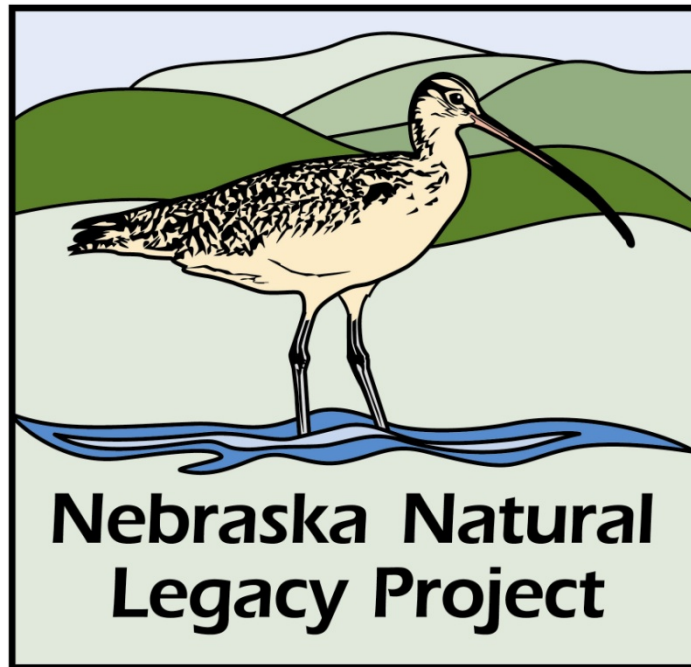


Revision of the Tier 1 and 2 Lists of Species of Greatest Conservation Need



A Supplement to the
Nebraska Natural Legacy Project
State Wildlife Action Plan

2018

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The Nebraska Game and Parks Commission
Lincoln, Nebraska
2018



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Numerous individuals contributed to the success of this endeavor. Appendix 1 lists the species experts that provided input for this revision.

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Section 1. Introduction

Nebraska's current State Wildlife Action Plan (Schneider et al. 2011) was approved by the U.S. Fish and Wildlife Service (USFWS) in 2011. One of the federal requirements for a State Wildlife Action Plan (SWAP) is that it identifies Species of Greatest Conservation Need (SGCN) within the state. In Nebraska, the SGCN list is divided into two tiers. Tier 1 species are those that are globally or nationally most at-risk of extinction and which occur in Nebraska. Tier 2 species are typically those that are not at-risk from a global or national perspective but are rare or imperiled within Nebraska. Tier 1 species are a higher priority and more research and conservation efforts are focused on these species. These lists are used to help prioritize conservation planning and actions and do not have legal or regulatory ramifications. By focusing conservation efforts on Tier 1 and 2 species, Nebraska can help prevent future state/federal listing as threatened or endangered, help recover currently listed species, and ensure that these species remain a part of the flora and fauna of Nebraska.

The USFWS requires states to review and revise their SWAPs at least every 10 years. However, new information on the abundance, distribution, and population trends of SGCN becomes available annually. Therefore, it was decided that review and revision of the SGCN list more frequently than the 10 year interval would improve conservation effectiveness.

This document replaces Appendices 8 and 9 in the Nebraska Natural Legacy Project State Wildlife Action Plan, 2nd edition, 2011 (Schneider et al. 2011)

Revision Process

The process used to review and revise the SGCN list was the same as was used during the initial development of the SWAP in 2005 and during the revision of the entire plan in 2011. The criteria for selecting SGCN species that are listed in the current SWAP were used for this review (see pgs. 3 and 73, this document, for criteria). The SGCN list review and revision process included the following steps:

- Nebraska Game and Parks Commission (NGPC) staff reviewed the current list of SGCN species and developed initial recommendations for additions to or deletions from the Tier 1 and 2 lists.
- The initial recommendations, along with the criteria and other background information, were sent to outside experts in the various taxonomic groups. The experts were asked to review the recommendations and also consider whether additional changes to the lists were warranted.
- A series of species expert workshops were held for the following taxonomic groups: birds, fishes, insects, mammals, and reptiles/amphibians. Review of recommendations for mollusks and plants were conducted via conference calls and emails. See Appendix 1 for the list of experts involved in the review.
- During each workshop, participants discussed recommendations from NGPC staff and outside experts. A consensus agreement was reached as to whether a species being considered met the

criteria for inclusion on the SGCN list. For changes in the Tier 2 list, the species' state conservation status ranks (S-rank) were re-evaluated using a standardized methodology (see Appendix 2).

- For a few species, questions about their status were not resolved during the workshops. These were resolved with further review and follow-up communication with the experts.
- The recommendations were sent for outside review to the Natural Legacy Science Team (those members not already involved in the process), the Natural Legacy Partnership Team, and conservation organizations not represented on the Partnership Team. The Partnership Team met April 2 and May 31, 2018 to discuss the recommendations.

Summary of Changes

Tier 1 At-risk Species List

- 37 species were added: 19 were moved from the Tier 2 list and 18 were new to the SGCN list
- 7 species were removed: 2 were moved to Tier 2 list and 5 were dropped from the SGCN list

Tier 2 At-risk Species List

- 35 species were added: 2 were moved from the Tier 1 list and 33 were new to the SGCN list
- 98 species were removed: 19 were moved to the Tier 1 list and 79 were dropped from the SGCN list

Overall, 51 species were added to the SGCN list and 84 species were removed from the SGCN list. The species added include 2 amphibians, 8 birds, 2 crustaceans, 4 fish, 23 insects, 5 mammals, 1 mollusk, 4 plants, and 2 reptiles. The species removed from the SGCN list include 11 birds, 6 fish, 7 insects, 6 mammals, 3 mollusks, and 51 plants.

Most of the additions to the Tier 1 list were the result of changes to the global conservation status rank (G-rank) of the species (one of the five possible criteria). Most of the changes to the Tier 2 list were the result of re-evaluation of the state conservation status rank (S-rank) for the species.

Of the 84 species removed entirely from the SGCN list, 28 were due to improved conservation status and 15 were deemed likely to be extirpated from the state (no documented occurrences in more than 25 years). The remainder were removed for a variety of factors including infrequent occurrence in the state, questionable taxonomy, and uncertainty as to whether the species was native or introduced. In addition, two species were downgraded from the Tier 1 to the Tier 2 list due to improved conservation status.

Section 2: Tier 1 At-risk Species.

Tier 1 species are those that are globally or nationally most at-risk of extinction and which occur in Nebraska. This list is used to help prioritize conservation planning and actions and does not have legal or regulatory ramifications. Conservation of these species is needed to prevent future state/federal listings and help listed species recover.

The Tier 1 at-risk species lists will be periodically reviewed and revised by taxon experts. This revision will occur on an on-going basis as new information on abundance, distribution, and population trends becomes available, with an overall review at least every five years. The Tier 1 list was reviewed and revised with input from taxon experts in workshops held in 2017/2018.

Species were selected for the Tier 1 list if they met one or more of the following criteria:

- **State and Federally Listed Species:** Species listed as threatened or endangered under the federal Endangered Species Act or the Nebraska Non-game and Endangered Species Conservation Act. Recovery and de-listing of these species are goals of the Legacy Plan.
- **Heritage Ranked Species:** Species either 1) ranked by NatureServe and the Natural Heritage Network as globally critically imperiled (G1), imperiled (G2), or vulnerable (G3) or 2) ranked as either state critically imperiled (S1), imperiled (S2), or vulnerable (S3) in all or nearly all states in their range.
- **Declining species:** Species whose abundance and/or distribution has been declining across much of their entire range. For land birds, the Partners in Flight national watch list was used as a guide.
- **Endemic Species** (or nearly so): Species whose entire range of distribution occurs within or primarily within Nebraska. Conservation actions in Nebraska would be critical to the conservation of the species.
- **Disjunct Species:** Species whose populations in Nebraska are widely disjunct (200 miles +) from the species' main range of distribution. Species must be ranked as critically imperiled (S1) or imperiled (S2) within Nebraska. Such populations may contain genetic variations that could be important to the long-term survival of the species.

Information on each Tier 1 species is found beginning on page 11. Additional explanation for selected fields is described below.

G-Rank, S-Rank: An explanation of the ranks is found in Appendix 2.

Goal: The minimum number of populations to be conserved in Nebraska (see Chapter 3 of the Nebraska Natural Legacy Project State Wildlife Action Plan, 2nd edition, 2011).

Distribution: The species distribution in Nebraska relative to its entire range. This was a factor used in setting the goal for each species (see Chapter 3, NNLP SWAP, 2nd edition, 2011).

- Endemic: species occurs only within NE or generally has more than 90% of its range within the state.
- Limited: species occurs primarily within one region (e.g., Great Plains)
- Widespread: species is common in a number of regions and widespread in NE.
- Peripheral: species is found mainly in other regions; generally less than 10% of the range is within NE.

Estimated population in NE: Experts in the various taxa were queried as to their estimates of the current population sizes for Tier 1 species. A few of the estimates are from statistically-based survey work and are published, while the majority are based on the opinion of experts with years of experience conducting field surveys for these species. The range of the estimate for a given species is an indication of the confidence in the estimate. Caution should be used when considering these estimates because most of them are not based on comprehensive and statistically based survey work. They are provided here to give an “order of magnitude” sense of the abundances among species, as understood by species experts. Additional survey work is needed for most Tier 1 species to better understand their distribution and abundance in Nebraska.

Trends since 2005 in NE: Based on data when available (primarily for birds) and on the consensus opinion of taxon experts.

Threats: Climate Change Vulnerability Index: Climate change vulnerability assessments were conducted in 2010 for most Tier 1 species using NatureServe’s Climate Change Vulnerability Index tool (Young et al. 2010). The assessment evaluates a species’ exposure to, sensitivity to, and capacity to adapt to climate change. Vulnerability assessments provide a scientific basis for developing climate adaptation strategies. The assessments were conducted during the taxon experts workshops, using group consensus to evaluate the criteria for each species. The tool is designed to be used for a specific geographic area (e.g., a state), thus the Index score may be incomplete for migratory bird species that spend part of the year outside of the state. However, if a species is vulnerable when outside the state, there may be little that conservation actions taken in Nebraska can do to address the vulnerability. Therefore, a “Not Vulnerable” assessment for a migratory species may still be useful information, for it may indicate that there are other conservation actions we should focus on for that species in Nebraska aside from climate change adaptation.

Landscapes: These are the Biologically Unique Landscapes (see Chapter 3, NNLP SWAP, 2nd edition, 2011) for which there were known occurrences of populations (or migratory stopover sites) for the species.

Tier 1 Species List - 2018

Information for each species is found on the page number indicated.

