMR	Grasslands	Rare/declining (status assessment underway)	1, 2, 6, 9, 10, 13	1, 6, 7, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8
Poweshiek skipper <i>Oarisma poweshiek</i>	GRL, MSH, UMR	Grasslands	Rare/declining (status assessment underway)	1, 2, 6, 9, 10, 13	1, 6, 7, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8
Hine's emerald dragonfly <i>Somatochlora hineana</i>	GRL	Palustrine	Endangered	1, 2, 4, 5, 6, 9, 10, 11, 12, 13	1, 2 b, 3, 4, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 2c, 3b, 6, 7, 8, 9, 10
Wabash belted skimmer <i>Macaromia wabashensis</i>	GRL, OHR	Riverine (streams)	Rare/declining (status assessment underway)	1, 4, 13	1, 11	1a, 1b, 1c, 6, 7, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
<b>ARACHNIDS</b>						
Pseudoscorpion (no common name) <i>Apocthonous hobbsi</i>	OHR	Caves	Rare/declining (status assessment underway)	1, 4, 13	1, 11	1a, 1b, 1c, 6, 7, 8, 9
<b>CRUSTACEANS</b>						
Illinois cave amphipod <i>Gammarus acherodytes</i>	UMR	Riverine (streams), Caves	Endangered	1, 4, 10, 13	1, 7, 10, 11	1a, 1b, 1c, 6, 7, 8, 9
Bristly Cave crayfish <i>Cambarus setosus</i>	ARR	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Coldwater crayfish <i>Orconectes eupunctus</i>	OZW	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Belted crayfish <i>Orconectes harrisoni</i>	OZW	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Crayfish (no Common Name) <i>Orconectes illinoiensis</i>	OHR	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Indiana crayfish <i>Orconectes indianensis</i>	OHR	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Crayfish (no Common Name) <i>Orconectes inermis testii</i>	OHR	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Crayfish (no Common Name) <i>Orconectes kentuckiensis</i>	OHR	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Mammoth Spring crayfish <i>Orconectes marchandi</i>	OZW	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Crayfish (no Common Name) <i>Orconectes neglectus chaenodactylus</i>	OZW	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Big Creek crayfish <i>Orconectes peruncus</i>	OZW	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
St. Francis River crayfish <i>Orconectes quadruncus</i>	OZW	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Crayfish (no Common Name) <i>Orconectes sloanii</i>	OHR	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Crayfish (no Common Name) <i>Orconectes stannardi</i>	OHR	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 7, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Williams' crayfish <i>Orconectes williamsi</i>	OZW	Riverine	Rare/declining (affected by relatively minor habitat disturbances)	1, 2, 4, 6, 9, 10	1, 7, 9, 11	1a, 1b, 1c, 5, 6, 8, 9
Rusty crayfish <i>Orconectes rusticus</i>	GRL, LMO, MSH, OHR, UMR	Lacustrine, Riverine	"Nuisance"	1, 7, 13	1, 2c, 6, 9, 10, 11	1a, 1b, 3b, 5, 7, 8, 9, 10
<b>PLANTS</b>						
Mead's milkweed <i>Asclepias meadii</i>	GRL, LMO, UMR	Grasslands	Threatened	1, 2, 4, 9, 10, 11, 13	1, 3, 7, 9, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Missouri bladderpod <i>Lesquerella filiformis</i>	LMO	Grasslands	Endangered	1, 2, 4, 9, 10, 11, 13	9, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Short's bladderpod <i>Lesquerella globosa</i>	OHR	Barren lands	ESA Candidate	1, 2, 4, 7, 9, 10, 11, 13	1, 2c, 6, 7, 11	1a, 1c, 2b, 3b, 5, 6, 7, 8, 9, 10
Decurrent false aster <i>Boltonia decurrens</i>	LMO, UMR	Forests (bottomland)	Threatened	1, 2, 4, 9, 10, 11, 12, 13	1, 3, 7, 8, 9, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Pitcher's thistle <i>Cirsium pitcheri</i>	GRL	Barren lands (dunes)	Threatened	1, 2, 4, 9, 10, 11, 13	1, 3, 6, 7, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Virginia sneezeweed <i>Helenium virginicum</i>	OZW	Palustrine (edges of sinkhole ponds, ponds or unconsolidated bottom)	Threatened	1, 2, 4, 9, 10, 11, 13	1, 4, 7, 9, 10	1a, 1b, 1c, 3b, 6, 7, 8, 9
Lakeside daisy <i>Hymenoxys acaulis</i> var. <i>glabra</i>	GRL	Barren lands	Threatened	1, 2, 4, 9, 10, 11, 13	1, 3, 7, 9, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Cliff cudweed (Rock catfoot) <i>Pseudognaphalium saxicola</i>	UMR	Barren lands (talus cliffs)	Rare/declining (status assessment underway)	1, 2, 9, 10, 11, 12, 13	1, 4, 7, 9, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Houghton's goldenrod <i>Solidago houghtonii</i>	GRL	Barren lands	Threatened	1, 2, 4, 9, 10, 11, 12, 13	1, 3, 7, 9, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Short's goldenrod <i>Solidago shortii</i>	OHR	Barren lands (glades, scoured streambeds)	Endangered	1, 2, 4, 5, 9, 10, 11, 13	1, 7, 9, 11	1a, 1b, 1c, 2c, 6, 7, 8, 9

