

MINNESOTA WILDLIFE HABITAT INCENTIVES PROGRAM (WHIP) STATE PLAN 2006 - 2010

INTRODUCTION

Minnesota has been endowed with a very rich and diverse natural heritage. Lying at the crossroads of three major biomes, it harbors an array of habitats. Minnesota is unique among the Midwest states because of its extensive boreal forest, eastern deciduous forest, and grassland habitats, each of which contributes to Minnesota's wildlife heritage.

Minnesota is home to over 1800 vascular plants, 1200 known native wildlife species (600 vertebrate animals, and countless numbers of invertebrates). Within hours one may encounter species ranging from those characteristic of a mid-grass prairie, to those characteristic of an old growth northern hardwoods forest.

The nineteenth-century era of agricultural settlement was devastating to some Minnesota wildlife not only because prairie and forest habitats were rapidly converted to farms, but also because larger species were used for food or "sport" by the pioneers. As a result of European settlement, including subsequent agricultural conversion and other forms of human encroachment, the natural vegetative communities of Minnesota have been severely altered. These alterations have affected every species in the state to some degree. In some cases, we see species such as ground squirrels, red-winged blackbirds and other edge species flourishing in grazed pastures, mowed hayfields, and edge habitats extending their ranges. Previously widespread species such as greater prairie chicken, burrowing owl, and whooping crane relied on the prairies and wetlands of western Minnesota. Today, many of these species survive in small, disjunct populations on remnant prairies or, as in the case of the whooping crane, no longer exist in Minnesota.

The greatest percentage of at risk species in Minnesota are associated with habitats which have been lost due to agricultural and developmental pressures. The greatest amount is dependent on wetland or aquatic habitats for their survival. Minnesota has lost 75% of their pre-settlement wetlands. The next greatest number is associated with prairie or grassland habitats, where over 99% of the original native prairie is gone. Historic forests have been cleared for agricultural production in the south, and for mining and timber production in the north. The remaining at risk species depend on early successional or transitional habitats. These communities were created by natural disturbances such as wind, fire, and seasonal floods.

75% of lands in Minnesota are rural, and privately owned. Thus the greatest potential to affect wildlife habitat and populations is to reach private agricultural producers. These "working landscapes" have many opportunities to promote particular habitat elements, such as stream buffer strips, that benefit wildlife species while also allowing for economic benefits. The Wildlife Habitat Incentives Program (WHIP) offers an enormous opportunity to complement existing private, local, state, and federal fish and wildlife initiatives.

GOALS AND OBJECTIVES

National WHIP Priorities

In order to provide direction to the State and local levels for implementing WHIP, NRCS has established the following national priorities:

- Promote the restoration of declining or important native wildlife habitats.
- Protect, restore, develop or enhance wildlife habitat of at-risk-species (candidate species, and State and Federally listed threatened and endangered species).
- Reduce the impacts of invasive species on wildlife habitats.
- Protect, restore, develop or enhance declining or important aquatic wildlife species' habitats.

State Priorities

Minnesota's landscape is a mosaic of diverse landform and vegetation types. The pre-settlement vegetation that defined the major ecosystems of the state was distributed on the landscape according to climate, soil, and landform patterns. This impressive diversity reflected the meeting of five major ecoregions in Minnesota: the Prairie Parkland, Eastern Broadleaf Forest, Tallgrass-Aspen Parklands and the Laurentian Mixed Forest

In 2005, the State of Minnesota completed a comprehensive assessment of our wildlife resources. Titled, *Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife* (referred to as Minnesota's Comprehensive Wildlife Conservation Strategy or CWCS), CWCS is a strategic plan focused on managing populations of "species in greatest conservation need". Species in greatest conservation need (SGCN) are defined as animals whose populations are rare, declining, or vulnerable to decline and are below levels desirable to ensure their long-term health and stability. There are 292 species in Minnesota that meet this definition (Appendix 1). The list is based on a series of analyses that examined the needs of all 292 SGCN and identified key habitats that benefit them.

The explicit geographic scope of the CWCS is the state of Minnesota. Within that large frame, the Ecological Classification System (ECS) of Minnesota delineates 4 provinces, 25 subsections and many smaller land-type associations (see Appendices 2 and 3). The CWCS uses the province and the subsection scales to present conservation actions needed to better manage SGCN. A brief review of these landscapes and their resource concerns are summarized here.

PRAIRIE PARKLAND PROVINCE

This ecoregion once dominated by tallgrass prairie, is concentrated in western Minnesota, but continues into adjacent North Dakota, South Dakota, and Iowa. Like other prairie areas of the Midwest, the region is characterized by geomorphic features of low relief, which allowed the spread of fires over long distances. Wetlands were once common, and in association with prairies, serves as important habitat for many animals, including many duck species. Outliers of woodland occurred along the eastern margin, and along major streams. The fertile prairie soils have been intensively farmed and wetlands have been extensively drained mostly for grains, potatoes, sugar beets, and intensive grazing almost completely eliminating the original prairie vegetation.

Landforms include glacial lake plain, beach ridges, sand dunes, water-reworked till, and ground moraines. The northern portion features glacial lake plains and narrow beach ridges. The southern portion is made up of deeply incised, loess covered ridges of the Coteau des Prairie.

Examples of SGCN: Common Mudpuppy, Greater Prairie Chicken, Topeka Shiner, Prairie Vole, Spike Mussel and Western Hognose Snake.

Table 1: Number of SGCN in and Number Unique to the Prairie Parkland by Subsection

Subsection	Number of SGCN	Number of SGCN Unique to Subsection
Minnesota River Prairie	116	1
Red River Prairie	83	4
Inner Coteau	78	1
Coteau Moraines	78	0
Prairie Parkland	139	13

Wildlife conservation concerns: Native birds in North America's grasslands have suffered steeper, more consistent declines over the past 25 years than any other U.S. bird group. A total of 177 bird species breed in the prairie region of Minnesota and Canada. Over 99% of Minnesota's tallgrass prairie and 75% of prairie wetlands have been lost since the turn of the century.

The Tallgrass Prairie region is recognized as a high national priority by the North American Waterfowl Management Plan, relative to migratory waterfowl, and by the Great Plains Biodiversity Committee relative to rare grassland flora, fauna, and natural communities. This region offers the best potential for cooperating with agriculture to improve habitat for declining grassland species.

The SGCN problem assessment provides information on the factors influencing the vulnerability or decline of SGCN. The result of the species problem assessment indicates that key habitat loss and degradation are the predominant challenges facing SGCN populations. Table 2 lists ranks key habitats by subsection.

Table 2: Frequency of Key Habitats in the Prairie Parkland by Subsection.

Key Habitats by Frequency	Number of Subsections	Percentage of Subsections
Prairie	4	100
Wetland Non-forest	4	100
River-Headwater to Large	4	100
River-Very Large	2	50
Forest-Lowland Deciduous	1	25
Shoreline-Dunes-Cliff	1	25
Lake-Shallow	1	25

PRIORITY CONSERVATION ACTIONS:

- Encourage prairie restoration efforts
- Encourage wetland restoration efforts
- Manage invasive species
- Use prescribed fire and other practices to maintain prairies
- Manage grasslands adjacent to native prairie
- Maintain and enhance riparian areas along priority stream reaches

EASTERN BROADLEAF FOREST PROVINCE

This region bridges the transition zone between prairie to the west and true forest to the east, and contains a large variety of plant communities. Topography varies from level lake plains, and outwash plains, to rolling moraines and drumlin fields.