Birds	Page	Insects	Page
Baird's Sparrow	11	Iowa Skipper	33
Black-billed Cuckoo	11	Kohler's Fritillary	34
Black-billed Magpie	12	Lakota Mayfly	34
Black Tern	12	Lichen Grasshopper	35
Brewer's Sparrow	13	Long-nosed Mayfly	35
Buff-breasted Sandpiper	13	Married Underwing	36
Burrowing Owl	14	Monarch	36
Chestnut-collared Longspur	14	Mottled Duskywing	37
Ferruginous Hawk	15	Nebraska Fritillary	37
Henslow's Sparrow	15	Nine-spotted Ladybird Beetle	38
Interior Least Tern	16	Ottoo Skipper	38
Loggerhead Shrike	16	Pawnee Stonefly	39
Long-billed Curlew	17	Platte River Caddisfly	39
McCown's Longspur	17	Regal Fritillary	40
Mountain Plover	18	Salt Creek Tiger Beetle	40
Pinyon Jay	18	Sandy Tiger Beetle	41
Piping Plover	19	Smoky-eyed Brown	41
Short-eared Owl	19	Southern Plains Bumble Bee	42
Sprague's Pipit	20	Suckley's Cuckoo Bumble Bee	42
Whooping Crane	20	Tawny Crescent	43
Wood Thrush	21	Two-lined Stonefly	43
		Two-spotted Skipper	44
		Western Bumblebee	44
		Whitney Underwing	45
		Winnebago Mayfly	45
Crustaceans			
Ornate Fairy Shrimp	22		
Potassium-loving Fairy Shrimp	22		
Fishes		Mammals	
Blacknose Shiner	23	Bailey's Eastern Woodrat	46
Blue Sucker	23	Cheyenne Northern Pocket Gopher	46
Finescale Dace	24	Eastern Little Brown Bat	47
Flathead Chub	24	Eastern Red Bat	47
Lake Sturgeon	25	Fringed Myotis	48
Northern Redbelly Dace	25	Hoary Bat	48
Pallid Sturgeon	26	Northern Long-eared Bat	49
Plains Minnow	26	Pierre Northern Pocket Gopher	49
Plains Topminnow	27	Plains Pocket Mouse	50
Sicklefin Chub	27	Plains Spotted Skunk	50
Sturgeon Chub	28	Rocky Mountain Bighorn Sheep	51
Topeka Shiner	28	Silver-haired Bat	51
Western Silvery Minnow	29	Southern Flying Squirrel	52
		Swift Fox	52
		Tricolored Bat	53
Insects		Mollusks	
American Burying Beetle	30	Flat Floater	54
Bucholz Black Dash	30	Niobrara Ambersnail	54
Byssus Skipper	31	Oxbow Snail	55
Colorado Rita Dotted-blue	31	Pimpleback	55
Fox Mayfly	32	Pistolgrip	56
Ghost Tiger Beetle	32		
Hourglass Drone Fly	33		

Mollusks cont.	Page
Plain Pocketbook	56
Scaleshell	57

Reptiles

Blanding's Turtle	58
Glossy Snake	58
Red-bellied Snake	59
Sagebrush Lizard	59
Timber Rattlesnake	60
Western Massasauga	60

Plants

American Ginseng	61
Barr's Milkvetch	61
Blowout Penstemon	62
Colorado Butterfly Plant	62
Dog-parsley	63
Gordon's Wild Buckwheat	63
Hall's Bulrush	64
Large-spike Prairie-clover	64
Matted Prickly-phlox	65
Meadow Lousewort	65
Missouri Sedge	66
Nodding-pogonia	66
Platte River Dodder	67
Prairie Moonwort	67
Rocky Mountain Bulrush	68
Saltwort	68
Sandhill Goosefoot	69
Short's Milkvetch	69
Small White Lady's-slipper	70
Snow Trillium	70
Ute Ladies'-tresses	71
Western Prairie Fringed Orchid	71
Wolf's Spikerush	72

Tier 1 Species by Ecoregion

		<u>ECOREGIONS</u>			
		Tallgrass Prairie	Mixedgrass Prairie	Shortgrass Prairie	Sandhills
Birds	Baird's Sparrow		x	x	x
	Black-billed Cuckoo	x	x		x
	Black-billed Magpie		x	x	x
	Black Tern				x
	Brewer's Sparrow			x	
	Buff-breasted Sandpiper	x	x		
	Burrowing Owl	x	x	x	x
	Chestnut-collared Longspur			x	
	Ferruginous Hawk		x	x	x
	Henslow's Sparrow	x	x		
	Interior Least Tern	x	x	x	
	Loggerhead Shrike	x	x	x	x
	Long-billed Curlew		x	x	x
	McCown's Longspur			x	
	Mountain Plover			x	
	Pinyon Jay			x	
	Piping Plover	x	x		x
	Short-eared Owl	x	x	x	x
	Sprague's Pipit	x	x		x
	Whooping Crane	x	x	x	x
Wood Thrush	x	x			
Crustaceans	Ornate Fairy Shrimp				x
	Potassium-loving Fairy Shrimp				x
Fishes	Blacknose Shiner		x	x	x
	Blue Sucker	x			
	Finescale Dace		x		x
	Flathead Chub	x	x		x
	Lake Sturgeon	x	x		
	Northern Redbelly Dace		x	x	x
	Pallid Sturgeon	x			
	Plains Minnow	x	x		x
	Plains Topminnow	x	x	x	x
	Sicklefin Chub	x			
	Sturgeon Chub	x			
	Topeka Shiner	x			x
	Western Silvery Minnow	x	x		x

	Tallgrass Prairie	Mixedgrass Prairie	Shortgrass Prairie	Sandhills
Insects	American Burying Beetle		x	x
	Bucholz Black Dash	x		
	Byssus Skipper	x		
	Colorado Rita Dotted-blue			x
	Fox Mayfly	x	x	
	Ghost Tiger Beetle		x	x
	Hourglass Drone Fly			
	Iowa Skipper	x	x	x
	Kohler's Fritillary		x	x
	Lakota Mayfly	x		
	Lichen Grasshopper			x
	Long-nosed Mayfly			x
	Married Underwing	x	x	
	Monarch	x	x	x
	Mottled Duskywing	x	x	x
	Nebraska Fritillary	x	x	
	Nine-spotted Ladybird Beetle			x
	Ottoo Skipper	x	x	x
	Pawnee Stonefly			x
	Platte River Caddisfly		x	
	Regal Fritillary	x	x	x
	Salt Creek Tiger Beetle	x		
	Sandy Tiger Beetle			
	Smoky-eyed Brown	x	x	x
	Southern Plains Bumble Bee		x	x
	Suckley's Cuckoo Bumble Bee		x	x
	Tawny Crescent			x
	Two-lined Stonefly	x	x	
	Two-spotted Skipper	x	x	x
	Western Bumble Bee			x
	Whitney Underwing	x	x	
	Winnebago Mayfly	x	x	
	Mammals	Bailey's Eastern Woodrat		
Cheyenne Northern Pocket Gopher				x
Eastern Little Brown Bat		x	x	
Eastern Red Bat		x	x	x
Hoary Bat		x	x	x
Northern Long-eared Bat		x	x	x
Pierre Northern Pocket Gopher				x
Plains Pocket Mouse		x	x	

		Tallgrass Prairie	Mixedgrass Prairie	Shortgrass Prairie	Sandhills
Mammals (cont.)	Plains Spotted Skunk	x	x	x	x
	Rocky Mountain Bighorn Sheep			x	
	Silver-haired Bat	x	x	x	x
	Southern Flying Squirrel	x			
	Swift Fox		x	x	
	Tricolored Bat	x	x		x
Mollusks	Flat Floater	x			
	Niobrara Ambersnail		x	x	x
	Oxbow Snail			x	
	Pimpleback	x			
	Pistolgrip	x			
	Plain Pocketbook	x			x
Reptiles	Scaleshell	x			
	Blanding's Turtle	x	x		x
	Glossy Snake			x	x
	Massasauga	x			
	Red-bellied Snake		x		
	Sagebrush Lizard			x	
Plants	Timber Rattlesnake	x			
	American Ginseng	x			
	Barr's Milkvetch			x	
	Blowout Penstemon				x
	Colorado Butterfly Plant			x	
	Dog-parsley			x	
	Gordon's Wild Buckwheat			x	
	Hall's Bulrush				x
	Large-spike Prairie-clover		x	x	x
	Matted Prickly-phlox			x	
	Meadow Lousewort			x	
	Missouri Sedge	x			
	Nodding-pogonia	x			
	Platte River Dodder			x	
	Prairie Moonwort				x
	Rocky Mountain Bulrush		x	x	
	Saltwort	x			
	Sandhill Goosefoot			x	
Short's Milkvetch			x		
Small White Lady's-slipper	x	x		x	
Snow Trillium	x				
Ute Ladies'-tresses			x		

		Tallgrass Prairie	Mixedgrass Prairie	Shortgrass Prairie	Sandhills
Plants	Western Prairie Fringed Orchid	x			x
(cont.)	Wolf's Spikerush				x

BIRDS

Common Name Baird's Sparrow

Scientific Name *Ammodramus bairdii*

G-Rank G4

S-Rank SNRN

Goal 7

Distribution Limited

Criteria for selection as Tier 1 Declining; PIF watch list

Estimated population in NE Unknown

Estimate based on

Trends since 2005 in NE Unknown

Range in NE Poorly known, statewide migrant with possible exception of extreme east. Emerging information suggests native grasslands of northern Sioux County may be regular sparrow stop-over location

Habitat Probably native grassland during migration but has been observed in non-native habitats; spring and fall migrant, does not nest in Nebraska

Threats Not well known, loss of habitat

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Determine migration status, distribution and habitat use; evaluate possible threats

Landscapes Distribution not well known, likely occurs in a number of BULs

Common Name Black-billed Cuckoo

Scientific Name *Coccyzus erythrophthalmus*

G-Rank G5

S-Rank S3

Goal

Distribution Widespread

Criteria for selection as Tier 1 Declining across much of its range

Estimated population in NE <3,000

Estimate based on Expert opinion

Trends since 2005 in NE – 6.00 (95% C.I.; -13.41, -1.61) annual decline based on Breeding Bird Survey trend analysis

Range in NE Primarily restricted to eastern, northeastern and north-central Nebraska and along the Platte River west to Keith Co.

Habitat Woodlands and thickets, often in proximity to water

Threats Cause of declines poorly understood. Degradation of habitat may be a factor as well as reduction of large caterpillars, a primary food resource, due to pesticide use.

Research/Inventory Determine areas of regular occurrence (breeding). Identify cause(s) of declines.

Landscapes (BULs) Missouri River, Verdigris-Bazile, Ponca Bluffs, Lower Niobrara, Middle Niobrara, Lower Loup Rivers, Upper Loup Rivers and tributaries, Indian Cave Bluffs, Lower Platte River, Elkhorn Confluence, Loess Canyons, Central Platte River, Platte Confluence, Keya Paha, Ponca Bluffs, Thurston-Dakota Bluffs.

Common Name Black-billed Magpie

Scientific Name *Pica hudsonia*

G-Rank G5 **S-Rank** S2 **Goal** **Distribution** Peripheral

Criteria for selection as Tier 1 Dramatic decline in numbers and a significant reduction of its range in Nebraska

Estimated population in NE <5,000 **Estimate based on** Expert opinion

Trends since 2005 in NE – 8.96 (95% C.I.; -14.45, -3.57) annual decline based on Breeding Bird Survey trend analysis

Range in NE As recently as 2000 occurred over the western three-quarters of the state. Now occurs primarily in the western panhandle with isolated local occurrences within its former range. Declines appear to be continuing and persistence of isolated local occurrences is in question.

Habitat A generalist that occurs in open riparian woodlands, thickets, open country, suburban areas. General absent in the Sandhills.