PRIORITY SPECIES OR POPULATION	FISH & WILDLIFE SERVICE ECOSYSTEMS	HABITATS	CONCERNS	OUTCOMES	OBSTACLES	STRATEGIES
Geocarpon (no Common Name) <i>Geocarpon minimum</i>	ARR, LMO	Barren lands (sandstone glades)	Threatened	1, 2, 4, 9, 10, 11, 13	4, 7, 8, 10	1a, 1b, 1c, 2c, 6, 7, 8, 9
Leedy's roseroot <i>Sedum integrifolium</i> ssp. <i>leedyi</i>	UMR	Grasslands, Barren lands (talus cliffs)	Threatened	1, 2, 4, 9, 10, 11, 13	1, 3, 7, 9, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Hall's bulrush <i>Schoenoplectus hallii</i>	ARR, GRL, LMO, LMS, OHR, OZW, UMR	Barren lands	Rare/declining	1, 4, 13	1, 7, 11	1a, 1b, 1c, 6, 7, 8, 9
Virginia Spirea <i>Spiraea virginiana</i>	OHR	Riverine (rivers)	Threatened	1, 2, 4, 9, 10, 11, 13	1, 2a, 3, 4, 6, 7, 9, 10, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Glade (Darlington's) spurge <i>Euphorbia purpurea</i>	OHR	Forests (mixed, deciduous)	Rare/declining (status assessment underway)	1, 4, 13	1, 11	1a, 1b, 1c, 6, 7, 8, 9
Price's potato-bean <i>Apios priceana</i>	UMR	Forests (early- to mid-successional, bottomland, upland), Savannas	Threatened (believed extirpated)	5	1, 2c, 4, 6, 7	1a, 1b, 1c, 2c
Leafy prairie clover <i>Dalea foliosa</i>	UMR	Grasslands (dolomite prairie)	Endangered	1, 2, 5, 9, 10, 13	1, 4, 6, 7, 8, 11	1a, 1b, 1c, 2b, 2c, 5, 8
Running buffalo clover <i>Trifolium stoloniferum</i>	OHR, OZW	Palustrine	Endangered	1, 2, 4, 9, 10, 11, 13	1, 2a, 2c, 3, 6, 7, 9, 10, 11	1a, 1b, 1c, 2b, 3a, 3b, 5, 6, 7, 8, 9, 10
Prairie bush-clover <i>Lespedeza leptostachya</i>	GRL, LMO, MSH, UMR	Grasslands	Threatened	1, 2, 4, 9, 10, 11, 13	1, 2a, 2c, 3, 6, 7, 9, 10, 11	1a, 1b, 1c, 2b, 3a, 3b, 5, 6, 7, 8, 9, 10
Fassett's locoweed <i>Oxytropis campestris</i> var. <i>chartacea</i>	GRL	Barren lands	Threatened	1, 2, 4, 9, 10, 11, 12, 13	1, 7, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9,
Dwarf lake iris <i>Iris lacustris</i>	GRL	Barren lands	Threatened	1, 2, 4, 9, 10, 11, 12, 13	1, 3, 7, 9, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Pondberry <i>Lindera melissifolia</i>	OZW	Forests (bottomland)	Endangered	1, 2, 4, 9, 10, 11, 13	1, 4, 7, 9, 10	1a, 1b, 1c, 2c, 6, 7, 8, 9
Minnesota trout lily <i>Erythronium propullans</i>	UMR	Forests (deciduous, algific slopes)	Endangered	1, 2, 4, 9, 10, 11, 13	1, 2c, 3, 6, 7, 9, 10, 11	1a, 1b, 1c, 2b, 3b, 5, 6, 7, 8, 9, 10
Small whorled pogonia <i>Isotria medeoloides</i>	GRL, OHR, UMR	Forests (mid-successional)	Threatened	1, 2, 4, 9, 10, 11, 13	1, 3, 6, 7, 9, 11	1a, 1b, 1c, 2b, 5, 6, 7, 8, 9, 10
Eastern prairie fringed orchid <i>Platanthera leucophaea</i>	GRL, OHR, UMR	Palustrine, Grasslands	Threatened	1, 2, 4, 9, 10, 11, 12, 13	1, 3, 7, 9, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
Western prairie fringed orchid <i>Platanthera praeclara</i>	LMO, MSH, UMR	Palustrine	Threatened	1, 2, 4, 6, 9, 10, 11, 13	1, 2c, 3, 6, 7, 9, 10, 11	1a, 1b, 1c, 2b, 3a, 3b, 5, 6, 7, 8, 9, 10