The relatively long growing season has resulted in heavy agricultural use of the land. The irregular topography and many lakes and wetlands to the north provided a partial barrier to fire, resulting in a mix of woodland and prairie. Pre-settlement vegetation included bur oak savannas, brush prairie, oak forest, and sugar maple-basswood forest. Tallgrass prairie occupied the least dissected portions, and ground cover of open savannas. Sugar maple-basswood forest occupied the steeper sites. Most of the level to rolling topography is now intensively farmed, and much of the original vegetation is reduced to a small fraction of the original extent. Animal agriculture is intensive resulting in erosion and overgrazing. Both large and small kettle lakes and peat bogs are common. The Mississippi River and its valley corridor is an important component of this province, supporting several species found no where else in the state.

Examples of SGCN: Pickerel Frog, Cerulean Warbler, Least Darter, Karner blue Butterfly, American Badger and Timber Rattlesnake.

Table 3: Number of SGCN in and Number Unique to the Eastern Broadleaf Forest by Subsection

Subsection	Number of SGCN	Number of SGCN Unique to Subsection
Blufflands	156	14
St. Paul Baldwin Plains	149	1
Big Woods	121	1
Anoka Sand Plain	97	1
Rochester Plateau	94	0
Oak Savanna	93	1
Hardwood Hills	85	1
Eastern Broadleaf Forest	205	51

Wildlife conservation concerns: The SGCN problem assessment provides information on the factors influencing the vulnerability or decline of SGCN. The result of the species problem assessment indicates that key habitat loss and degradation are the predominant challenges facing SGCN populations. Table 4 lists ranks key habitats by subsection.

Table 4: Frequency of Key Habitats in the Eastern Broadleaf Forest by Subsection.

Key Habitats by Frequency	Number of Subsections	Percentage of Subsections
Shrub/woodland Upland	7	100
Wetland Non-forest	7	100
River-Headwater to Large	7	100
Grassland	6	86
Prairie	6	86
Shoreline-Dunes-Cliff	4	57
Lake-Shallow	4	57
Forest-Upland Deciduous (Aspen)	3	43
Forest-Upland Deciduous (Hardwood)	3	43
River-Very Large	3	43

PRIORITY CONSERVATION ACTIONS:

- Encourage wetland restoration efforts especially when adjacent to native prairie and grasslands
- Encourage prairie and oak savanna restoration efforts
- Manage grasslands and wetlands adjacent to native prairie
- Manage invasive species
- Use prescribed fire and other practices to maintain prairies and oak savannas
- Maintain and enhance riparian areas along priority stream reaches
- Incorporate SGCN habitat concerns in forest management planning

TALLGRASS - ASPEN PARKLAND PROVINCE

This region gets its name from the mosaic of aspen groves, prairie, and wetlands located between the extensive glacial Lake Agassiz peat lands to the east and the agricultural lands to the west. This mosaic of vegetation occurs because drought and fire are frequent enough to prevent succession of to forest but not frequent enough to eliminate trees. Low dunes, beach ridges, wet swales, and shrub-aspen dominate. The drainage system is poorly developed and streams and rivers meander extensively.

In the north, large areas have been drained and farmed. Livestock grazing, gravel mining, and row crop agriculture are the primary land uses. Plant communities represented in this region include: aspen brush prairie, dry prairie, lowland hardwood forest, mesic brush prairie, wet prairie, calcareous fen, and rich fen.

Examples of SGCN: Common Mudpuppy, Upland Sandpiper, Lake Sturgeon, Garita Skipper, Least Weasel and Common Snapping Turtle.

Table 5: Number of SGCN in and Number Unique to Tallgrass - Aspen Parkland by Subsection

Subsection	Number of SGCN	Number of SGCN Unique to Subsection
Aspen Parkland	85	2

Wildlife conservation concerns: The SGCN problem assessment provides information on the factors influencing the vulnerability or decline of SGCN. The result of the species problem assessment indicates that key habitat loss and degradation are the predominant challenges facing SGCN populations. Table 6 lists ranks key habitats by subsection.

Table 6: Frequency of Key Habitats in the Tallgrass – Aspen Parkland by Subsection.

Key Habitats by Frequency	Number of Subsections	Percentage of Subsections
Grassland	1	100
Prairie	1	100
Shrub/woodland Upland	1	100
Wetland Non-forest	1	100
Lake-Shallow	1	100
River-Headwater to Large	1	100

PRIORITY CONSERVATION ACTIONS:

- Encourage wetland restoration efforts, especially when adjacent to native prairie and grasslands
- Encourage prairie restoration efforts
- Manage grasslands and wetlands adjacent to native prairie
- Manage invasive species
- Use prescribed fire and other practices to maintain prairie – brush prairie

LAURENTIAN MIXED FOREST PROVINCE

This region comprises the true forested region of Minnesota. Landforms range from lake plains and outwash plains, to ground and end moraines. Pre-settlement vegetation consisted of continuous conifer, conifer-hardwood mix, and hardwood vegetation.

Jack pine, red pine, and white pine dominated the droughty outwash plains, beach ridges, and thin soils on bedrock. The Agassiz, Upham, and Aitkin glacial lake plains all supported extensive areas of swamp, bog and peat land. Swamp forests were dominated by black spruce, tamarack, N. white cedar, aspen and birch.

Red and white pine forests were heavily logged at the beginning of the 20th century, resulting in major changes in forest composition and fragmentation. Agriculture is limited to approximately

700,000 acres of cropland and poorly managed grazing lands. On many lands aspen-birch have increased greatly in dominance. Jack pine and white pine plantations are also quite extensive. Many of the other forest types have not changed greatly in composition from those of the original forest.

Thousands of Kettle and bog lakes are common in this region which support significant populations of game fish. Numerous short, high gradient streams lead directly from the highlands, to the shores of Lake Superior. These cold water streams support native sustaining populations of brook and rainbow trout, and also serve as breeding waters for several species of anadromous fish common to Lake Superior.

Examples of SGCN: Spotted Salamander, Sharp-tailed Grouse, Brook Lamprey, Northern Bog Lemming, Blanding’s Turtle.

Table 7: Number of SGCN in and Number Unique to the Laurentian Mixed Forest by Subsection

Subsection	Number of SGCN	Number of SGCN Unique to Subsection
Mille Lacs Uplands	128	6
Pine Moraines and Outwash	89	1
Agassiz Lowlands	88	1
North Shore Highlands	84	6
Chippewa Plains	83	1
St. Louis Moraines	74	0
Tamarack Lowlands	69	0
Border Lakes	69	2
Littlefork – Vermillion	67	0
Nashwauk Uplands	60	0
Laurentian Uplands	58	0
Lake Superior Plain	55	0
Toimi Uplands	52	0
Laurentian Mixed Forest	171	47

Wildlife conservation concerns: The SGCN problem assessment provides information on the factors influencing the vulnerability or decline of SGCN. The result of the species problem assessment indicates that key habitat loss and degradation are the predominant challenges facing SGCN populations. Table 8 lists ranks key habitats by subsection.

Table 8: Frequency of Key Habitats in the Laurentian Mixed Forest by Subsection.

Key Habitats by Frequency	Number of Subsections	Percentage of Subsections
River-Headwater to Large	13	100
Forest-Upland Conifer	12	92
Forest-Lowland Conifer	10	77
Shrub/woodland Upland	6	46
Wetland Non-forest	5	38
Lake Deep	4	31
Forest-Upland Deciduous (Hardwood)	3	23
Shoreline-Dunes-Cliff	3	23
Forest-Upland Deciduous (Aspen)	1	8
River-Very Large	1	8

PRIORITY CONSERVATION ACTIONS:

- Manage invasive species
- Maintain and enhance riparian areas along priority stream reaches
- Incorporate SGCN habitat concerns in forest management planning, such as the promotion of conifer species
- Manage habitats adjacent to wetlands to enhance SGCN values
- Enhance SGCN habitat within dune habitat
- Use prescribed fire and other practices to maintain early successional habitat

State WHIP Goals and Objectives

A comprehensive review of the "State of Fisheries and Wildlife" was completed by a diverse subgroup of the Minnesota State Technical Committee. Membership of this committee covers a broad spectrum of fish and wildlife interests including governmental agencies, environmental and wildlife organizations, farmer organizations, and private landowners (Table 9).