Threats Primary source of declines appears to be West Nile Virus.

Research/Inventory Monitor status in the state, investigate cause of decline.

Landscapes (BULs) Current BULs where species regularly occurs include: Pine Ridge, Oglala Grasslands, Upper Niobrara River, Keya Paha, Middle Niobrara River, Wildcat Hills, Sandsage Prairie, Central Platte River, Platte Confluence, Loess Canyons, North Platte River.

Common Name Black Tern

Scientific Name *Chlidonias niger*

G-Rank G4G5 **S-Rank** S1 **Goal** **Distribution** Peripheral

Criteria for selection as Tier 1 Notable long-term decline in numbers in Nebraska and Great Plains

Estimated population in NE < 5,000 **Estimate based on** Expert opinion

Trends since 2005 in NE – 5.74 (95% C.I.; -9.79, -1.66) annual decline based on Breeding Bird Survey trend analysis.

Range in NE Breeding areas are restricted to lakes and marshes of the Sandhills. Formerly bred throughout the state. Common during spring and fall migration throughout the state.

Habitat Marshes and shallow lakes with emergent vegetation.

Threats Loss and degradation of wetlands is primary threat and is likely why the species is extirpated as a breeder in areas it formerly occupied.

Research/Inventory Monitor status in the state, investigate cause of decline.

Landscapes (BULs) Breeding occurs in Cherry County Wetlands and Sandhills Alkaline Lakes. Migrants occur statewide.

Common Name Brewer's Sparrow **Scientific Name** *Spizella breweri*

G-Rank G5 **S-Rank** S1 **Goal** 1 **Distribution** Peripheral

Criteria for selection as Tier 1 Declining; PIF watch list

Trends since 2005 in NE Declining

Estimated population in NE 1,000 - 2,000 **Estimate based on** BBA field surveys

Range in NE Shortgrass Prairie ecoregion in the Panhandle

Habitat Sandsage prairie; short-grass; mixed-grass w/sandsage component; shrub associated species - low shrubs

Threats Sage removal (to improve rangeland), land conversion – pivots, habitat fragmentation

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Identify habitat requirements; continue surveys to assess distribution and abundance; survey for sagebrush

Landscapes Oglala Grasslands, Panhandle Prairies, Upper Niobrara River, Pine Ridge, Sandsage Prairie, Wildcat Hills

Common Name Buff-breasted Sandpiper **Scientific Name** *Tryngites subruficollis*

G-Rank G4 **S-Rank** S2N **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Declining, Shorebird Conservation Plan

Estimated population in NE 22,000 - 78,000 **Estimate based on** Published estimate, Jorgensen et al. 2008

Trends since 2005 in NE Unknown

Range in NE East-central portion of state

Habitat Cropland associated with palustrine wetlands - open flats; very short stature grasslands; playa wetlands; require mixture of agriculture and wetlands; spring and fall migrant, does not nest in Nebraska

Threats Agricultural practices, contaminants, wind energy development

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Determine food sources, migratory stopover duration, roost sites, what agricultural practices favor them, effects of agricultural practices-contaminants, population trend, effects of wind energy development

Landscapes Rainwater Basin, Verdigris-Bazile

Common Name Burrowing Owl

Scientific Name *Athene cunicularia*

G-Rank G4

S-Rank S2

Goal 4

Distribution Widespread

Criteria for selection as Tier 1 Ranked as imperiled or vulnerable in nearly all states in its range

Estimated population in NE 4,000 – 10, 000 **Estimate based on** Field surveys

Trends since 2005 in NE Increasing

Range in NE Western two-thirds of state

Habitat Prairie dog towns, short-grass prairie, mixed-grass prairie, heavily grazed grasslands

Threats Prairie dog control, habitat conversion-pivots; loss of short, open grasslands; plague, wind energy development, insecticide impact on food source

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Expand surveys to assess distribution and abundance; determine productivity, cause of population variability (predators), status and trends of prairie dogs, effects of wind energy development; conduct genetics study

Landscapes Central Loess Hills, Cherry County Wetlands, Dismal River Headwaters, Elkhorn River Headwaters, Keya Paha, Kimball Grasslands, Loess Canyons, Middle Niobrara, North Platte River, Oglala Grasslands, Panhandle Prairies, Rainwater Basin, Sandhills Alkaline Lakes, Sandsage Prairie, Upper Loup Rivers and Tributaries, Upper Niobrara River, Verdigris-Bazile, Wildcat Hills, Willow Creek Prairies

Common Name Chestnut-collared Longspur

Scientific Name *Calcarius ornatus*

G-Rank G5

S-Rank S3

Goal 7

Distribution Limited

Criteria for selection as Tier 1 Declining, PIF watch list

Estimated population in NE 200 - 1,000 **Estimate based on** BBA field surveys

Trend since 2005 Unknown

Range in NE Western and northern portions of the Nebraska Panhandle

Habitat Native short- and mixed-grass prairie. Prefers taller prairie than McCown's Longspur.

Threats Loss of habitat, conversion of habitat to agriculture, degradation because of tree planting or invasive species, lack of grazing.

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Breeds locally; identify additional breeding locations.

Landscapes Panhandle Prairies, Oglala Grasslands, Kimball Grasslands.

Common Name Ferruginous Hawk **Scientific Name** *Buteo regalis*

G-Rank G4 **S-Rank** S2 **Goal** 7 **Distribution** Widespread

Criteria for selection as Tier 1 Ranked as imperiled or vulnerable in nearly all states in its range

Estimated population in NE 200 - 400 **Estimate based on** Expert opinion

Trends since 2005 in NE Stable

Range in NE Western third of state - primarily Panhandle

Habitat Rock outcrop, shortgrass prairie, Sandhills dune prairie, prairie dog towns, trees for nesting

Threats Human activity (agriculture/farming), prairie dog control, habitat fragmentation, wind energy development

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Survey southwest NE, Sandhills, and southern Sioux County; identify range in Sandhills associated with prairie dogs; study long-range movement; Identify wind energy development impacts

Landscapes Kimball Grasslands, Oglala Grasslands, Panhandle Prairies, Pine Ridge, Sandsage Prairie, Upper Niobrara River

Common Name Henslow's Sparrow **Scientific Name** *Ammodramus henslowii*

G-Rank G4 **S-Rank** S1 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Declining; PIF watch list

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Unknown

Range in NE SE portion of state

Habitat Tall-grass prairie; wet-mesic tall-grass prairie; will use CRP; prefers large open grasslands

Threats Annual burning or haying (lack of litter), habitat conversion, woody species invasion, haying during nesting period, loss of CRP, wind energy development

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct surveys to assess distribution and abundance: identify prairie size requirements; research potential use of patch- burn grazing system to manage for suitable habitat

Landscapes Central Platte River, Elkhorn Confluence, Rainwater Basin, Sandstone Prairies, Southeast Prairies

Common Name Interior Least Tern **Scientific Name** *Sternula antillarum athalassos*

G-Rank G4T2Q **S-Rank** S2 **Goal** 10 **Distribution** Limited

Criteria for selection as Tier 1 State and federally listed, G2

Estimated population in NE 800 - 1500 **Estimate based on** Field surveys, Lott 2006

Trends since 2005 in NE Stable

Range in NE Platte River east of Lake McConaughy, lower reaches of major rivers north of Platte River

Habitat Bare sand bars and sandy shorelines of large rivers, lakes and sand pits, housing developments

Threats Loss of dynamic river flows to form and maintain bare macro-form sandbar and shoreline habitat, flooding of nests, loss of nests to vehicles and human disturbance, hydro-peaking, invasive plant species affecting nesting habitat

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct nesting surveys throughout breeding range in state; evaluate taxonomy, region-wide movements

Landscapes Central Platte River, Elkhorn Confluence, Lower Loup Rivers, Lower Niobrara River, Lower Platte River, Middle Niobrara, Missouri River, Upper Loup Rivers and Tributaries, Verdigris-Bazile

Common Name Loggerhead Shrike **Scientific Name** *Lanius ludovicianus*

G-Rank G4 **S-Rank** S3 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 Declining, PIF watch list

Estimated population in NE 1,000 - 4,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Declining

Range in NE Statewide, although more common in areas with extensive grasslands

Habitat Grasslands with at least some scattered small trees or shrubs

Threats Loss of grassland habitats, depletion of food resources (due to pesticides), organochloride pesticide negatively impacts reproduction

Climate Change Vulnerability Index: Not Vulnerable, Increase likely

Research/Inventory Determine causes of population declines; determine conservation measures (habitat improvement) that can positively impact species

Landscapes Central Loess Hills, Cherry County Wetlands, Dismal River Headwaters, Elkhorn River Headwaters, Keya Paha, Kimball Grasslands, Loess Canyons, Oglala Grasslands, Panhandle Prairies, Sandhills Alkaline Lakes, Sandsage Prairie, Sandstone Prairies, Southeast Prairies

Common Name Long-billed Curlew **Scientific Name** *Numenius americanus*

G-Rank G5 **S-Rank** S3 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 Ranked as imperiled or vulnerable in nearly all states in its range

Estimated population in NE 20,000 – 27,000 **Estimate based on** Published estimate, Gregory 2011

Trends since 2005 in NE Declining

Range in NE North-central through panhandle

Habitat Sandhills dune prairie, Sandhills valley prairie with mixed-grass, prairie dog towns, mixed-grass and short-grass prairie in the Panhandle

Threats Habitat conversion – pivots, fragmentation, wind energy development

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct more surveys to assess distribution and abundance; determine factors affecting nest success and chick survival; determine habitat needs, management impacts, and effects of wind energy development

Landscapes Cherry County Wetlands, Dismal River Headwaters, Lower Niobrara River, Middle Niobrara, Oglala Grasslands, Panhandle Prairies, Platte Confluence, Sandhills Alkaline Lakes, Upper Loup Rivers and Tributaries, Upper Niobrara River, Wildcat Hills

Common Name McCown's Longspur **Scientific Name** *Rhynchophanes mccownii*

G-Rank G4 **S-Rank** S3 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Declining, PIF watch list

Estimated population in NE 200 - 1,000 **Estimate based on** BBA field surveys

Trends since 2005 in NE Unknown

Range in NE Panhandle - primarily Sioux, Scotts Bluff, Banner and Kimball counties

Habitat Short-grass prairie with mixed-grass, short stature vegetation, and prairie dog colonies

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Threats Habitat fragmentation and conversion, management that maintains higher vegetation structure, prairie dog control

Research/Inventory Identify habitat requirements; continue surveys to assess distribution and abundance; evaluate use of agricultural fields

Landscapes Kimball Grasslands, Oglala Grasslands, Panhandle Prairies

Common Name Mountain Plover **Scientific Name** *Charadrius montanus*
G-Rank G3 **S-Rank** S2 **Goal** 10 **Distribution** Limited
Criteria for selection as Tier 1 State listed, G2
Estimated population in NE 300 - 400 **Estimate based on** Field surveys, Bly et al. 2008
Trends since 2005 in NE Unknown
Range in NE Kimball, Banner and Cheyenne, possibly Sioux counties
Habitat Shortgrass, agricultural fields; prairie dog towns; very low stature vegetation; flat, rocky areas
Threats Agriculture practices, predation on range sites, grazing management that maintains higher vegetation structure; habitat conversion and fragmentation; fire suppression
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys in native grassland; determine: productivity on field vs. native prairie, spatial requirements for prairie near fallow habitats for brood-rearing and migration, effects of agriculture practices on foraging, effects of fire and of agricultural practices (e.g., chemical spraying), chick survival
Landscapes Kimball Grasslands