<b>PRIORITY SPECIES OR POPULATION</b>	<b>FISH &amp; WILDLIFE SERVICE ECOSYSTEMS</b>	<b>HABITATS</b>	<b>CONCERNS</b>	<b>OUTCOMES</b>	<b>OBSTACLES</b>	<b>STRATEGIES</b>
Northern monkshood <i>Aconitum noveboracense</i>	GRL, OHR, UMR	Forests (algific slopes)	Threatened	1, 2, 4, 9, 10, 11, 13	1, 6, 7, 8, 9, 10, 11	1a, 1b, 1c, 2b, 3b, 5, 6, 7, 8, 9,
Earleaf foxglove <i>Agalinis auriculata</i>	MSH	Grasslands, Savanna	Rare/declining (status assessment underway)	1	1	1
Roundstem foxglove <i>Agalinis gattingeri</i>	MSH	Grasslands, Savanna	Rare/declining (status assessment underway)	1	1	1
Pale false foxglove <i>Agalinis skinneriana</i>	GRL, UMR	Grasslands	Rare/declining (status assessment underway)	1, 4, 13	1, 11	1a, 1b, 1c, 6, 7, 8, 9
Michigan monkey-flower <i>Mimulus glabratus</i> var. <i>michiganensis</i>	GRL	Palustrine	Endangered	1, 2, 4, 9, 10, 11, 12, 13	1, 3, 7, 9, 10, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10
American hart's-tongue fern <i>Asplenium scolopendrium</i> var. <i>americanum</i>	GRL	Forests (mature, deciduous)	Threatened	1, 2, 4, 6, 9, 10, 11, 13	1, 3, 4, 7, 9, 11	1a, 1b, 1c, 2b, 6, 7, 8, 9, 10

## Appendix I - Column Definitions and Codes for the Priorities Table

**FWS ECOSYSTEMS** - Indicates which of the Service's ecosystems the species or population should be a priority in within Region 3. Generally, the ecosystems listed are geographic areas in which the species occurs, or could occur, in manageable numbers. Ecosystems in which the species is peripheral or transitory are not listed.

ARR - Arkansas/Red Rivers.

GRL - Great Lakes Basin.

LMO - Lower Missouri River.

LMS - Lower Mississippi River.

MSH - Mississippi Headwaters/Tallgrass Prairie.

OHR - Ohio River Valley.

OZW - Ozark Watersheds.

UMR - Upper Mississippi River/Tallgrass Prairie.

**HABITATS** - Indicates the primary habitats used by the species or population during some part of its life cycle. Some habitat types have modifiers that further describe preferred habitats.

Lacustrine - modifiers: nearshore, inland lakes, Great Lakes, deepwater, impoundments, reservoirs.

Palustrine - modifiers: wet meadows, fens, marshes, swamps, shrub/scrub, edges of sinkhole ponds (i.e., ponds or unconsolidated bottom [PUB]).

Riverine - modifiers: streams (small, medium, large), rivers (medium, large), creeks, shallow channels, main channels, backwaters, pools, riffles, bars, headwaters, impoundments, boulder substrate, cobble substrate, gravel substrate, sand substrate, mud substrate, shorelines.