Table 9: MN WHIP Partnership

Non-governmental Organizations	Governmental Agencies
• Local sportsman's groups	• MN Department of Natural Resources
• Minnesota Forestry Association	• MN Department of Agriculture
• Minnesota Sharp-Tailed Grouse Society	• US Fish and Wildlife Service
• Minnesota Ruffed Grouse Society	• MN Association of Soil and Water Conservation Districts
• Minnesota Waterfowl Association	• USDA Forest Service
• Minnesota Deer Hunters Association	• USDA Farm Service Agency
• Minnesota Trout Unlimited	• MN Board of Water and Soil Resources
• The Nature Conservancy	
• National Wild Turkey Federation	
• Pheasants Forever	
• MN Cattlemans Association	
• MN Farm Bureau Federation	

One result of this planning committee was the development of an overall goal relative to implementing WHIP. The goal of WHIP in Minnesota is to: ***"Maintain a healthy, diverse ecosystem through the improvement, enhancement and restoration of fish and wildlife habitat, in cooperation with private agricultural landowners"***.

Minnesota landowners, conservation partners, and NRCS plan on reaching the above mentioned goal through the following objectives:

1. Promote wildlife habitat restoration and management on private lands through cooperative endeavors between landowners and Federal, state and local conservation partners. This will provide maximum WHIP exposure.
2. Provide technical and financial assistance to landowners to identify and meet wildlife goals.
3. To maximize habitat/species benefits, focus WHIP financial and technical resources towards projects statewide which are a component of a comprehensive plan with the highest demonstratable outcomes.
4. Utilize WHIP, to the extent practicable, to benefit State and Federally listed endangered, threatened, and special concern species.

5. Develop an information and education outreach program to coordinate promotion of WHIP.
5. Utilize a network of interagency specialists, and other qualified resource managers to deliver WHIP to landowners.
7. Periodically monitor the progress, success, and acceptance of WHIP in achieving stated goals.

Recognizing the diversity of habitat, wildlife species, and restoration/management needs occurring throughout the state, the Minnesota State Technical Committee has elected not to geographically exclude any portion of the state. Thus, WHIP will be available statewide. The state ranking criteria will be utilized to focus WHIP resources towards projects demonstrating the greatest benefits relative to identified priority concerns. Refer to the State Ranking Criteria for details.

Although WHIP resources will be available statewide, the State Technical Committee has directed that not more than 50% of state WHIP funds may be allocated to any one ecoregion in the state without the NRCS State Conservationist approval. This will assure equitable distribution of limited funding to deserving projects.

Appendix 4 lists the most commonly utilized WHIP NRCS conservation practices.

PARTNERSHIP INVOLVEMENT

The state WHIP plan provides for the restoration and enhancement of habitats which have been adversely affected due to agriculture and other forces. To assure effective implementation of WHIP resources, WHIP will be utilized primarily to compliment existing comprehensive plans and incentive programs. This approach assures that WHIP is complimentary to, rather than competitive with, existing initiatives.

Coordinating incentive projects assures the greatest habitat benefits per dollar expended, comprehensive projects result in successful implementation, and locally lead initiatives have grassroots support. The following list summarizes the primary wildlife initiatives in Minnesota that WHIP will coordinate with.

Table 10: Complementary Non-USDA Conservation Programs

- Partners for Fish and Wildlife Program - FWS
- Pheasant Habitat Improvement Program - MDNR
- Forest Stewardship Program - MDNR
- Reinvest in Minnesota (RIM) Resources Program – BWSR
- Pheasants Forever Cost-Share Program
- Landowner Incentives Program (LIP) – MDNR
- Brushland Management Program - MDNR

Minnesota has a long history of effective natural resource conservations programs. History has shown that the success of incentive programs is the partnership between landowners, government agencies, and private conservation organizations. Although a number of incentive programs exist, no single program necessarily meets the needs and objectives of every landowner. WHIP has the flexibility to address concerns not addressed by other initiatives.

The Minnesota partnership is committed in a number of aspects. 1) the partnership as a whole has committed to provide direct financial assistance. 2) the partnership has committed to in-kind contributions of technical assistance in wildlife habitat plan development and monitoring. 3) in addition to in-kind plan development, NRCS staff will benefit by receiving hands on training relative

to wildlife habitat management, and 4) the partnership will coordinate with NRCS, an information and education campaign to publicize WHIP through the local media (newspaper and radio), organizational newsletters, and direct landowner contacts.

STATE RANKING CRITERIA

The Minnesota state ranking criteria was developed through a consensus process utilizing technical expertise of the WHIP subcommittee of the State Technical Committee. The subcommittee comprises experts from local, state, federal, and non-governmental organizations.

The ranking system was designed to emphasize restoration of native habitats which will address ecoregion concerns and key habitats. Historic performance confirms the ranking system is sensitive enough to separate deserving projects from poor proposals. Additionally, the ranking system will not exclude any region of the state, rewarding deserving projects located within each ecoregion. The state ranking criteria are reviewed annually and updated as needed.

The local work groups will rank individual applications utilizing the State ranking criteria. Local working groups with State Conservationist approval, will have the latitude to deviate from the raw ranking score when prioritizing applications and proposing special project initiatives, provided adequate documentation is included.

MEASURING PROGRAM SUCCESS

The Natural Resources Conservation Service provides assistance to clients to help them protect, maintain, and enhance soil, water, air, plant and animal (including wildlife) resources through a whole farm planning philosophy.

To fully incorporate wildlife concerns in the planning process, Minnesota NRCS has developed an objective evaluation system designed to quantitatively measure existing on-farm wildlife habitat quality, as well as the projected effects of applied conservation and management measures.

The Minnesota Wildlife Habitat Evaluation System (WHES) will be used to evaluate in general terms, the baseline quality of wildlife habitat when developing the Wildlife Habitat Development Plan. In addition to plan development, WHES will be completed the year all practices are installed, and the final year of the WHIP contract. This process will allow NRCS planners to evaluate the progress, recommend corrections, and ultimate success of the plan.

Appendix 1 - MN Species of Greatest Conservation Need (SGCN)

Scientific Name Common Name State Fed. Rationale Status Status

Mammals

<i>Canis lupus</i> Gray Wolf	SPC	Federally Threatened, MN Special Concern. THR
<i>Cervus elaphus</i> Elk	SPC	MN Special Concern. NL
<i>Cryptotis parva</i> Least Shrew	SPC	MN Special Concern. NL
<i>Felis concolor</i> Mountain Lion	SPC	MN Special Concern. NL
<i>Lynx canadensis</i> Canada lynx	NL	Federally Threatened. THR
<i>Microtus chrotorrhinus</i> Rock Vole	NL	Tracked in MN heritage database. NL
<i>Microtus ochrogaster</i> Prairie Vole	SPC	MN Special Concern. NL
<i>Microtus pinetorum</i> Woodland Vole	SPC	MN Special Concern. NL
<i>Mustela nivalis</i> Least Weasel	SPC	MN Special Concern. NL
<i>Myotis septentrionalis</i> Northern Myotis	SPC	MN Special Concern. NL
<i>Onychomys leucogaster</i> Northern Grasshopper Mouse	NL	Tracked in MN heritage database. NL
<i>Perognathus flavescens</i> Plains Pocket Mouse	SPC	MN Special Concern. NL
<i>Phenacomys intermedius</i> Heather Vole	SPC	MN Special Concern. NL
<i>Pipistrellus subflavus</i> Eastern Pipistrelle	SPC	MN Special Concern. NL
<i>Reithrodontomys megalotis</i> Western Harvest Mouse	NL	Tracked in MN heritage database. NL
<i>Sorex fumeus</i> Smoky Shrew	SPC	MN Special Concern. NL
<i>Spermophilus franklinii</i> Franklin's Ground Squirrel	NL	Stewardship species stable pop in MN, declining in region. NL
<i>Spermophilus richardsonii</i> Richardson's Ground Squirrel	NL	Tracked in MN heritage database. NL
<i>Spilogale putorius</i> Eastern Spotted Skunk	THR	MN Threatened. NL
<i>Synaptomys borealis</i> Northern Bog Lemming	SPC	MN Special Concern. NL
<i>Taxidea taxus</i> American Badger	NL	Dependent on rare and declining grassland habitat, population numbers are not fully known
<i>Thomomys talpoides</i> Northern Pocket Gopher	SPC	MN Special Concern. NL