Common Name Pinyon Jay **Scientific Name** *Gymnorhinus cyanocephalus*
G-Rank G5 **S-Rank** S3 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 Declining
Estimated population in NE 200 - 800 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Pine Ridge and Wildcat Hills
Habitat Open ponderosa pine woodlands
Threats Loss and degradation of open ponderosa pine forests
Climate Change Vulnerability Index: Not Vulnerable, Increase Likely
Research/Inventory Refine knowledge of breeding status; identify important breeding sites; determine relationship between forest management and species response
Landscapes Pine Ridge, Wildcat Hills

Common Name Piping Plover **Scientific Name** *Charadrius melodus*

G-Rank G3 **S-Rank** S2 **Goal** 10 **Distribution** Limited

Criteria for selection as Tier 1 State and federally listed, G3

Estimated population in NE 500 - 1,000 **Estimate based on** Five year census, IPPC report

Trends since 2005 in NE Unknown

Range in NE Platte River east of Lake McConaughy, lower reaches of major rivers north of Platte River

Habitat Bare sand bars and sandy shorelines of large rivers, lakes and sand pits

Threats Loss of dynamic river flows to form and maintain bare macro-form sandbar and shoreline habitat, flooding of nests (hydro-peaking), loss of nests to vehicles and human disturbance, invasive plant species affecting nesting habitat, loss of over-wintering habitat along the Gulf

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct nesting surveys throughout breeding range in state; evaluate meta-population issues

Landscapes Central Platte River, Lower Loup Rivers, Lower Platte River, Lower Niobrara River, Missouri River, Middle Niobrara, Upper Loup Rivers and Tributaries, Verdigris-Bazile

Common Name Short-eared Owl **Scientific Name** *Asio flammeus*

G-Rank G5 **S-Rank** S2 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 Declining; PIF watch list

Estimated population in NE < 200 **Estimate based on** BBA field surveys

Trends since 2005 in NE Unknown

Range in NE Scattered statewide

Habitat Open grasslands with standing cover and little disturbance

Threats Habitat loss and fragmentation, disturbance of nesting habitat, barbed wire fences present collision danger

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Survey to identify location and extent of breeding activity; determine specific nesting habitat requirements

Landscapes Central Loess Hills, Cherry County Wetlands, Dismal River Headwaters, Sandhills Alkaline Lakes, Sandsage Prairie

Common Name Sprague's Pipit **Scientific Name** *Anthus spragueii*

G-Rank G3G4 **S-Rank** SNR **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 G3G4, Declining; PIF watch list

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Unknown

Range in NE Statewide migrant, but rare in west and extreme east. More common in east-central and central part of state

Habitat Short to tall-grass prairies, grazed to 5-15 cm, pastures, harvested fields (alfalfa or wheat stubble); spring and fall migrant; does not nest in Nebraska

Threats Undetermined, loss of breeding habitat, but unclear if there are threats during migration

Climate Change Vulnerability Index: Not Vulnerable, Increase likely

Research/Inventory Refine knowledge of migration status, distribution, and habitat use; identify important stopover sites and habitats; evaluate possible threats

Landscapes Distribution not well known, likely occurs in a number of BULs

Common Name Whooping Crane **Scientific Name** *Grus americana*

G-Rank G1 **S-Rank** S1N **Goal** 10 **Distribution** Limited

Criteria for selection as Tier 1 State and federally listed, G1

Estimated population in NE ~ 300 **Estimate based on** 2011 field survey, Stehn 2011

Trends since 2005 in NE Slowly Increasing

Range in NE Platte River from Scottsbluff to Chapman; wetlands and major rivers in central flyway

Habitat Wetlands, wet meadows, sandbars and shallow water in rivers; spring and fall migrant, does not nest in Nebraska

Threats Loss of natural river flows to maintain wet meadows, bare sandbar and shallow water habitat, loss of wetland habitat, wind energy development, tree encroachment in wet meadows

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Continue migration surveys; increase surveys of Sandhills wetlands, southwest playas, Middle Loup River headwaters, and Custer County playas

Landscapes Central Loess Hills, Central Platte River, Cherry County Wetlands, Elkhorn River Headwaters, Lower Loup Rivers, Lower Niobrara River, Middle Niobrara, North Platte River, Oglala Grasslands, Panhandle Prairies, Platte Confluence, Rainwater Basin, Upper Loup Rivers and Tributaries, Verdigris-Bazile

<u>Common Name</u>	Wood Thrush	<u>Scientific Name</u>	<i>Hylocichla mustelina</i>
<u>G-Rank</u>	G4	<u>S-Rank</u>	S3
		<u>Goal</u>	4
		<u>Distribution</u>	Widespread
<u>Criteria for selection as Tier 1</u>	Declining; PIF watch list		
<u>Estimated population in NE</u>	1,000 - 4,000	<u>Estimate based on</u>	Expert opinion
<u>Trends since 2005 in NE</u>	Declining		
<u>Range in NE</u>	Along major river valleys in eastern Nebraska		
<u>Habitat</u>	Mature eastern deciduous forests; needs shrubby understory component		
<u>Threats</u>	Reduction/ degradation of habitat, forest fragmentation - area sensitive species, fragmentation that increases cowbird parasitism, deer over-browsing of forest/woodland understory, invasive species (garlic mustard)		
	Climate Change Vulnerability Index: Not Vulnerable, Increase likely		
<u>Research/Inventory</u>	Determine impacts of deer, invasive species, forest fragmentation, and cowbird parasitism		
<u>Landscapes</u>	Indian Cave Bluffs, Lower Niobrara River, Lower Platte River, Middle Niobrara, Ponca Bluffs, Thurston-Dakota Bluffs, Rulo Bluffs, Southeast Prairies, Verdigris-Bazile		

CRUSTACEANS

Common Name Ornate Fairy Shrimp **Scientific Name** *Eubbranchipus ornatus*

G-Rank G3 **S-Rank** SNR **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G3

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Unknown

Range in NE Headwaters of the Elkhorn Rivers in eastern Sandhills, potentially central portion of Sandhills

Habitat Clear, cool water with neutral to low pH, in well vegetated ephemeral pools

Threats Changes in water quality, increase in turbidity and increase in pH due to run-off pollution, increase in temperature due to climate change

Research/Inventory Conduct survey work to determine current distribution and population status. Conduct research to determine specific water quality and habitat parameters.

Landscapes (BULs) Elkhorn River Headwaters

Common Name Potassium-loving Fairy Shrimp **Scientific Name** *Branchinecta potassa*

G-Rank G2 **S-Rank** S2 **Goal** 10 **Distribution** Endemic

Criteria for selection as Tier 1 G2, endemic

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Unknown

Range in NE Alkaline lakes region of western Sandhills

Habitat Shallow to ephemeral, alkaline lakes with specific range of potassium levels

Threats Changes in water quality, changes in potassium and pH due to run-off, changes in water availability due to groundwater declines and precipitation patterns associated with climate change

Research/Inventory Conduct survey work to determine current distribution and population status. Conduct research to determine specific water quality and habitat parameters and life cycle.

Landscapes (BULs) Sandhills Alkaline Lakes

FISHES

Common Name Blacknose Shiner **Scientific Name** *Notropis heterolepis*

G-Rank G5 **S-Rank** S1 **Goal** 10 **Distribution** Disjunct

Criteria for selection as Tier 1 State listed, disjunct

Estimated population in NE < 100 **Estimate based on** Expert opinion

Trends since 2005 in NE Stable

Range in NE North-central portion of state

Habitat Headwater streams, spring fed, clear water, pools, quiet waters

Threats De-watering, siltation, dams, channelization, exotic species, culverts, water control structures, introduced predator fish

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Determine age structure; study recruitment, population dynamics, seasonal movement and habitat use; conduct population monitoring

Landscapes Cherry County Wetlands, Keya Paha, Upper Loup Rivers and Tributaries, Upper Niobrara River

Common Name Blue Sucker **Scientific Name** *Cycoreptus elongatus*

G-Rank G3G4 **S-Rank** S1 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G3

Estimated population in NE 5,000 – 15,000 **Estimate based on** Field surveys

Trends since 2005 in NE Stable

Range in NE Lower Platte and Missouri rivers - Boyd through Richardson counties

Habitat Large turbid rivers

Threats Channelization, alteration of flow, lack of sedimentation in some areas of Missouri River, interruption of movement, water quality

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Determine specific habitat requirements; study population dynamics and seasonal movement; compile information from research range-wide; conduct population monitoring

Landscapes Lower Platte River, Missouri River

Common Name Finescale Dace **Scientific Name** *Chrosomus neogaeus*

G-Rank G5 **S-Rank** S2 **Goal** 10 **Distribution** Disjunct

Criteria for selection as Tier 1 State listed, disjunct

Estimated population in NE 5,000 - 10,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Stable

Range in NE Sandhills of central portion of state

Habitat Headwater streams, spring fed, clear water, sandhill streams, beaver ponds, undercut banks, meandering streams, small pools

Threats Channel modification, de-watering, exotics, culverts, water control structures, introduced predator fish

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Understand basic biology; determine age structure, recruitment, population dynamics, seasonal movements, and habitat use; conduct genetic studies

Landscapes Cherry County Wetlands, Dismal River Headwaters, Keya Paha, Panhandle Prairies, Platte Confluence, Snake River, Upper Loup Rivers and Tributaries, Upper Niobrara River

Common Name Flathead Chub **Scientific Name** *Platygobio gracilis*

G-Rank G5 **S-Rank** S2 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Declining, proposed for state listing

Estimated population in NE Unknown (>10,000) **Estimate based on** Expert opinion

Trends since 2005 in NE Declining

Historic Range in NE White/Hat, Niobrara, North Platte, Middle Platte, Lower Platte, Loup, Elkhorn, Republican, Missouri, Missouri Tribes

Current Range in NE Lower Niobrara, Loup, Lower Elkhorn, Missouri tributaries

Habitat Flathead Chubs prefer large, turbid rivers with relatively fast currents over gravel or sand substrates. A long, relatively natural reach of river (~180 km) is necessary to support viable populations.

Threats Fragmentation of prairie streams and rivers, flow depletions, alteration of stream hydrology

Research/Inventory Current status of populations, lengths of stream needed for successful reproduction/recruitment, hydrologic conditions needed for successful r/r, timing of flows needed for successful r/r, stratified statewide surveys to develop estimate of population sizes and trends.