Grasslands - modifier: dolomite prairie.

Shrublands.

Forests - modifiers: early- and mid-successional, mature, bottomland, upland, coniferous, deciduous, mixed, algific slopes, islands.

Savannas.

Aspen Parkland.

Caves.

Barren lands - modifiers: beaches, bare rock, talus cliffs, dunes, mines, islands (unvegetated), glades, scoured streambeds, sandstone glades.



## Appendix I contd.

**CONCERNS** - Indicates the primary reasons why the species or population is of concern to the Service. These reasons relate to biological status and legal authorities.

Endangered - modifiers: recovering species, believed extirpated, ESA emergency listed.

Threatened - modifiers: recovering species, non-essential experimental population.

Proposed Rule - modifiers: Endangered, Threatened, reclassify Distinct Population Segment (DPS) to Threatened, delist from ESA.

ESA Candidate.

ESA Delisted.

Rare/declining - modifiers: status assessment underway, status assessment pending, status assessment completed and conservation needs identified, decision on candidate elevation pending, conservation agreements in place to sustain population, range overlaps commercial harvested areas, Service sponsored conservation actions underway or planned, affected by relatively minor habitat disturbances.

Recreational/economic value - modifier: commercial.

"Nuisance" - modifier: management plan in preparation.

Federal mitigation.

Tribal trust.

**OUTCOMES** - Indicates what the Service wants to happen to enhance the conservation of the species or population.

1. Provide key information that increases our understanding of limitations to conservation.
2. Attain and maintain stable, increasing, or recovering populations.
3. Attain and maintain appropriate population abundance and distribution of "nuisance" species.
4. Achieve population, habitat, and other objectives established in conservation plans.
5. Successfully reintroduce self-sustaining populations where previously extirpated.
6. Improve biodiversity and the balance of species assemblages.
7. Effectively control the range, population size, or impacts of invading species.
8. Effectively manage fish and wildlife disease.
9. Effectively conserve priority habitats through protection, restoration, and management.
10. Establish effective cooperative conservation activities and processes.
11. Involve the public in the development and implementation of resource conservation priorities.
12. Provide appropriate levels of public access and use.
13. Increase public awareness of and support for the species and its habitat.

## **Appendix I contd.**

**OBSTACLES** - Indicates the key obstacles preventing achievement of desired outcomes.

1. Inadequate information base for effective conservation.
2. Imbalanced species assemblages due to:
  - a. Predation.
  - b. Forage base.
  - c. Competition.
3. Ineffective population management through regulation of harvest or take.
4. Inability to restore populations, e. g., lack of availability of genetic material, habitat fragmentation, population isolation, etc.
5. Disease.
6. Impacts of invasive species.
7. Habitat loss or degradation.
8. Inability to restore habitat, e. g., contaminant issues.
9. Lack of public awareness or involvement in the conservation of the species and its habitat.
10. Conflicting public interests.
11. Inadequate conservation planning or action.

**STRATEGIES** - Indicates how the Service intends to overcome the obstacles identified as limiting the conservation of the species or population.

1. Acquisition of biological information to support conservation actions:
  - a. Population status and trends.
  - b. Habitat availability and quality.
  - c. Factors related to conservation and best management practices.
2. Direct population management:
  - a. Harvest regulation.
  - b. Protection from take.
  - c. Reintroduction to priority habitat.

## Appendix I contd.

3. Conservation through manipulation of species assemblages:
  - a. Management of predator/prey populations.
  - b. Management of competition.
4. Disease prevention and containment.
5. Control of invasive (“nuisance”) species.
6. Conservation of habitat through protection, restoration, and management.
7. Provision of technical assistance to initiate, augment, or redirect conservation actions.
8. Coordination, facilitation, and implementation of cooperative conservation activities involving stakeholders and partners (e. g., Federal and state agencies, tribal entities, non-governmental organizations, industry, and private individuals).
9. Education, outreach, and public involvement in species conservation, planning, and activities.
10. Law enforcement.
11. Regulation of take through depredation and falconry permits.