Birds

<i>Accipiter gentilis</i> Northern Goshawk	NL	Suggested addition. On USFS sensitive spp list - vulnerable habitat (mature forest), may be regionally declining, tracked by MN DNR Heritage.
<i>Aechmophorus occidentalis</i> Western Grebe	NL	Suggested addition by several people on feedback teams. Declining MN population, Declining habitat. Been several nesting failures. Tracked in M DNR Heritage database.
<i>Aegolius funereus</i> Boreal Owl	NL	Suggested addition. Meets several criteria - declining habitat MN, not adequately surveyed by breeding bird survey, tracked by MN DNR heritage.
<i>Ammodramus bairdii</i> Baird's Sparrow	END	MN Endangered. NL
<i>Ammodramus henslowii</i> Henslow's Sparrow	END	MN Endangered. NL
<i>Ammodramus leconteii</i> Le Conte's Sparrow	NL	Highest Partners in Flight Priority (PIF 1) in the Boreal Hardwood Transition plan (BCR12). NL
<i>Ammodramus nelsoni</i> Nelson's Sharp-tailed Sparrow	SPC	MN Special Concern. NL
<i>Ammodramus savannarum</i> Grasshopper Sparrow	NL	High Partners in Flight Priority (PIF 2) in several Bird Conservation Regions (BCRs). NL
<i>Anas acuta</i> Northern Pintail	NL	According to DNR Continental population stable since 1985, but significant long-term decline dating to the 1950s; MN population low and declining since 1986.
<i>Anas rubripes</i> American Black Duck	NL	According to DNR Continental population declining, MN population low (<1,000) 1991-93 Black Duck Survey.
<i>Anthus spragueii</i> Sprague's Pipit	END	MN Endangered.
<i>Arenaria interpres</i> Ruddy Turnstone	NL	High Priority (4) in the Prairie Pothole (BCR11) Shorebird Plan.
<i>Asio flammeus</i> Short-eared Owl	SPC	MN Special Concern.
<i>Aythya affinis</i> Lesser Scaup	NL	According to DNR Continental population declining since 1985 and long-term (Lesser and Greater combined), MN population stable but survey poorly timed for breeding scaup.
<i>Bartramia longicauda</i> Upland Sandpiper	NL	High Priority (4) in all Bird Conservation Regions of Shorebird Plans.
<i>Botaurus lentiginosus</i> American Bittern	NL	High priority in all Bird Conservation Regions of Waterbird plans.
<i>Buteo lineatus</i> Red-shouldered Hawk	SPC	MN Special Concern.
<i>Buteo swainsoni</i> Swainson's Hawk	NL	Partners in Flight Continental Watchlist.
<i>Calcarius ornatus</i> Chestnut-collared Longspur	END	MN Endangered.
<i>Calidris alpina</i> Dunlin	NL	High Priority (4) in the Prairie Pothole (BCR11) Shorebird Plan.
<i>Calidris fuscicollis</i> White-rumped Sandpiper	NL	High Priority (4) in the Prairie Pothole (BCR11) Shorebird Plan.

<i>Calidris pusilla</i> Semipalmated Sandpiper	NL	High Priority (4) in the Prairie Pothole (BCR11) Shorebird Plan.
<i>Caprimulgus vociferus</i> Whip-poor-will	NL	Suggested addition Not well monitored by breeding bird surveys. Declining populations, Id'd on USFWS reg. 3 concern list.
<i>Catharus fuscescens</i> Veery	NL	Highest Partners in Flight Priority (PIF 1) in the Boreal Hardwood Transition plan (BCR12).
<i>Charadrius melodus</i> Piping Plover	END	Federally Endangered in Great Lakes watershed, Federally Threatened elsewhere. MN End.
<i>Chlidonias niger</i> Black Tern	NL	High priority in all Bird Conservation Regions Waterbird plans.
<i>Chordeiles minor</i> Common Nighthawk	NL	Suggested addition by Not well monitored by breeding bird surveys. Declining populations, insectivore and aerial feeder - special resource needs.
<i>Circus cyaneus</i> Northern Harrier	NL	High Partners in Flight Priority (PIF 2) in several Bird Conservation Regions (BCRs).
<i>Cistothorus palustris</i> Marsh Wren	NL	High Partners in Flight Priority (PIF 2) in several Bird Conservation Regions (BCRs).
<i>Cistothorus platensis</i> Sedge Wren	NL	Highest Partners in Flight Priority (PIF 1) in several Bird Conservation Regions (BCRs).
<i>Coccyzus erythrophthalmus</i> Black-billed Cuckoo	NL	Highest Partners in Flight Priority (PIF 1) in several Bird Conservation Regions (BCRs).
<i>Contopus cooperi</i> Olive-sided Flycatcher	NL	Partners in Flight Continental Watchlist.
<i>Contopus virens</i> Eastern Wood-pewee	NL	High Partners in Flight Priority (PIF 2A) in the Boreal Hardwood Transition plan (BCR12). Significant declines in the NRR1 forest bird monitoring.
<i>Coturnicops noveboracensis</i> Yellow Rail	SPC	MN Special Concern, High priority in several BCRs of Waterbird Plans.
<i>Cygnus buccinator</i> Trumpeter Swan	THR	MN Threatened.
<i>Dendroica caerulescens</i> Black-throated Blue Warbler	NL	Highest Partners in Flight Priority (PIF 1) in the Boreal Hardwood Transition plan (BCR12).
<i>Dendroica castanea</i> Bay-breasted Warbler	NL	Partners in Flight Continental Watchlist.
<i>Dendroica cerulea</i> Cerulean Warbler	SPC	MN Special Concern.
<i>Dendroica tigrina</i> Cape May Warbler	NL	Highest Partners in Flight Priority (PIF 1) in the Boreal Hardwood Transition plan (BCR12).
<i>Dolichonyx oryzivorus</i> Bobolink	NL	Highest Partners in Flight Priority (PIF 1) in several Bird Conservation Regions (BCRs).
<i>Empidonax minimus</i> Least Flycatcher	NL	High Partners in Flight Priority (PIF 2A) in the Boreal Hardwood Transition plan (BCR12).
<i>Empidonax traillii</i> Willow Flycatcher	NL	Partners in Flight Continental Watchlist.
<i>Empidonax virescens</i> Acadian Flycatcher	SPC	MN Special Concern.
<i>Euphagus carolinus</i> Rusty Blackbird	NL	Partners in Flight Continental Watchlist.
<i>Falci pennis canadensis</i> Spruce Grouse	NL	Suggested addition Not well monitored by BBS, on USFS sensitive species list, vulnerable habitat, not much known about population trends, however.
<i>Falco peregrinus</i> Peregrine Falcon	THR	MN Threatened.
<i>Gallinula chloropus</i> Common Moorhen	SPC	MN Special Concern, Moderate concern in several BCRs of Waterbird Plans.
<i>Gavia immer</i> Common Loon	NL	High priority in several Bird Conservation Regions of Waterbird plans.
<i>Haliaeetus leucocephalus</i> Bald Eagle	SPC	Federally Threatened, MN Special Concern.
<i>Hylocichla mustelina</i> Wood Thrush	NL	Partners in Flight Continental Watchlist.
<i>Ixobrychus exilis</i> Least Bittern	NL	Moderate priority in all Bird Conservation Regions (BCRs) of Waterbird plan.
<i>Lanius ludovicianus</i> Loggerhead Shrike	THR	MN Threatened.
<i>Larus pipixcan</i> Franklin's Gull	SPC	MN Special Concern.
<i>Limnodromus griseus</i> Short-billed Dowitcher	NL	High Priority (4) in several Bird Conservation Regions of Shorebird Plans.
<i>Limosa fedoa</i> Marbled Godwit	SPC	MN Special Concern, Priority 4 on all BCRs of Shorebird plans.
<i>Limosa haemastica</i> Hudsonian Godwit	NL	High Priority (4) in the Prairie Pothole (BCR11) Shorebird Plan.
<i>Melanerpes erythrocephalus</i> Red-headed Woodpecker	NL	Partners in Flight Continental Watchlist.
<i>Melospiza georgiana</i> Swamp Sparrow	NL	High Partners in Flight Priority (PIF 2A) in the Prairie Hardwood Transition plan (BCR 23). Rangewide declines and also a continental stewardship species.
<i>Numenius phaeopus</i> Whimbrel	NL	High Priority (4) in all Bird Conservation Regions of Shorebird Plans.
<i>Nycticorax nycticorax</i> Black-crowned Night-heron	NL	Med to high priority in Waterbird plans.
<i>Oporornis agilis</i> Connecticut Warbler	NL	Highest Partners in Flight Priority (PIF 1) in the Boreal Hardwood Transition plan (BCR12).
<i>Pelecanus erythrorhynchos</i> American White Pelican	SPC	MN Special Concern.
<i>Phalaropus tricolor</i> Wilson's Phalarope	THR	MN Threatened, High Priority (4) in all Bird Conservation Regions (BCRs) of Shorebird Plans.
<i>Pheucticus ludovicianus</i> Rose-breasted Grosbeak	NL	High Partners in Flight Priority in the Boreal Hardwood Transition plan (BCR12) significant declines indicated in NRR1 Forest Bird monitoring.
<i>Picoides arcticus</i> Black-backed Woodpecker	NL	High Partners in Flight Priority (PIF 2C) in the Boreal Hardwood Transition plan (BCR12). High regional threats (habitat needs of large burned areas).
<i>Pluvialis dominica</i> American Golden-plover	NL	High Priority (4) in the Prairie Pothole (BCR11) Shorebird Plan.
<i>Podiceps auritus</i> Horned Grebe	THR	MN Threatened. Moderate concern in several Bird Conservation Regions of Waterbird Plans.
<i>Podiceps grisegena</i> Red-necked Grebe	NL	High and medium priority in Waterbird Plans, uncommon, wetland habitat declining.
<i>Podiceps nigricollis</i> Eared Grebe	NL	Moderate concern in the Prairie Pothole (BCR 11) Waterbird plan.
<i>Poecile hudsonica</i> Boreal Chickadee	NL	Suggested addition by feedback team. Sharp continental population decline , threatened habitat.
<i>Protonotaria citrea</i> Prothonotary Warbler	NL	Partners in Flight Continental Watchlist.