Landscapes (BULs) Lower Loup River, Lower Niobrara River, Lower Platte River, Missouri River

Common Name Lake Sturgeon **Scientific Name** *Acipenser fulvescens*

G-Rank G3G4 **S-Rank** S1 **Goal** 10 **Distribution** Peripheral

Criteria for selection as Tier 1 State listed, G3

Estimated population in NE < 100 **Estimate based on** Field surveys

Trends since 2005 in NE Slightly increasing

Range in NE Lower Platte and Missouri rivers - Boyd through Richardson counties

Habitat Shallow water, gravel/rocky substrate – for spawning, large rivers, lakes in other states

Threats Pollution, lack of spawning habitat, fragmentation of habitat (dams), interruption of movement, decreasing water levels in Platte River, channelization of Missouri River, illegal commercial fishing

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Increase surveys to assess distribution and abundance; determine specific spawning habitat and population dynamics; conduct genetic studies

Landscapes Lower Loup Rivers, Lower Platte River, Missouri River

Common Name Northern Redbelly Dace **Scientific Name** *Chrosomus eos*

G-Rank G5 **S-Rank** S2 **Goal** 10 **Distribution** Disjunct

Criteria for selection as Tier 1 State listed, disjunct

Estimated population in NE 5,000 – 10,000 **Estimate based on** Field surveys

Trends since 2005 in NE Stable

Range in NE Sandhills of central portion of state

Habitat Headwater streams, spring fed, clear water, sandhill streams, beaver ponds, undercut banks, meandering streams, small pools

Threats Channel modification, de-watering, exotics, culverts, water control structures, introduced predator fish

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Determine age structure, recruitment, population dynamics, seasonal movement, and specific habitat use; study genetics relative to northern populations in Minnesota; conduct population monitoring

Landscapes Cherry County Wetlands, Keya Paha, Middle Niobrara , Panhandle Prairies, Platte Confluence, Snake River, Upper Loup Rivers and Tributaries, Upper Niobrara River

Common Name Pallid Sturgeon **Scientific Name** *Scaphirhynchus albus*
G-Rank G2 **S-Rank** S1 **Goal** 10 **Distribution** Limited

Criteria for selection as Tier 1 State and federally listed, G1

Estimated population in NE 1,000 – 3,000 wild, 8,000 – 10,000 hatchery reared
Estimate based on Published estimate, Steffensen et al. 2011

Trends since 2005 in NE Unknown

Range in NE Lower Platte and Missouri rivers - Boyd through Richardson counties

Habitat Large turbid rivers, steep drop-offs at the edge of sandbars, sandy areas, downstream end of islands

Threats Manipulation of water flow, sediment transport, channelization, lack of low flow, habitat fragmentation, loss of spawning habitat, illegal commercial harvest, current manipulation of hydrology

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Determine specific spawning habitat requirements, population dynamics, and seasonal movement

Landscapes Lower Platte River, Lower Niobrara River, Missouri River

Common Name Plains minnow **Scientific Name** *Hybognathus placitus*

G-Rank G4 **S-Rank** S2 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Declining, proposed for state listing

Estimated population in NE Unknown (<10,000) **Estimate based on** Expert opinion

Trends since 2005 in NE Declining

Historic Range in NE White/Hat, Lower Niobrara, North Platte, Middle Platte, Lower Platte, Loup, Elkhorn, Republican, Missouri, Missouri tributaries

Current Range in NE Loup, Elkhorn, Middle Platte, Lower Platte

Habitat Plains Minnows inhabit permanent streams and backwaters with sandy substrate and moderate current. They will use deep silty pools, but they can be found also in shallow waters. The Plains Minnow is one of the species that was diagnostic of “channels of fluctuating, shallow streams with shifting sand beds”.

Threats Fragmentation of prairie streams and rivers, flow depletions, alteration of stream hydrology

Research/Inventory Current status of populations, lengths of stream needed for successful reproduction/recruitment, hydrologic conditions needed for successful r/r, timing of flows needed for successful r/r, stratified statewide surveys to develop estimate of population sizes and trends.

Landscapes (BULs) Central Platte River, Lower Loup River, Lower Platte River

Common Name Plains Topminnow **Scientific Name** *Fundulus sciadicus*

G-Rank G4 **S-Rank** S3 **Goal** 10 **Distribution** Endemic

Criteria for selection as Tier 1 Endemic, declining

Estimated population in NE 100,000 – 250,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Declining

Range in NE Northwest two-thirds of state

Habitat Vegetative backwaters and headwaters, shallow parts of rivers and streams

Threats Predation, competition from mosquito fish and other exotics, de-watering, habitat loss

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance; identify secure occurrence locations; determine competition dynamic with mosquito fish; conduct genetics study

Landscapes Central Platte River, Cherry County Wetlands, Dismal River Headwaters, Elkhorn River Headwaters, Keya Paha, Kimball Grasslands, Lower Loup Rivers, Lower Platte River, Middle Niobrara, North Platte River, Panhandle Prairies, Platte Confluence, Sandsage Prairie, Snake River, Upper Loup Rivers and Tributaries, Upper Niobrara River, Verdigris-Bazile, Wildcat Hills, Willow Creek

Common Name Sicklefin Chub **Scientific Name** *Macrhybopsis meeki*

G-Rank G3 **S-Rank** S1 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G3

Estimated population in NE 500 - 1,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Unknown

Range in NE Missouri River - Boyd through Richardson counties

Habitat Large turbid rivers - Missouri River

Threats Reduction of turbidity, channelization, modified water flows

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Determine specific habitat requirements, population dynamics, seasonal movement, and sensitivity to turbidity

Landscapes Missouri River

Common Name Sturgeon Chub

Scientific Name *Macrhybopsis gelida*

G-Rank G3

S-Rank S1

Goal 10

Distribution Limited

Criteria for selection as Tier 1 State listed, G3

Estimated population in NE 500 – 2,500

Estimate based on Expert opinion

Trends since 2005 in NE Unknown

Range in NE Lower Platte and Missouri rivers - Boyd through Richardson counties

Habitat Large turbid rivers with gravel

Threats Reduction of turbidity, channelization, modified water flows, loss of spawning habitat, de-watering, sediment transport; siltation

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Determine specific habitat requirements, population dynamics, seasonal movement, and basic biology

Landscapes Lower Platte River, Missouri River

Common Name Topeka Shiner

Scientific Name *Notropis topeka*

G-Rank G3

S-Rank S1

Goal 10

Distribution Limited

Criteria for selection as Tier 1 State and federally listed, G3

Estimated population in NE < 200

Estimate based on Expert opinion

Trends since 2005 in NE Declining

Range in NE Very localized: Cherry, Madison, and Stanton counties

Habitat Cold/cool clear water streams with gravel, low gradient

Threats Sedimentation, exotics, channelization, stocking of sport fish, row crop agriculture, flow modification' de-watering, dams, loss of off-channel quiet-water habitats, degradation of riparian areas

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Determine age structure, recruitment, population dynamics, seasonal movements, and potential for reintroduction including identifying potential reintroduction sites

Landscapes Cherry County Wetlands, Upper Loup Rivers and Tributaries

Common Name Western Silvery Minnow

Scientific Name *Hybognathus argyritis*

G-Rank G4

S-Rank S2

Goal 7

Distribution Limited

Criteria for selection as Tier 1 Declining, proposed for state listing

Estimated population in NE Unknown (<10,000)

Estimate based on Expert opinion

Trends since 2005 in NE Declining

Historic Range in NE White/Hat, Lower Niobrara, North Platte, Middle Platte, Lower Platte, Loup, Elkhorn, Republican, Missouri, Missouri Tributaries

Current Range in NE Loup, Elkhorn, Middle Platte, Lower Platte

Habitat Western Silvery Minnows are known to inhabit backwaters, pools, and slow-moving waters in medium to large rivers. Rivers they inhabit have fine sandy or silty substrates.

Threats Fragmentation of prairie streams and rivers, flow depletions, alteration of stream hydrology

Research/Inventory Current status of populations, lengths of stream needed for successful reproduction/recruitment, hydrologic conditions needed for successful r/r, timing of flows needed for successful r/r, stratified statewide surveys to develop estimate of population sizes and trends.

Landscapes (BULs) Central Platte River, Lower Loup River, Lower Platte River

INSECTS

Common Name American Burying Beetle **Scientific Name** *Nicrophorus americanus*
G-Rank G2G3 **S-Rank** S1 **Goal** 10 **Distribution** Limited
Criteria for selection as Tier 1 State and federally listed, G2
Estimated population in NE 50,000 – 60,000 **Estimate based on** 2011 field surveys
Trends since 2005 in NE Fluctuating with drought
Range in NE North-central and southwest-central portion of the state
Habitat Wet meadows in Sandhills, open woodlands, loess prairie
Threats Woody encroachment, drought, land development, light pollution
Climate Change Vulnerability Index: Highly Vulnerable
Research/Inventory Determine specific habitat use, effects of land management practices, population sizes; conduct long-term monitoring of individual populations
Landscapes Cherry County Wetlands, Elkhorn River Headwaters, Keya Paha, Loess Canyons, Middle Niobrara, Upper Loup Rivers and Tributaries, Verdigris-Bazile

Common Name Bucholz Black Dash **Scientific Name** *Euphyes conspicua bucholzi*
G-Rank G4T1 **S-Rank** S1 **Goal** 10 **Distribution** Endemic
Criteria for selection as Tier 1 G1, endemic
Estimated population in NE < 100 **Estimate based on** Expert opinion
Trends since 2005 in NE Stable
Range in NE North-eastern portion of state
Habitat Wet meadow and spring-fed marsh; larvae feed on wide-leaf sedge, adults in boggy areas
Threats Habitat conversion and fragmentation, exotics, drying up of "wet" areas, housing development, heavy grazing
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Conduct surveys to assess distribution, abundance and population dynamics; determine best management practices
Landscapes Elkhorn Confluence, Elkhorn River Headwaters

Common Name Byssus Skipper **Scientific Name** *Problema byssus kumskaka*
G-Rank G3G4TNR **S-Rank** S1 **Goal** 1 **Distribution** Peripheral
Criteria for selection as Tier 1 G3G4 rank
Estimated population in NE <200 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Very limited in southeast corner of state
Habitat High quality native tallgrass prairie with eastern gamma grass
Threats Loss of gamagrass host plant due to land conversion and overgrazing. Fire and management regimes that remove all standing vegetation and do not leave refugia habitat.
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status.
Landscapes (BULs) Southeast Prairies, Sandstone Prairies

Common Name Colorado Rita Dotted-Blue **Scientific Name** *Euphilotes rita coloradensis*
G-Rank G3G4T2T3 **S-Rank** S1 **Goal** 1 **Distribution** Peripheral
Criteria for selection as Tier 1 G3
Estimated population in NE < 100 **Estimate based on** Expert opinion
Trends since 2005 in NE Stable
Range in NE Southwest portion of the panhandle
Habitat Sparse grasslands with rocky, gravelly soils of ridges, outcrops and bluffs. Specific to two species of wild buckwheat (*Eriogonum*).
Threats Heavy grazing, herbicide use, limited by host plant occurrence
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to determine distribution, abundance, and population dynamics
Landscapes Kimball Grasslands

Common Name Fox Mayfly **Scientific Name** *Cercobrachys fox*
G-Rank G3G4 **S-Rank** SNR **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G3G4

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Unknown

Range in NE Eastern two-thirds of state

Habitat Medium size rivers, specific habitat requirements not known

Threats Degradation of water quality due to lower water flows and pollution from pesticide runoff.

Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.