## Appendix II - Migratory Bird Program Information

Migratory birds are a Trust responsibility of the U. S. Fish and Wildlife Service. The Migratory Bird Treaty Act (MBTA) and the Fish and Wildlife Conservation Act are the primary Federal laws giving the Service authority over these species. Several cooperative initiatives are actively working to conserve migratory birds and their habitats. These include the North American Waterfowl Management Plan, Partners in Flight (PIF), the U. S. Shorebird Conservation Plan (USSCP), the North American Waterbird Conservation Plan (NAWCP), and the North American Woodcock Management Plan.

The Service's Strategic Plan identifies priority migratory bird species as those that are "specialized, rare, harvested, experiencing actual or perceived declines, or causing public health or depredation problems." Of the approximately 430 species of migratory birds that occur regularly in Region 3, we are most concerned with the 84 species and populations listed in the Priorities table of this document. These fall into three groups:

- C **Rare and declining species** - Fifty-two species on the Service's list of Birds of Conservation Concern 2001 (BCC)\* are of high priority because they are exhibiting sharp and documented population declines and/or are rare in (but not peripheral to) the Region. Birds on the BCC list are nongame species that are protected under the MBTA (but not the Endangered Species Act). They were identified using national criteria that include population abundance and trends, distribution and threats on the breeding and wintering grounds, and the importance of Bird Conservation Regions within Region 3 to each species. Fourteen additional nongame bird species that did not meet the BCC criteria, but which were deemed important Regionally, are included under the rare/declining category, as are six Federally Endangered or Threatened bird species/populations.
- C **Harvested species** - This category includes the American Woodcock and eight species or populations of ducks and geese that are of management importance in the Region because of their recreational value and, in some cases, declining status.
- C **"Nuisance" species** - This category includes Double-crested Cormorants (impacting or perceived to be impacting fish populations, aquaculture, vegetation, and other colonial waterbirds), Snow Geese (causing arctic habitat damage), and urban Canada Geese (mostly of the Giant race, causing nuisance problems).

Three bird species (Yellow-billed Cuckoo, Veery, and Chestnut-sided Warbler) were deleted from the 1999 RCP list, 32 species were added to it, and two populations of Canada geese were combined with other populations to derive the current RCP list. These changes resulted from bird conservation planning assessments (notably by PIF, USSCP, and NAWCP) that provided better data on avian population status than was available when the first version of the RCP list was developed in 1999.

The 84 bird species/populations in the present RCP list represent about 19% of the total number of bird species occurring in the Region. **It is important to note that many bird species not on this list are important too!** Some of them will, on occasion, be the focus of management activities, and most will derive incidental benefits from conservation efforts made on behalf of the highest priority bird species because they share habitats or other life history traits with these species.

Assessment of bird species priorities will continue as monitoring, research, and conservation planning progress. Thus, the list of bird species contained in this document should be considered dynamic. Activities being undertaken through PIF, USSCP, and NAWCP will refine species priority assessments at the national and ecoregional levels. In addition, State agencies have designated priority species at the state level\* and it is important for field stations and ecosystem teams to also consider these sources when establishing bird species priorities at a sub-regional level.

For further information on the Service's migratory bird conservation program, contact Region 3's Division of Migratory Birds (612-713-5473) or visit the following web sites:

<http://midwest.fws.gov/level1/birds.htm>

<http://migratorybirds.fws.gov>

For management information on the species listed in this document, see:

*<http://www.partnersinflight.org/birdacct.htm>*

\* If you would like a copy of the Birds of Conservation Concern list or State agency birds of concern lists, please contact Steve Lewis, Regional Nongame Bird Coordinator, at 612-713-5473 or email [steve\\_j\\_lewis@fws.gov](mailto:steve_j_lewis@fws.gov)

TTY users may contact us through the Federal Relay Service at 1-800-877-8339.

### Appendix III - Ecological Services, Endangered Species Program Information

Protecting endangered and threatened species and restoring them to secure status in the wild is a primary objective of the Service. No creature exists in isolation. All living organisms are part of a complex, delicately balanced network called the biosphere. It is composed of many ecosystems, each with its own complement of plants and animals and their biological, chemical, and geological processes and the interrelationships that characterize them. When a species becomes endangered, it indicates that something is wrong with the ecosystems we all depend on. Like the canaries used in coal mines whose deaths warned miners of bad air, the increasing numbers of endangered species warn us that the health of our environment has declined. The removal of a single species can catalyze a chain reaction affecting many others. The full significance of an extinction of a species is seldom apparent; much remains to be learned, and the long-term impacts are difficult to predict.