Rallus elegans King Rail	END	MN Endangered.
Rallus limicola Virginia Rail	NL	Moderate concern in the Prairie Pothole (BCR 11) Waterbird plan.
Recurvirostra americana American Avocet	NL	High Priority (4) in the Prairie Pothole (BCR11) Shorebird Plan.
Scolopax minor American Woodcock	NL	High Priority (4) in all Bird Conservation Regions of Shorebird Plans.
Seiurus aurocapillus Ovenbird	NL	Suggested addition. While does not meet PIF priority the NRRI Forest Bird monitoring shows highly sig. regional declines. Also vulnerable habitat (forest interior).
Seiurus motacilla Louisiana Waterthrush	SPC	MN Special Concern. NL
Speotyto cunicularia Burrowing Owl	END	MN Endangered. NL
Sphyrapicus varius Yellow-bellied Sapsucker	NL	High Partners in Flight Priority (PIF 2A) in the Boreal Hardwood Transition plan (BCR12).
Spiza americana Dickcissel	NL	Partners in Flight Continental Watchlist. NL
Spizella pusilla Field Sparrow	NL	Highest Partners in Flight Priority (PIF 1) in several Bird Conservation Regions (BCRs).
Stelgidopteryx serripennis Northern Rough-winged Swallow	NL	High Partners in Flight Priority (PIF 2) in several Bird Conservation Regions (BCRs).
Sterna forsteri Forster's Tern	SPC	MN Special Concern.
Sterna hirundo Common Tern	THR	MN Threatened, High priority in all Bird Conservation Regions (BCRs) of Waterbird plans
Sturnella magna Eastern Meadowlark	NL	Id'd on USFWS reg. 3 concern list. Precipitous continental population decline, habitat imperiled.
Toxostoma rufum Brown Thrasher	NL	Highest Partners in Flight Priority (PIF 2A) in several Bird Conservation Regions (BCRs).
Tringa melanoleuca Greater Yellowlegs	NL	High Priority (4) in several Bird Conservation Regions of Shorebird Plans.
Troglodytes troglodytes Winter Wren	NL	Suggested addition Highly significant population declines in NRRI Forest Bird Monitoring. NL
Tryngites subruficollis Buff-breasted Sandpiper	NL	High priority (4) in all Bird Conservation Regions of Shorebird Plans. NL
Tympanuchus cupido Greater Prairie-chicken	SPC	MN Special Concern. NL
Tympanuchus phasianellus Sharp-tailed Grouse	NL	Populations well below the range of natural variation in Minnesota.
Vermivora chrysoptera Golden-winged Warbler	NL	Partners in Flight Continental Watchlist.
Vermivora pinus Blue-winged Warbler	NL	Partners in Flight Continental Watchlist.
Vireo bellii Bell's Vireo	NL	Partners in Flight Continental Watchlist, Tracked in MN heritage database.
Wilsonia canadensis Canada Warbler	NL	Partners in Flight Continental Watchlist.
Wilsonia citrina Hooded Warbler	SPC	MN Special Concern.
Zonotrichia albicollis White-throated Sparrow	NL	Suggested addition. Highly significant regional population declines in NRRI Forest Bird Monitoring.

Reptiles

Apalone mutica Smooth Softshell	SPC	MN Special Concern.
Chelydra serpentina Common Snapping Turtle	SPC	MN Special Concern.
Clemmys insculpta Wood Turtle	THR	MN Threatened.
Cnemidophorus sexlineatus Six-lined Racerunner	NL	Restricted to bluff prairie habitats and are uncommon even in appropriate habitats.
Coluber constrictor Eastern Racer	SPC	MN Special Concern.
Crotalus horridus Timber Rattlesnake	THR	MN Threatened.
Elaphe obsoleta Eastern Rat Snake	SPC	MN Special Concern.
Elaphe vulpina Eastern Fox Snake	NL	Tracked in MN heritage database
Emydoidea blandingii Blanding's Turtle	THR	MN Threatened.
Eumeces fasciatus Five-lined Skink	SPC	MN Special Concern.
Heterodon nasicus Western Hognose Snake	SPC	MN Special Concern.
Heterodon platirhinus Eastern Hognose Snake	NL	Tracked in MN heritage database.
Lampropeltis triangulum Milk Snake	NL	Tracked in MN heritage database - vulnerable habitat -rock outcrops and hibernacula.
Liochlorophis vernalis Smooth Green Snake	NL	Suggested by herp subgroup, declines noted in adj. States, MN population info lacking.
Pituophis catenifer Gopher Snake	SPC	MN Special Concern.
Sistrurus catenatus Eastern Massasauga	END	Candidate Federal ESA, MN Endangered. CAND
Tropidoclonion lineatum Lined Snake	SPC	MN Special Concern.