Landscapes (BULs) Upper Niobrara River, Southeast Prairies

Common Name Ghost Tiger Beetle **Scientific Name** *Cicindela lepida*
G-Rank G3G4 **S-Rank** S2 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 G3

Estimated population in NE 3,000 – 5,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Declining

Range in NE Statewide in localized populations

Habitat Sparsely-vegetated areas with open, sandy soils

Threats Habitat succession, trampling, lights, off-road vehicle traffic

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct species and habitat-type specific surveys to determine distribution, abundance, and conservation status

Landscapes Cherry County Wetlands, Dismal River Headwaters, Elkhorn River Headwaters, Indian Cave Bluffs, Platte Confluence, Sandsage Prairie, Upper Loup Rivers and Tributaries

Common Name Hourglass Dronefly **Scientific Name** *Eristalis brousii*
G-Rank G1G2 **S-Rank** S1 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G1G2
Estimated population in NE Unknown **Estimate based on**
Trends since 2005 in NE Unknown
Range in NE Central portion of state
Habitat Specific habitat requirements unknown
Threats Unknown
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.
Landscapes (BULs) Upper Loup Rivers and Tributaries

Common Name Iowa Skipper **Scientific Name** *Atrytone arogos iowa*
G-Rank G3T3 **S-Rank** S1 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G3
Estimated population in NE < 500 **Estimate based on** Expert opinion
Trends since 2005 in NE Declining
Range in NE Eastern half of state
Habitat Tall-grass prairie, mixed-grass prairie along the Niobrara - bluestems likely host plant, requires native prairie with standing grass stems
Threats Management practices that remove all standing grass stem, vegetative litter and nectar sources, burning of entire grassland site can be detrimental, habitat fragmentation
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to assess distribution and abundance; determine best management practices
Landscapes Keya Paha, Lower Niobrara River, Middle Niobrara, Platte Confluence, Sandstone Prairie, Southeast Prairies, Upper Loup Rivers and Tributaries, Verdigris-Bazile

Common Name Kohler's Fritillary **Scientific Name** *Boloria selene sabulocollis*

G-Rank G5T2 **S-Rank** S1S2 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G5T2

Estimated population in NE <5000 **Estimate based on** Expert opinion

Trends since 2005 in NE Unknown

Range in NE Sandhills and northwest corner of state

Habitat Sandhills and stream valley wet meadows with violets

Threats Degradation of wet meadows due to draining and drying climatic conditions. Herbicide use and overgrazing that eliminates violets, which are the larval host plant.

Research/Inventory Conduct survey work to determine extant populations, current distribution and population status.

Landscapes (BULs) Cherry County Wetlands, Pine Ridge, Upper Niobrara River

Common Name Lakota Mayfly **Scientific Name** *Apobaetis lakota*

G-Rank G2G3 **S-Rank** SNR **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G2G3

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Unknown

Range in NE Southeast portion of state

Habitat Medium size rivers, specific habitat requirements not known

Threats Degradation of water quality due to lower water flows and pollution from pesticide runoff.

Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.

Landscapes (BULs) Rainwater Basin

Common Name Lichen Grasshopper

Scientific Name *Trimerotropis saxatilis*

G-Rank G3

S-Rank S1

Goal 1

Distribution Peripheral

Criteria for selection as Tier 1 G3

Estimated population in NE 500

Estimate based on Expert opinion

Trends since 2005 in NE Unknown

Range in NE Panhandle

Habitat Bare, open rock surfaces, usually lichen-encrusted

Threats Disturbance of rock surfaces

Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.

Landscapes (BULs) Wildcat Hills

Common Name Longnose Mayfly

Scientific Name *Sparbarus nasutus*

G-Rank G3G4

S-Rank S1

Goal 1

Distribution Peripheral

Criteria for selection as Tier 1 G3G4

Estimated population in NE <500

Estimate based on Single known occurrence

Trends since 2005 in NE Unknown

Range in NE One known location in South Platte River near Ogallala

Habitat Oxbows and backwaters

Threats Loss of oxbows and backwaters on South Platte River due to encroachment of phragmites and flow modifications

Research/Inventory Surveys to determine the size and extent of known occurrence and location of any additional occurrences in the state.

Landscapes (BULs) None

Common Name Married Underwing **Scientific Name** *Catocala nuptialis*

G-Rank G3G4 **S-Rank** S2 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 G3

Estimated population in NE 1,000 – 5,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Declining to stable

Range in NE Primarily eastern half of the state

Habitat Tall-grass and mixed-grass prairie; larvae feed on lead plant (*Amorpha*)

Threats Habitat loss and fragmentation to prairie, management practices that remove all standing vegetation and are applied to an entire tract (high-intensity grazing, haying, prescribed burning)

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct surveys to assess distribution and abundance; determine best management practices

Landscapes Elkhorn Confluence, Central Loess Hills, Central Platte River, Cherry County Wetlands, Loess Canyons, Lower Platte River, Missouri River, Platte Confluence, Sandstone Prairies, Southeast Prairies, Upper Loup Rivers and Tributaries

Common Name Monarch **Scientific Name** *Danaus plexippus*

G-Rank G4 **S-Rank** S2 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 Declining

Estimated population in NE 100,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Dramatic decline

Range in NE Statewide, highest population numbers in eastern third of state

Habitat Utilizes broad range of habitats but requires select species of milkweeds as larval host plants

Threats Loss of milkweeds as larval host plant due to land conversion and herbicide use. Loss of overwintering habitat and catastrophic weather events in Mexico.

Research/Inventory Conduct surveys work to determine population trends and monitor status of milkweeds.

Landscapes (BULs) All BULS, highest priority in eastern third of state

Common Name Mottled Duskywing **Scientific Name** *Erynnis martialis*
G-Rank G3 **S-Rank** S2 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G3
Estimated population in NE 500 – 1,500 **Estimate based on** Expert opinion
Trends since 2005 in NE Declining
Range in NE Scattered across state (e.g., Pine Ridge, Niobrara River valley, National Forest at Halsey, Missouri River bluffs)
Habitat Hilly areas with prairie openings, host plant is New Jersey Tea (*Ceanothus*)
Threats Loss of habitat and host plants, grazing from over-abundant deer
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to determine distribution and abundance
Landscapes Cherry County Wetlands, Pine Ridge, Middle Niobrara, Missouri River

Common Name Nebraska Fritillary **Scientific Name** *Boloria selene nebraskensis*
G-Rank G5T3T4 **S-Rank** SNR **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G5T3T4
Estimated population in NE <10000 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Eastern half of state outside of the Sandhills
Habitat Wet meadows with violets
Threats Degradation of wet meadows due to draining and drying climatic conditions. Herbicide use and overgrazing that eliminates violets, which are the larval host plant.
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status.
Landscapes (BULs) Central Platte River, Lower Loup Rivers, Lower Platte River, Elkhorn River Headwaters, Elkhorn Confluence

Common Name Nine-spotted Ladybird Beetle **Scientific Name** *Coccinella novemnotata*

G-Rank G5 **S-Rank** S1 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 Severe decline throughout its historic range of the eastern half of North America

Estimated population in NE < 5,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Severe decline

Range in NE Historically statewide, currently only in the panhandle of Nebraska

Habitat Predator on aphids found in variety of habitats

Threats Predation by introduced parasitic wasp, insecticides

Climate Change Vulnerability Index: Not Vulnerable, Increase likely

Research/Inventory Conduct surveys to determine distribution and abundance

Landscapes Panhandle Prairies

Common Name Ottoe Skipper **Scientific Name** *Hesperia ottoe*

G-Rank G3G4 **S-Rank** S2 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G3

Estimated population in NE < 1,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Declining

Range in NE Eastern half of state

Habitat Tall-grass prairie, rolling/hilly prairie, mixed-grass prairie - feed on bluestems

Threats Loss of native grasslands, management practices that remove all standing grass stems, vegetative litter, and nectar sources; burning of entire grassland site can be detrimental, exotics, habitat fragmentation

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct surveys to assess distribution and abundance; determine best management practices

Landscapes Lower Loup Rivers, Niobrara River, Sandstone Prairies

Common Name Pawnee Stonefly **Scientific Name** *Perlesta xube*
G-Rank G2 **S-Rank** S2? **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G2
Estimated population in NE Unknown **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Northwest portion of state
Habitat Shaded to open canopied, sand-bottomed streams
Threats Degradation of water quality due to lower water flows and pollution from pesticide runoff.
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.
Landscapes (BULs) Upper Niobrara River

Common Name Platte River Caddisfly **Scientific Name** *Isonychia plattensis*
G-Rank G1G2 **S-Rank** S1S2 **Goal** 10 **Distribution** Endemic
Criteria for selection as Tier 1 G1, endemic
Estimated population in NE 7,500 – 10,000 **Estimate based on** Recent field surveys
Trends since 2005 in NE Declining
Range in NE Central Platte River: Kearney, Hall, and Merrick Counties
Habitat Sloughs, backwaters, wet meadows
Threats Loss of natural river hydrology to maintain sloughs, backwater, and wet meadow habitat, use of insecticides, habitat conversion
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Conduct surveys to assess distribution and abundance; determine population dynamics and specific habitat requirements; conduct genetic analysis
Landscapes Central Platte River

Common Name Regal Fritillary **Scientific Name** *Speyeria idalia*

G-Rank G3 **S-Rank** S3 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 G3

Estimated population in NE 50,000 – 150,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Stable

Range in NE Statewide, primarily in the eastern half of the state

Habitat Tall-grass and mixed-grass prairie with violets, wet meadows

Threats Habitat loss and fragmentation, exotics, drought, heavy grazing or herbicide use that eliminates violets, burning of entire prairie remnant

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct surveys to assess distribution and abundance; monitor population trends

Landscapes Found in all BULs

Common Name Salt Creek Tiger Beetle **Scientific Name** *Cicindela nevadica lincolniana*

G-Rank G5T1 **S-Rank** S1 **Goal** 10 **Distribution** Endemic

Criteria for selection as Tier 1 State and federally listed, endemic

Estimated population in NE ~ 300 **Estimate based on** Annual census

Trends since 2005 in NE Declining

Range in NE Lancaster County

Habitat Eastern Nebraska saline wetlands and their associated streams

Threats Habitat loss and degradation, urban development, impacts to natural hydrology - wetland drainage due to stream channelization and head-cutting, light pollution, heavy grazing

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Identify specific reproductive habitat parameters; determine best habitat restoration methods; develop captive-rearing techniques

Landscapes Saline Wetlands

Common Name Sandy Tiger Beetle **Scientific Name** *Cicindela limbata limbata*
G-Rank G4T3T4 **S-Rank** S4 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G4T3T4
Estimated population in NE Unknown **Estimate based on**
Trends since 2005 in NE Unknown
Range in NE Sandhills
Habitat Blowouts in Sandhills, open sand substrate
Threats Loss of blowouts and open substrate due to vegetative stabilization.
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status.
Landscapes (BULs) Cherry County Wetlands, Sandhills Alkaline Wetlands

Common Name Smoky-eyed Brown **Scientific Name** *Lethe eurydice fumosa*
G-Rank G5T3T4 **S-Rank** S3 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G5T3T4
Estimated population in NE Unknown **Estimate based on**
Trends since 2005 in NE Unknown
Range in NE Western four-fifths of state. Limited to localized populations.
Habitat Sedge meadows in Sandhills and along streams and wetlands
Threats Land conversion. Degradation of wet meadows due to draining and drying climatic conditions. Herbicide use and overgrazing that eliminates sedges which are the larval host plant.
Research/Inventory Conduct surveys to determine extant populations, current distribution and population status.
Landscapes (BULs) Central Platte River, Cherry County Wetlands, Elkhorn Confluence, Elkhorn River Headwaters, Lower Loup Rivers, Upper Niobrara River