Under the Endangered Species Act (Act) of 1973, as amended, the Service has primary responsibility to preserve not only jeopardized life, but also the natural resources on which life depends. The condition of plant and animal species tells us how much of our world continues to support a healthy environment. More knowledge of complete ecosystems can help us to better understand and protect the requirement of all life--including the human species. The measures we take to save endangered species will help ensure that the planet we leave for our children is as healthy as the planet our parents left for us.

As of December 2001, a total of 1,254 native species have been placed on the *U.S. List of Endangered and Threatened Wildlife and Plants*. Region 3 has National lead responsibility for 40 of the 68 listed species found in the North Central Region. Lead responsibility includes facilitating recovery activities for listed species, in addition to facilitating conservation activities for proposed, candidate, rare/declining species, and delisted species pursuant to the Act, various regulations and Service policy.

Region 3 is home to many unstudied or under-studied rare species; the nature of thousands of these species makes it impossible for the Region to satisfactorily identify which of them should be placed in the Regional Resource Conservation Priorities. Often, too little is known about conserving rare species (i.e., threatened, endangered, proposed, and candidate species) and thus they are difficult to prioritize. It is even more difficult to prioritize rare and/or declining species that we "suspect" may warrant threatened or endangered classifications, and species of concern status. Many taxa currently under consideration for listing as threatened or endangered are virtually unknown to most biologists – cave and aquatic invertebrates, beetles, snails, bryophytes, ferns, other rare plants, planaria, fungi, prairie leafhoppers, etc. The revised RCP document recognizes the importance of the process that the Endangered Species Program is developing (in partnership with our State counterparts) to identify "Regional Species of Concern" (SOCs). The primary function of this process, using existing data and other rare species lists, prioritizes the SOCs for conservation activities and to determine if they warrant ESA listing as threatened or endangered.

The SOCs included in the RCP document are just a few identified on the preliminary draft SOC list as Regional priority (i.e., those whose status will be affected by relatively minor disturbances to their habitat, those for which conservation actions are currently underway, those that have conservation agreements in place to implement actions, and those for which a decision on candidate elevation is near completion). We offer field station and program supervisors the opportunity to support the process of identifying "species of concern" and conduct status assessments (according to the Service's priorities and guidelines). These actions will provide information as to which of these species should become candidate species and simultaneously become Regional Resource Conservation Priorities. We encourage field station and program supervisors to investigate and conserve rare species that may or may not become Regional priority species, thus providing a means for important components of our Region's biodiversity to be preserved.

The following criteria were used to identify the North Central Region's Endangered Species Program resource priorities in the Region 3 Fish and Wildlife Resource Conservation Priorities table:

C Listed, proposed and candidate species.

C Rare/declining species for which:

- @ decisions on candidate elevation are near completion;
- @ status assessments pending, or are currently underway to determine if elevation to Candidate status is warranted;
- @ conservation agreements are in place to implement actions that will sustain populations;
- @ current ranges of commercially harvested species overlap widely distributed but rare/declining freshwater

aquatic species' historic ranges.

@ Service sponsored conservation actions are being planned or are currently underway.

@ abundance and distribution monitoring should occur because the species or subspecies status will be affected by relatively minor disturbances to its habitat.

C Widely distributed, extant listed species whose range overlaps commercially harvested species ranges.

C Listed species undergoing reclassification or delisting.

C Species delisted within 5 years, undergoing post-delisting monitoring activities.

**Species not identified on this list are also important.** Many species not identified on this list will derive incidental benefits from conservation efforts and management activities made on behalf of the priority species because they share habitats or other life history traits. Assessment of species priorities will be an ongoing task as monitoring, research, and conservation planning efforts continue in the Region.

The following cooperative efforts among Service programs and with Federal, State and local agencies, independent organizations and individual citizens to fully implement the Endangered Species Program responsibilities will assist in conserving the ecosystems upon which all endangered and threatened species depend for survival:

C Listing, reclassifying, delisting species under the Act,

C Providing biological opinions to Federal agencies on their activities that may affect listed species,

C Enforcing species protection under the Act,

C Coordinating recovery activities for listed species,

C Providing for the protection of important habitat, and

C Providing grants to States to assist with their endangered species conservation efforts.