Amphibians

Acris crepitans Northern Cricket Frog	END	MN Endangered
Ambystoma maculatum Spotted Salamander	NL	Tracked in MN heritage database
Hemidactylum scutatum Four-toed Salamander	SPC	MN Special Concern.
Necturus maculosus Common Mudpuppy	NL	Suggested by aquatics group, host to threatened salamander mussel. Commercially exploited
Plethodon cinereus Eastern Red-backed Salamander	NL	Suggested by herp subgroup, info and status needed given loss of habitat
Rana palustris Pickerel Frog	NL	Tracked in MN heritage database. Range is in MN, uses cold water streams, a vulnerable habitat

Fishes

<i>Acipenser fulvescens</i> Lake Sturgeon	SPC	MN Special Concern, generally recovering in historic drainages.
<i>Alosa chrysochloris</i> Skipjack Herring	SPC	MN Special Concern, absent for decades, but has been reported sporadically since 1986.
<i>Ammocrypta asprella</i> Crystal Darter	SPC	MN Special Concern, difficult to sample and assess.
<i>Ammocrypta clara</i> Western Sand Darter	NL	Preferred habitats rarely sampled.
<i>Anguilla Rostrata</i> American Eel	NL	catadromis, difficult to sample and assess, special concern in WI.
<i>Aphredoderus sayanus</i> Pirate Perch	SPC	MN Special Concern, preferred habitats rarely sampled.
<i>Campostoma oligolepis</i> Largescale Stoneroller	NL	secure in St. Croix and lower Mississippi drainages, rare in Minnesota drainage.
<i>Clinostomus elongatus</i> Redside Dace	NL	Reduced distribution, special concern in WI, extirpated in IA.
<i>Coregonus hoyi</i> Bloater	NL	Classified as Vulnerable in the IUCN Red List. Commercial species in Lake Superior,
<i>Coregonus kiyi</i> Kiyi	SPC	MN Special Concern, reported occasionally along North Shore of Lake Superior,
<i>Coregonus nipigon</i> Nipigon cisco	NL	Known distribution restricted to Saganaga Lake in far NE Minnesota/southern Ontario.
<i>Coregonus zenithicus</i> Shortjaw Cisco	SPC	MN Special Concern, rarely along North Shore of Lake Superior, and recently, in two inland lakes
<i>Cottus ricei</i> Spoonhead sculpin	NL	Restricted to L. Superior and one inland lake
<i>Couesius plumbeus</i> Lake Chub	NL	Secure in Lake Superior, reduced distribution in inland lakes and streams
<i>Cycleptus elongatus</i> Blue Sucker	SPC	MN Special Concern, recovering and expanding range into Minnesota River
<i>Cyprinella lutrensis</i> Red Shiner	NL	Restricted to Missouri drainage, far less common than federally endangered Topeka shiner
<i>Erimystax x-punctata</i> Gravel Chub	SPC	MN Special Concern, restricted to Root and Upper and Iowa Rivers
<i>Etheostoma asprigene</i> Mud Darter	NL	Secure in lower Mississippi River, rare in St. Croix River, special concern in WI.
<i>Etheostoma chlorosoma</i> Bluntnose Darter	NL	Tracked in MN heritage database, two collections since 1997, previously assumed extirpated.
<i>Etheostoma microperca</i> Least Darter	SPC	MN Special Concern, found at several new localities, possibly due to more effective sampling.
<i>Fundulus sciadicus</i> Plains Topminnow	SPC	MN Special Concern, restricted to Missouri drainage.
<i>Hybognathus nuchalis</i> Mississippi Silvery Minnow	NL	Reduced distribution possibly due to reservoirs, similar decline reported in TVA reservoirs.
<i>Ichthyomyzon fossor</i> Northern Brook Lamprey	SPC	MN Special Concern, secure in LOWoods drainage, population remains in L Superior drainage. rare in Zumbro and Upper Iowa Rivers.
<i>Ichthyomyzon gagei</i> Southern Brook Lamprey	SPC	MN Special Concern, restricted to, but secure, in the St. Croix drainage
<i>Ictiobus niger</i> Black Buffalo	SPC	MN Special Concern, rarely reported, but recently has expanded range into Minnesota River
<i>Lampetra appendix</i> American Brook Lamprey	NL	Tracked in MN heritage database, found in Minnesota River drainage where it had been absent for decades, secure in the lower Mississippi drainage.
<i>Lepomis gulosus</i> Warmouth	NL	Restricted to Mississippi River in SE MN, one introduced population in Lake of the Woods drainage
<i>Lepomis megalotis</i> Longear Sunfish	NL	Very spotty distribution, Threatened in WI
<i>Lythrurus umbratilis</i> Redfin Shiner	NL	Reduced distribution, Threatened in WI
<i>Machybopsis aestivalis</i> speckled chub	NL	Secure in MN and lower Miss rivers, found in St.Croix in 2004, threatened in WI
<i>Morone mississippiensis</i> Yellow Bass	SPC	MN Special Concern, restricted distribution
<i>Moxostoma carinatum</i> River Redhorse	NL	Secure in St. Croix and lower Mississippi Rivers, extirpated in Minnesota Rivers.
<i>Moxostoma duquesnei</i> Black Redhorse	NL	Tracked in MN heritage database, restricted to the Zumbro, Root, and Upper Iowa Rivers.
<i>Moxostoma valenciennesi</i> Greater Redhorse	NL	Secure in upper Mississippi and St. Croix , extirpated in Lake of the Woods drainage.
<i>Myoxocephalus thompsoni</i> Deepwater Sculpin	NL	Restricted to Lake Superior and one inland lake.
<i>Notropis amnis</i> Pallid Shiner	SPC	MN Special Concern.
<i>Notropis anogenus</i> Pugnose Shiner	SPC	MN Special Concern, difficult to identify in field
<i>Notropis nubilus</i> Ozark Minnow	SPC	MN Special Concern, restricted to the Zumbro, Root, and Cedar Rivers
<i>Notropis topeka</i> Topeka Shiner	SPC	Federally Endangered, historically occurred in the Mississippi River drainage in SE Minnesota.
<i>Noturus exilis</i> Slender Madtom	SPC	MN Special Concern, restricted to one stream
<i>Opsopoeodus emiliae</i> Pugnose Minnow	NL	Exhibits wide fluctuation in abundance
<i>Percina evides</i> Gilt Darter	SPC	MN Special Concern, restricted to, but secure, in the St. Croix drainage
<i>Phenacobius mirabilis</i> Suckermouth Minnow	NL	Reduced distribution
<i>Platygobio gracilis</i> flathead chub	NL	One collection from Red River of the North, additional occurrences in southern Manitoba
<i>Polyodon spathula</i> Paddlefish	THR	MN Threatened, generally recovering in historic drainages
<i>Prosopium coulteri</i> pygmy whitefish	NL	Disjunct population, difficult to sample and assess, Special Concern in WI
<i>Scaphirhynchus platyrhynchus</i> Shovelnose Sturgeon	NL	Tracked in MN heritage database, rapidly recovering