Common Name Southern Plains Bumble Bee **Scientific Name** *Bombus fraternus*
G-Rank G2G3 **S-Rank** SNR **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G2G3
Estimated population in NE Unknown **Estimate based on**
Trends since 2005 in NE Declining
Range in NE Western two-thirds of state
Habitat Prairie grasslands
Threats Loss of habitat due to land conversion, fragmentation of habitat, low population size, and pesticides.
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status.
Landscapes (BULs) Cherry County Wetlands

Common Name Suckley's Cuckoo Bumble Bee **Scientific Name** *Bombus suckleyi*
G-Rank G1G3 **S-Rank** SNR **Goal** 1 **Distribution** Peripheral
Criteria for selection as Tier 1 G1G3
Estimated population in NE Unknown **Estimate based on**
Trends since 2005 in NE Declining
Range in NE Northwest portion of state
Habitat Grasslands, wetlands, woodland openings
Threats Decline of principal known hosts, the Western Bumble Bee and Yellow-banded Bumble Bee
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status.
Landscapes (BULs) Pine Ridge, Panhandle Prairies

Common Name Tawny Crescent **Scientific Name** *Phyciodes batesii*
G-Rank G5 **S-Rank** S1 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 Declining, ranked as possibly extirpated, imperiled or vulnerable in most states in its range
Estimated population in NE 500 – 1,500 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Pine Ridge- Sioux County
Habitat Canyon type habitat - close to water, between stream and dry pine wooded areas with grassland openings
Threats Limited by host plant availability (*Aster laevis*), heavy grazing
Climate Change Vulnerability Index: Moderately Vulnerable
Research/Inventory Conduct surveys to assess distribution and abundance; determine life-cycle and specific habitat requirements
Landscapes Pine Ridge

Common Name Two-lined Stonefly **Scientific Name** *Perlesta golconda*
G-Rank G2G3 **S-Rank** SNR **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G2G3
Estimated population in NE Unknown **Estimate based on**
Trends since 2005 in NE Unknown
Range in NE North central Nebraska
Habitat Medium rivers with sand bottoms
Threats Degradation of water quality due to lower water flows and pollution from pesticide runoff. Modification of stream hydrology.
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.
Landscapes (BULs) Middle Niobrara River, Verdigris-Bazile, Lower Loup Rivers

Common Name Two-spotted Skipper **Scientific Name** *Euphyes bimacula illinois*

G-Rank G4T1T2 **S-Rank** S3 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G4T1T2

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Unknown

Range in NE Scattered statewide, most common in Sandhills and western three-quarters of state. Limited to localized populations.

Habitat Along streams and wetlands, marshes, and wet road ditches, generally associated with wetlands. Wet meadows in Sandhills.

Threats Degradation of wetland habitat due land conversion, draining of wetlands and drying climatic conditions.

Research/Inventory Conduct surveys to determine extant populations, current distribution and population status.

Landscapes (BULs) Upper Niobrara River, Cherry County Wetlands, Central Platte River, Lower Loup Rivers, Elkhorn River Headwaters, Elkhorn Confluence

Common Name Western Bumble Bee **Scientific Name** *Bombus occidentalis ccidental*

G-Rank G4T1T3 **S-Rank** SNR **Goal** 1 **Distribution** Peripheral

Criteria for selection as Tier 1 G4T1T3

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Dramatic decline

Range in NE Northwest portion of state

Habitat Grasslands, wetlands, woodland openings

Threats Introduced pathogens

Research/Inventory Conduct survey work to determine extant populations, current distribution and population status.

Landscapes (BULs) Panhandle Prairies, Oglala Grasslands, Pine Ridge

Common Name Whitney Underwing **Scientific Name** *Catocala whitneyi*
G-Rank G3G4 **S-Rank** S1 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G3
Estimated population in NE 5,000 – 10,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Declining to stable
Range in NE Primarily eastern half of the state
Habitat Tall-grass and mixed-grass prairie; larvae feed on lead plant (*Amorpha*)
Threats Habitat loss and fragmentation of prairie, management practices that remove all standing vegetation and are applied to an entire tract (high-intensity grazing, haying, prescribed burning)
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to assess distribution and abundance; determine best management practices
Landscapes Central Loess Hills, Central Platte River, Cherry County Wetlands, Elkhorn Confluence, Loess Canyons, Lower Platte River, Missouri River, Platte Confluence, Sandstone Prairies, Southeast Prairies

Common Name Winnebago Mayfly **Scientific Name** *Cercobrachys winnebago*
G-Rank G3G4 **S-Rank** S1 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G3G4
Estimated population in NE Unknown **Estimate based on**
Trends since 2005 in NE Unknown
Range in NE Eastern two-thirds of state
Habitat Medium size rivers, specific habitat requirements not known
Threats Degradation of water quality due to lower water flows and pollution from pesticide runoff.
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.
Landscapes (BULs) Upper Niobrara River, Central Platte River, Lower Loup Rivers

MAMMALS

Common Name Bailey's Eastern Woodrat **Scientific Name** *Neotoma floridana baileyi*

G-Rank G5T3 **S-Rank** S4 **Goal 10** **Distribution** Endemic

Criteria for selection as Tier 1 Endemic

Estimated population in NE 1,000 – 3,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Increasing

Range in NE North-central Nebraska

Habitat Pines and bluffs, woodlands and rocks

Threats Habitat degradation, excessive fire

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct surveys to assess distribution and abundance

Landscapes Keya Paha, Middle Niobrara, Snake River

Common Name Cheyenne Northern Pocket Gopher **Scientific Name** *Thomomys talpoides cheyennensis*

G-Rank G5T3T4 **S-Rank** S2S3 **Goal 7** **Distribution** Limited

Criteria for selection as Tier 1 Regional endemic

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Decreasing

Range in NE Kimball, Cheyenne and Banner counties

Habitat Hard rocky soils, short-grass prairies

Threats Land conversion, *Geomys* range expansion

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance

Landscapes Kimball Grasslands

Common Name Eastern Little Brown Bat **Scientific Name** *Myotis lucifugus lucifugus*

G-Rank G3TNR **S-Rank** S2 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 G-rank, declining species

Estimated population in NE <3000 **Estimate based on** Survey data, expert opinion

Trends since 2005 in NE Stable to declining

Range in NE North-central to eastern third of state

Habitat Deciduous woodlands, usually associated with water source

Threats High mortality from White-nose Syndrome (WNS). Susceptible to mortality from strikes with turbines at wind farms.

Research/Inventory Research to determine specific areas and habitats used for maternal roosting and rearing of young. Surveys to identify timing of migration and potential migration corridors. Surveys to obtain better estimates of resident and migratory populations. Monitoring to determine level of mortality at wind farms. Monitor to determine presence of WNS in populations.

Landscapes (BULs) Middle Niobrara River, Lower Niobrara River, Verdigre-Bazile, Ponca Bluffs, Missouri River, Indian Cave Bluffs, Rulo Bluffs, Southeast Prairies, Sandstone Prairies

Common Name Eastern Red Bat **Scientific Name** *Lasiurus borealis*

G-Rank G3G4 **S-Rank** S3 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 G3G4, declining species

Estimated population in NE <10000 **Estimate based on** Survey data, expert opinion

Trends since 2005 in NE Stable to declining

Range in NE Statewide breeding and migration

Habitat Deciduous and pine woodlands, usually associated with water source

Threats Highly susceptible to mortality from strikes with turbines at wind farms. Potential for mortality from White-nose Syndrome (WNS).

Research/Inventory Research to determine specific areas and habitats used for maternal roosting and rearing of young. Surveys to identify timing of migration and potential migration corridors. Surveys to obtain better estimates of resident and migratory populations. Monitoring to determine level of mortality at wind farms. Monitor to determine presence of WNS in populations.

Landscapes (BULs) All BUL's statewide

Common Name Fringed Myotis **Scientific Name** *Myotis thysanodes pahasapensis*
G-Rank G4T2 **S-Rank** S1 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G4T2
Estimated population in NE 500 – 1,500 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Pine forests in panhandle and Wildcat Hills
Habitat Ponderosa pine forest and woodland, green ash-elm bottom woodland, cliffs and buttes
Threats Unknown
Climate Change Vulnerability Index: Moderately Vulnerable
Research/Inventory Conduct surveys to assess distribution and abundance; identify maternal roost habitat requirements and winter hibernacula; track movement patterns using telemetry
Landscapes Pine Ridge, Wildcat Hills

Common Name Hoary Bat **Scientific Name** *Lasiurus cinereus*
G-Rank G3G4 **S-Rank** S3 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G3G4, declining species
Estimated population in NE <5000 **Estimate based on** Survey data, expert opinion
Trends since 2005 in NE Stable to declining
Range in NE Statewide breeding and migration
Habitat Deciduous and pine woodlands, usually associated with water source in arid landscapes
Threats Highly susceptible to mortality from strikes with turbines at wind farms.
Research/Inventory Research to determine specific areas and habitats used for maternal roosting and rearing of young. Surveys to identify timing of migration and potential migration corridors. Surveys to obtain better estimates of resident and migratory populations. Monitoring to determine level of mortality at wind farms.
Landscapes (BULs) All BUL's statewide

Common Name Northern Long-eared Bat **Scientific Name** *Myotis septentrionalis*
G-Rank G1G2 **S-Rank** S1S2 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G1G2, declining species
Estimated population in NE <2000 **Estimate based on** Survey data, expert opinion
Trends since 2005 in NE Declining
Range in NE Northern half and eastern third of state
Habitat Interior of deciduous and coniferous woodlands
Threats High mortality from White-nose Syndrome (WNS).
Research/Inventory Research to determine specific areas and habitats used for maternal roosting and rearing of young. Surveys to identify timing of migration and potential migration corridors. Surveys to obtain better estimates of resident and migratory populations. Monitor to determine presence of WNS in populations. Monitoring to determine level of mortality at wind farms.
Landscapes (BULs) Pine Ridge, Upper Niobrara River, Middle Niobrara River, Lower Niobrara River, Verdigre-Bazile, Ponca Bluffs, Missouri River, Indian Cave Bluffs, Rulo Bluffs, Southeast Prairies, Sandstone Prairies

Common Name Pierre Northern Pocket Gopher **Scientific Name** *Thomomys talpoides pierreicolus*
G-Rank G5TNR **S-Rank** S2S3 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 Regional endemic
Estimated population in NE Unknown **Estimate based on**
Trends since 2005 in NE Unknown
Range in NE Northern Dawes and Sioux counties
Habitat Short-grass, hard soils
Threats Control
Climate Change Vulnerability Index: Highly Vulnerable
Research/Inventory Conduct surveys to assess distribution and abundance
Landscapes Oglala Grasslands, Pine Ridge

Common Name Plains Pocket Mouse **Scientific Name** *Perognathus flavescens penniger*

G-Rank G5TNR **S-Rank** SNR **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Regional endemic, declining?

Estimated population in NE < 200 **Estimate based on** Field surveys

Trends since 2005 in NE Declining?