Contact the Ecological Services Assistant Regional Director (612-713-5350) or visit the Region 3 Endangered Species Program website @ [www.midwest.fws.gov/Endangered](http://www.midwest.fws.gov/Endangered) to obtain additional information. TTY users may contact us through the Federal Relay Service at 1-800-877-8339.

## Appendix IV - Fisheries Program Information

### Fisheries Program Description

The Region 3 fisheries program focuses on a broad variety of Federal trust species and the aquatic habitats on which these species depend. For the fisheries program, the term "Federal trust species" refers to organisms:

*targeted through the Endangered Species Act; potentially impacted by Federal actions under any Federal authority within which the Service has formal review or regulatory responsibility; identified within Federal mitigation responsibilities assigned to the Service; inhabiting or migrating through interjurisdictional waters; considered nationally significant, rare or declining in range or population size, and lacking protection from non-Federal authorities; occurring on federal lands; subject to the interests of Native American governments or otherwise aligned with the Service's tribal trust responsibilities; or covered directly or in potential under any of the approximately 29 public laws, or treaties, interstate compacts, Executive Orders, statutes, and agreements pertaining to the Service's mission and natural resource management responsibilities.*

There are approximately 1,462 species of finfish, crayfish, and freshwater mussels in North America. Several hundred of these are potentially covered under the fisheries program's Federal trust responsibilities. These responsibilities are implemented through a large number and great variety of program components within the general categories of fish production and stocking, fish health management, fish and wildlife management assistance, aquatic nuisance species control, aquatic habitat and watershed evaluation and rehabilitation, and interagency resource management process facilitation.

There are 16 fisheries field stations in Region 3: 5 National Fish Hatcheries; 6 Fishery Resources Offices; 2 Fishery Coordination Offices; 2 sea lamprey control stations; and one fish health center.

### Fisheries Program Priorities

Fisheries Program input to the Region 3 resource management priority document was completed between February and June 1998. Each aquatic resource management priority included in the Fisheries table relates directly to one or more of the six national Fishery Program priorities: **restoration of interjurisdictional fisheries; management of interjurisdictional fisheries; recovery of endangered and threatened species; restoring depleted fish populations to preclude listing; technical assistance supporting the management of aquatic resources on Service lands; providing technical assistance in fulfillment of trust responsibilities to native American governments; and fulfilling Federal mitigation responsibilities.**

### Assembling the Fisheries Species List

- C A preliminary list of aquatic resource priorities was assembled in February 1998 including species and populations of lake trout, brook trout, lake sturgeon, pallid sturgeon, paddlefish and walleye targeted in ongoing restoration, management assistance, technical assistance and tribal assistance activities of Region 3 fisheries field stations.
- C This short list was expanded to include a stronger focus on non-game fishes, freshwater mussels, aquatic nuisance species and additional fish populations such as yellow perch, muskellunge, whitefish, and rainbow trout associated with management assistance, technical assistance and Federal mitigation activities.
- C At this point the expanded list was provided to Fisheries and Ecological Services field personnel for a review from a perspective of ecological balance. Five individuals responded with recommendations to add priority non-game fishes, mussels, crayfish, and aquatic nuisance species within their geographic focus area.

### Description of the Aquatic Resource Priorities List

The aquatic priorities list presented here was prepared jointly by Fisheries (Bob Adair) and Ecological Services (Carlita Payne) using the process and input described above. It highlights a total of 92 aquatic species including: 12 harvested fishes and 4 harvested freshwater mussels; 19 non-game fishes; 31 non-game freshwater mussels; 14 crayfishes; and 8 nuisance species in three taxonomic groups.