Spiders

<i>Habronattus texanus</i> A Jumping Spider	SPC	MN Special Concern
<i>Marpissa grata</i> A Jumping Spider	SPC	MN Special Concern
<i>Metaphidippus arizonensis</i> A Jumping Spider	SPC	MN Special Concern
<i>Paradamoetas fontana</i> A Jumping Spider	SPC	MN Special Concern
<i>Phidippus apacheanus</i> A Jumping Spider	SPC	MN Special Concern

Phidippus pius A Jumping Spider	SPC	MN Special Concern
Sassacus papenhoei A Jumping Spider	SPC	MN Special Concern
Tutelina formicaria A Jumping Spider	SPC	MN Special Concern

Insects

Aflexia rubranura Red Tailed Prairie Leafhopper	SPC	MN Special Concern
Agapetus tomus A Caddisfly	SPC	MN Special Concern
Allocapnia illinoensis A Stonefly	NL	Heritage global ranked (G3).
Asynarchus rossi A Caddisfly	SPC	MN Special Concern
Atrytone arogos Arogos Skipper	SPC	MN Special Concern.
Ceraclea brevis A Caddisfly	SPC	MN Special Concern.
Ceraclea vertreesi Vertrees's Ceraclean Caddisfly	SPC	MN Special Concern.
Chilostigma itascae Headwater Chilostigman Caddisfly	END	MN Endangered.
Cicindela denikei A Tiger Beetle	THR	MN Threatened.
Cicindela fulgida fulgida A Tiger Beetle	END	MN Endangered.
Cicindela fulgida westbournei A Tiger Beetle	THR	MN Threatened.
Cicindela hirticollis rhodensis A Tiger Beetle	SPC	MN Special Concern.
Cicindela lepida Little White Tiger Beetle	THR	MN Threatened.
Cicindela limbata nympha A Tiger Beetle	END	MN Endangered.
Cicindela macra macra A Tiger Beetle	SPC	MN Special Concern.
Cicindela patruela patruela A Tiger Beetle	SPC	MN Special Concern.
Cicindela splendida cyanocephalata A Tiger Beetle	SPC	MN Special Concern.
Epidemia epixanthe michiganensis Bog Copper	NL	Tracked in MN heritage database.
Erebia disa mancinus Disa Alpine	SPC	MN Special Concern.
Erynnis persius Persius Duskywing	END	MN Endangered.
Euphyes bimacula illinois Two-spotted Skipper	NL	Tracked in MN heritage database.
Gomphus crassus Handsome Clubtail	NL	Heritage global ranked (G3).
Gomphus notatus Elusive Clubtail	NL	Possibly remove - not on MN dragonfly checklist. Heritage global ranked (G3).
Gomphus ventricosus Skillet Clubtail	NL	Heritage global ranked (G3).
Gomphus viridifrons Green-faced Clubtail	NL	Heritage global ranked (G3).
Hesperia comma assiniboia Assiniboia Skipper	END	MN Endangered.
Hesperia dacotae Dakota Skipper	THR	MN Threatened. Federal candidate for listing under the ESA.
Hesperia leonardus leonardus Leonard's Skipper	SPC	MN Special Concern.
Hesperia leonardus pawnee Pawnee Skipper	SPC	MN Special Concern.
Hesperia ottoe Ottoe Skipper	THR	MN Threatened.
Hesperia uncas Uncas Skipper	END	MN Endangered.
Hydroptila metoeca A Caddisfly	SPC	MN Special Concern.
Hydroptila novicola A Caddisfly	SPC	MN Special Concern.
Hydroptila tortosa A Caddisfly	SPC	MN Special Concern.
Hygrotus sylvanus Sylvan Hygrotus Diving Beetle	NL	Heritage global ranked (G1).
Isogenoides olivaceus A Perlid Stonefly	NL	Heritage global ranked (G3).
Isogenoides varians A Stonefly	NL	Heritage global ranked (G3).
Lycaeides idas nabokovi Nabokov's Blue	SPC	MN Special Concern.
Lycaeides melissa samuelis Karner Blue	END	Federally Endangered, MN Endangered.
Oarisma garita Garita Skipper	THR	MN Threatened.
Oarisma powesheik Powesheik Skipper	SPC	MN Special Concern.
Oeneis macounii Macoun's Arctic	NL	Tracked in MN heritage database.
Oeneis uhleri varuna Uhler's Arctic	END	MN Endangered.
Ophiogomphus anomalis Extra-striped Snaketail	SPC	MN Special Concern. SPC
Ophiogomphus howei Pygmy Snaketail	NL	Heritage global ranked (G3)
Ophiogomphus susbehcha St. Croix Snaketail	SPC	MN Special Concern. SPC
Oxyethira ecornuta A Caddisfly	SPC	MN Special Concern. SPC
Oxyethira itascae A Caddisfly	SPC	MN Special Concern. SPC
Papaipema beeriana Blazing Star Stem Borer	NL	Heritage global ranked (G3).
Phyciodes batesii Tawny Crescent	NL	Tracked in MN heritage database
Polycentropus milaca A Caddisfly	SPC	MN Special Concern. SPC

Protophila talola A Caddisfly	SPC	MN Special Concern. SPC
Pyrgus centaureae freija Grizzled Skipper	SPC	MN Special Concern. SPC
Schinia indiana Phlox Moth	SPC	MN Special Concern. SPC
Setodes guttatus A Caddisfly	SPC	MN Special Concern. SPC
Speyeria idalia Regal Fritillary	SPC	MN Special Concern. SPC

Mollusks

Acella haldemani Spindle Lymnaea	NL	Heritage global ranked (G3), state occurrence uncertain, landsnail
Actinonaias ligamentina Mucket mussel	THR	MN Threatened.
Alasmidonta marginata Elktoe	THR	MN Threatened.
Arcidens confragosus Rock Pocketbook	THR	MN Endangered.
Campeloma spp.	NL	Suggested by aquatics group. A genus of aquatic snails, little is known, indications of decline
Cumberlandia monodonta Spectaclecase	THR	MN Threatened, Federal candidate.
Cyclonaias tuberculata Purple Wartyback	THR	MN Threatened.
Ellipsaria lineolata Butterfly	THR	MN Threatened.
Elliptio crassidens Elephant-ear	END	MN Endangered.
Elliptio dilatata Spike	SPC	MN Special Concern.
Epioblasma triquetra Snuffbox	THR	MN Threatened.
Fusconaia ebena Ebonyshell	END	MN Endangered.
Lampsilis higginsii Higgins Eye	END	MN Endangered, Federally Endangered
Lampsilis teres Yellow Sandshell	END	MN Endangered
Lasmigona compressa Creek Heelsplitter	SPC	MN Special Concern.
Lasmigona costata Fluted-shell	SPC	MN Special Concern
Ligumia recta Black Sandshell	SPC	MN Special Concern.
Megalonaias nervosa Washboard	THR	MN Threatened.
Novasuccinea n. sp. minnesota a Minnesota	THR	MN Threatened.
Pleistocene Ambersnail		
Novasuccinea n. sp. minnesota b Iowa Pleistocene Ambersnail	END	MN Endangered
Obovaria olivaria Hickorynut	SPC	MN Special Concern.
Planorbella corpulenta Corpulent Rams-horn	NL	Heritage global ranked (G2)
Plethobasus cyphus Sheepnose	END	MN Endangered, Federal Candidate
Pleurobema coccineum Round Pigtoe	THR	MN Threatened.
Pleurocera acuta Sharp hornsnailed	NL	Suggested by aquatics expert group. Population appears to have greatly declined from early 70's surveys.
Quadrula fragosa Winged Mapleleaf	END	MN Endangered, Federally Endangered.
Quadrula metanevra Monkeyface	THR	MN Threatened.
Quadrula nodulata Wartyback	END	MN Endangered.
Simpsonaias ambigua Salamander Mussel	THR	MN Threatened.
Tritogonia verrucosa Pistolgrip	THR	MN Threatened.
Truncilla donaciformis Fawnsfoot	NL	Observed to be greatly diminished in numbers in the Mississippi and St Croix Rivers since 1970s
Venustaconcha ellipsiformis Ellipse	THR	MN Threatened.
Vertigo bollesiana Delicate Vertigo	NL	Heritage global ranked (G3). Landsnail, found in southern Beltrami and Clearwater counties
Vertigo brierensis Briarton Pleistocene Snail	NL	Heritage global ranked (G1), Globally, 2 occurrences from Iowa, range possibly extends into MN.
Vertigo hubrichti Hubricht's Vertigo	NL	Heritage global ranked (G2). Taxonomy uncertain.
Vertigo hubrichti hubrichti Midwest Pleistocene Vertigo	END	MN Endangered.
Vertigo hubrichti variabilis n. subsp. Variable Pleistocene	THR	MN Threatened.
Vertigo meramecensis Bluff Vertigo	THR	MN Threatened.
Vertigo occulta	NL	Heritage global ranked (G2). Taxonomy uncertain.