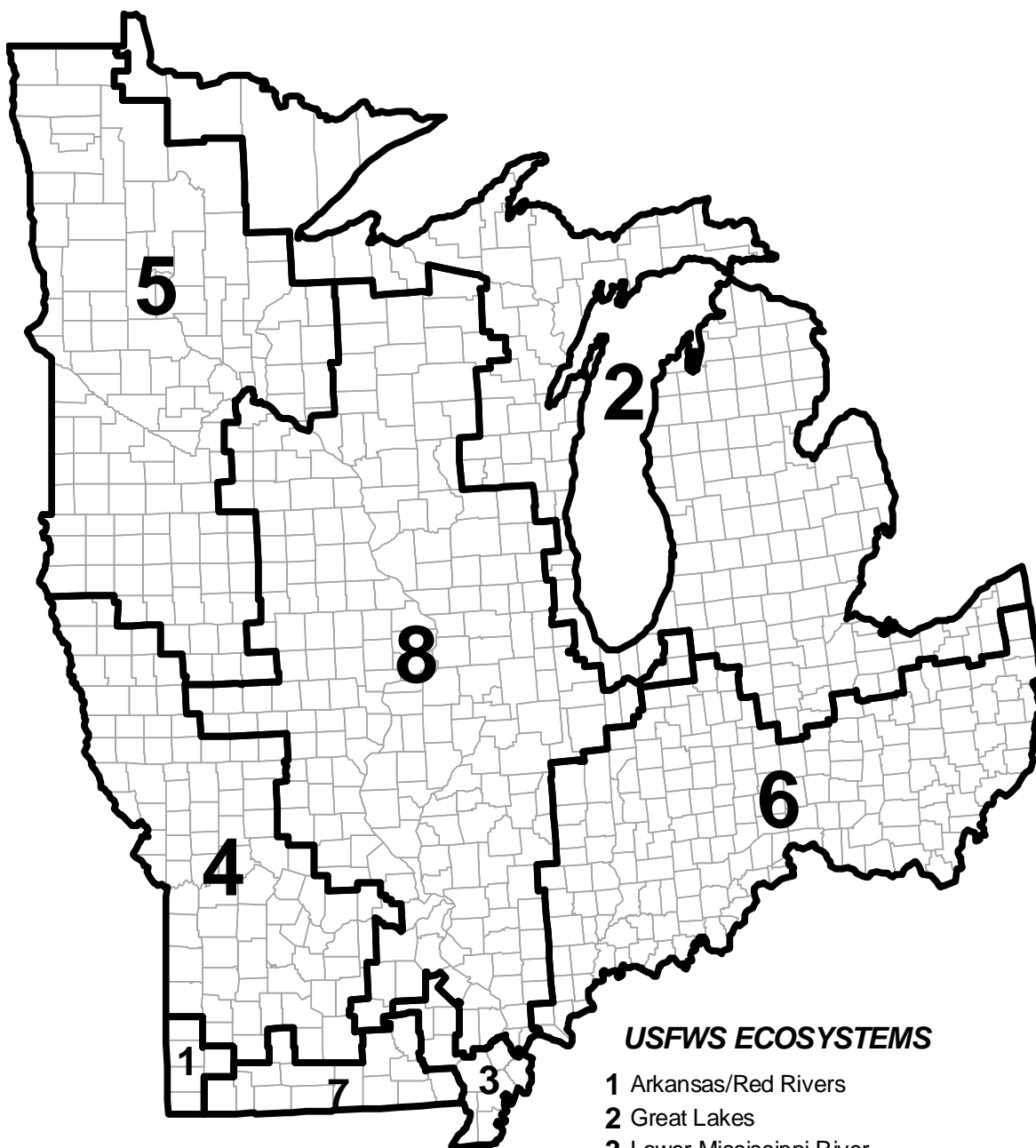
Justifications for including these species on the priority list vary widely. Most are either targeted in interjurisdictional commercial and/or sport fisheries, targeted within restoration programs, related to Native American trust responsibilities, listed or with high potential for focus under the Endangered Species Act, widely distributed yet



declining within their range, ecologically significant as a keystone species, or exotics placing significant stress on ecological systems or aquatic communities.

We believe the result is a carefully focused list of aquatic species and resource management priorities that effectively spans the Service's responsibilities and authorities while also presenting a broad ecological picture of the task at hand. In this regard the list presents the best available subset of aquatic species, among the hundreds existing in Region 3, qualified for special emphasis in Fish and Wildlife Service activities.

Contact the Fisheries Program Assistant Regional Director (612-713-5111) or visit the Region 3 Fisheries Program website at [www.midwest.fws.gov/level1/fish.htm](http://www.midwest.fws.gov/level1/fish.htm) to obtain additional information on priorities and aquatic conservation activities. TTY users may contact us through the Federal Relay Service at 1-800-877-8339.



**USFWS ECOSYSTEMS**

- 1 Arkansas/Red Rivers
- 2 Great Lakes
- 3 Lower Mississippi River
- 4 Lower Missouri River
- 5 Mississippi Headwaters/Tallgrass Prairie
- 6 Ohio River
- 7 Ozark Watersheds
- 8 Upper Mississippi River/Tallgrass Prairie