Status codes:

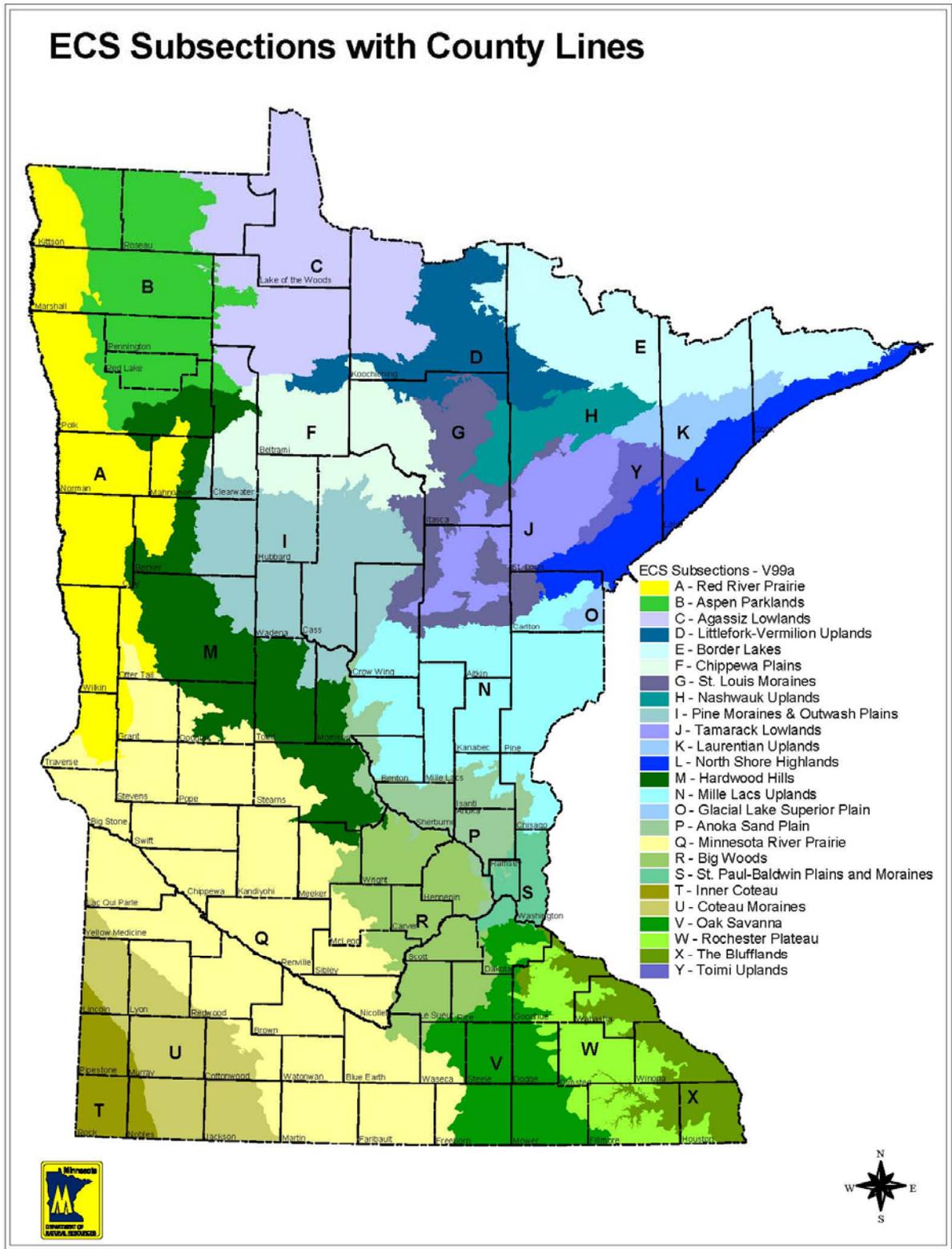
Fed. Status = Federal status on Endangered Species List
END = Endangered
THR = Threatened

SPC = Special Concern
CAND = Candidate species for listing
NL = Not listed

Appendix 2 - ECS Provinces of Minnesota



Appendix 3 - Ecological Subsections



Appendix 4 - Principal NRCS Conservation Practices - WHIP

EARLY SUCCESSIONAL HABITAT DEVELOPMENT AND MANAGEMENT - 647

PURPOSE: To manage early plant succession to benefit desired wildlife or natural communities.

FENCE - 382

PURPOSE: To protect stands of desirable forest trees, streams or sensitive areas from destructive effects of grazing and to prevent soil erosion and water quality impairment in critical areas.

FOREST IMPROVEMENT - 666

PURPOSE: The purpose of this practice is to improve or protect a stand of desirable trees, to enhance the growth of the stand, or to remove noxious or exotic woody plant species from existing stands.

POND - 378

PURPOSE: Improve water quality, provide water for fish and wildlife including amphibians and reptiles and recreation.

PRESCRIBED BURNING - 338

PURPOSE: Control undesirable vegetation and plant disease, improve wildlife habitat.

RESTORATION AND MANAGEMENT OF DECLINING HABITATS - 643

PURPOSE: to restore and conserve rare and declining native vegetative communities and associated wildlife species.

STREAM HABITAT IMPROVEMENT MANAGEMENT - 395

PURPOSE: To improve or restore aquatic ecosystem functions and values within a stream corridor for one or both of the following purposes: to increase survival and/or production of desired fish, or increase diversity and/or abundance of fish in a stream ecosystem.

STREAMBANK AND SHORELINE PROTECTION - 580

PURPOSE: To stabilize or protect banks of streams and lakes to reduce downstream sediment loads and improve the stream or lake for fish and wildlife habitat.

TREE/SHRUB ESTABLISHMENT - 612

PURPOSE: An area of trees, shrubs and other vegetation located on historically forested sites. The purpose is to improve fish and wildlife habitat.

UPLAND WILDLIFE HABITAT MANAGEMENT - 645

PURPOSE: Several practices may be applied as part of a wildlife system to provide food, cover or water for desired upland species, or manage wildlife habitat to achieve desired seral stage.

USE EXCLUSION - 472

PURPOSE: To protect, maintain or improve the quality of sensitive wildlife resources through the exclusion of domestic animals from an area.

WETLAND RESTORATION - 657

PURPOSE: To establish or restore the appropriate hydrological and vegetative characteristics necessary to meet the desired wetland functions and values.

WINDBREAK/SHELTERBELT - 380

PURPOSE: Multiple rows of trees and shrubs established to: manage snow, provide shelter for wildlife habitat and improve aesthetics.