Range in NE Eastern Nebraska

Habitat Sandy-loose soil prairies, loess bluff prairie, loess mixed-grass prairie, northern sand/gravel prairie

Threats Loss of open prairie habitat because of lack of grazing and fire

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct surveys to assess distribution and abundance; determine specific habitat requirements; conduct genetic analysis

Landscapes Elkhorn Confluence, Lower Loup Rivers, Verdigris-Bazile, Willow Creek Prairies

Common Name Plains Spotted Skunk **Scientific Name** *Spilogale putorius interrupta*

G-Rank G4T4 **S-Rank** S1 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Declining

Estimated population in NE <1000 **Estimate based on** Survey data, expert opinion

Trends since 2005 in NE Declining

Range in NE Statewide

Habitat Grasslands and old field habitat close to old structures and wooded areas

Threats Loss of habitat due to land conversion and land management

Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Research to determine genetic relationship to adjacent populations.

Landscapes (BULs) Pine Ridge, Cherry County Wetlands, Elkhorn River Headwaters, Southeast Prairies, Sandstone Prairies

Common Name Rocky Mountain Bighorn Sheep **Scientific Name** *Ovis canadensis*
G-Rank G4T4 **S-Rank** S2 **Goal** 1 **Distribution** Disjunct
Criteria for selection as Tier 1 Disjunct
Estimated population in NE ~ 300 **Estimate based on** NGPC monitoring
Trends since 2005 in NE Slight increase, reintroduction and augmentation in 2005 and 2007
Range in NE Buttes in Scottsbluff and Sioux counties
Habitat Rocky buttes of Pine Ridge and Wildcat Hills
Threats Parasites, hoof deformations, disease
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Monitor for parasites and disease; determine source of hoof deformities
Landscapes Pine Ridge, Wildcat Hills

Common Name Silver-haired Bat **Scientific Name** *Lasionycteris noctivagans*
G-Rank G3G4 **S-Rank** S3 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 G3G4, declining species
Estimated population in NE <5000 **Estimate based on** Survey data, expert opinion
Trends since 2005 in NE Stable to declining
Range in NE Statewide breeding and migration
Habitat Deciduous and pine woodlands, usually associated with water source
Threats Highly susceptible to mortality from strikes with turbines at wind farms. Potential for mortality from White-nose Syndrome (WNS).
Research/Inventory Research to determine specific areas and habitats used for maternal roosting and rearing of young. Surveys to identify timing of migration and potential migration corridors. Surveys to obtain better estimates of resident and migratory populations. Monitoring to determine level of mortality at wind farms. Monitor to determine presence of WNS in populations.
Landscapes (BULs) All BUL's statewide migration; more common reproduction NW, North and East BUL's

Common Name Southern Flying Squirrel **Scientific Name** *Glaucomys volans*

G-Rank G5 **S-Rank** S1 **Goal** 5 **Distribution** Peripheral

Criteria for selection as Tier 1 State listed

Estimated population in NE < 200 **Estimate based on** Field surveys

Trends since 2005 in NE Stable?

Range in NE Missouri River bluffs - Washington to Richardson counties

Habitat Red oak-basswood-ironwood forest

Threats Loss of mature forest with old-growth trees with cavities for nesting
Climate Change Vulnerability Index: Highly Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance; conduct population monitoring

Landscapes Missouri River, Indian Cave Bluffs, Rulo Bluffs

Common Name Swift Fox **Scientific Name** *Vulpes velox*

G-Rank G3 **S-Rank** S2 **Goal** 10 **Distribution** Limited

Criteria for selection as Tier 1 State listed, G3

Estimated population in NE < 1,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Stable

Range in NE Panhandle and Southwest Nebraska

Habitat Short-grass prairie, western mixed-grass prairie

Threats Predator control, conversion to cropland, fragmentation of habitat, loss of prairie dog colonies
Climate Change Vulnerability Index: Not Vulnerable, Increase Likely

Research/Inventory Conduct surveys to assess distribution and abundance; conduct population monitoring

Landscapes Kimball Grasslands, Oglala Grasslands, Panhandle Prairies, Pine Ridge, Upper Niobrara River, Wildcat Hills

Common Name Tri-colored Bat **Scientific Name** *Perimyotis subflavus*

G-Rank G2G3 **S-Rank** S3 **Goal** 1 **Distribution** Peripheral

Criteria for selection as Tier 1 G2G3, declining species

Estimated population in NE <7000 **Estimate based on** Survey data, expert opinion

Trends since 2005 in NE Stable to declining

Range in NE Eastern third of state

Habitat Deciduous woodlands

Threats High mortality from White-nose Syndrome (WNS). Susceptible to mortality from strikes with turbines at wind farms.

Research/Inventory Research to determine specific areas and habitats used for maternal roosting and rearing of young. Surveys to identify timing of migration and potential migration corridors. Surveys to obtain better estimates of resident and migratory populations. Monitor to determine presence of WNS in populations. Monitoring to determine level of mortality at wind farms.

Landscapes (BULs) Middle Niobrara River, Lower Niobrara River, Verdigre-Bazile, Ponca Bluffs, Missouri River, Indian Cave Bluffs, Rulo Bluffs, Southeast Prairies, Sandstone Prairies

MOLLUSKS

Common Name Flat Floater **Scientific Name** *Anodonta suborbiculata*

G-Rank G5 **S-Rank** S1 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 Declining; ranked as imperiled or vulnerable in nearly all states in its range

Estimated population in NE < 100 **Estimate based on** Expert opinion

Trends since 2005 in NE Unknown

Range in NE Missouri River - Boyd through Richardson counties

Habitat Quiet water of sloughs, oxbows, and backwaters of Missouri River

Threats Drainage, filling and siltation of sloughs, oxbows, and backwaters; stream channelization, degradation of water quality

Climate Change Vulnerability Index: Highly Vulnerable

Research/Inventory Conduct surveys in river above Lewis and Clark Lake; determine specific habitat requirements

Landscapes Missouri River

Common Name Niobrara Ambersnail **Scientific Name** *Oxyloma haydeni*

G-Rank G3 **S-Rank** SNR **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 G3

Estimated population in NE Unknown **Estimate based on**

Trends since 2005 in NE Unknown

Range in NE Unknown

Habitat Moist soil by stream

Threats Unknown

Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.

Landscapes (BULs) Platte Confluence

Common Name Oxbow Snail **Scientific Name** *Galba cockerelli*
G-Rank G3G4Q **S-Rank** S1 **Goal** 1 **Distribution** Peripheral
Criteria for selection as Tier 1 G3G4Q
Estimated population in NE <500 **Estimate based on** Single known occurrence
Trends since 2005 in NE Unknown
Range in NE One known location in South Platte River near Ogallala
Habitat Oxbows and backwaters
Threats Loss of oxbows and backwaters on South Platte River due to encroachment of phragmites and flow modifications
Research/Inventory Conduct survey work to determine extant populations, current distribution and population status. Conduct research to determine specific habitat requirements and assess threats.
Landscapes (BULs) None

Common Name Pimpleback **Scientific Name** *Quadrula pustulosa*
G-Rank G5 **S-Rank** S2 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 Declining
Estimated population in NE < 1,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Streams in eastern quarter of state
Habitat Large streams to medium rivers in mud, sand, or gravel
Threats Habitat fragmentation because of dams and other barriers to fish movement, stream channelization, siltation, degradation of water quality, agriculture and urban effluent
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Conduct surveys in the Big Blue River; determine specific habitat requirements; develop techniques for captive rearing; identify reintroduction streams/sites
Landscapes Southeast Prairies, Elkhorn River Headwaters, Lower Platte River, Saline Wetlands, Sandstone Prairies, Rainwater Basin

Common Name Pistolgrip **Scientific Name** *Tritogonia verrucosa*
G-Rank G4G5 **S-Rank** S1 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 Declining
Estimated population in NE < 50 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Missouri River and streams in southeast portion of state
Habitat Large streams to medium rivers in mud, sand, or gravel
Threats Habitat fragmentation because of dams and other barriers to fish movement, stream channelization, siltation, degradation of water quality, agriculture and urban effluent
Climate Change Vulnerability Index: Highly Vulnerable
Research/Inventory Conduct surveys in the Big Blue River; determine specific habitat requirements; develop culture techniques; identify reintroduction streams/sites
Landscapes Missouri River, Southeast Prairies

Common Name Plain Pocketbook **Scientific Name** *Lampsilis cardium*
G-Rank G5 **S-Rank** S2 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 Declining
Estimated population in NE 100 - 500 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Streams in eastern third of state
Habitat Small creeks to medium rivers in mud, sand, or gravel
Threats Habitat fragmentation because of dams and other barriers to fish movement, stream channelization, siltation, degradation of water quality, agriculture and urban effluent, accidental agricultural chemical spill
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Conduct surveys to assess distribution and abundance; determine specific habitat requirements; develop culture techniques; identify reintroduction streams/sites
Landscapes Elkhorn River Headwaters, Elkhorn Confluence, Southeast Prairies

Common Name Scaleshell

Scientific Name *Leptodea leptodon*

G-Rank G1G2

S-Rank S1

Goal 7

Distribution Limited

Criteria for selection as Tier 1 State and federally listed, G1

Estimated population in NE < 10

Estimate based on Expert opinion

Trends since 2005 in NE Unknown

Range in NE Upper reaches of Missouri River

Habitat Large rivers in mud and sand

Threats Stream channelization, degradation of water quality

Climate Change Vulnerability Index: Highly Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance; determine specific habitat requirements

Landscapes Missouri River

REPTILES

Common Name Blanding's Turtle **Scientific Name** *Emydoidea blandingii*

G-Rank G4 **S-Rank** S4 **Goal** 4 **Distribution** Limited

Criteria for selection as Tier 1 Ranked as imperiled or vulnerable in all but one state in its range

Estimated population in NE > 150,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Stable

Range in NE Primarily Sandhills marshes, very locally in eastern portion of state

Habitat Requires proximity to water; Sandhills fens, Sandhills freshwater marsh, northern cordgrass wet prairie, small tributaries, Sandhills prairies (upland habitat), marshes and oxbows in eastern portion of state

Threats Vehicle mortality, habitat fragmentation and loss of wetlands in eastern part of range, collection for pet trade

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

Research/Inventory Conduct surveys along eastern edge of range, population monitoring

Landscapes Cherry County Wetlands, Dismal River Headwaters, Elkhorn Confluence, Elkhorn River Headwaters, Lower Loup Rivers, Lower Platte River, Middle Niobrara, Upper Loup Rivers and Tributaries

Common Name Glossy Snake **Scientific Name** *Arizona elegans*

G-Rank G5 **S-Rank** S1 **Goal** 1 **Distribution** Disjunct

Criteria for selection as Tier 1 Disjunct population

Estimated population in NE 1,000-10,000 **Estimate based on** Expert opinion

Trends since 2005 in NE

Range in NE Extreme southwest portion of the state; specimen reported in Thomas County in 1988 but unsure if this is a transported animal or disjunct population.

Habitat Arid mixed to shortgrass prairies with sandy soil and sparse vegetation

Threats Vehicle mortality; habitat fragmentation; conversion to row-crop agriculture; installation of center pivot irrigation

Research/Inventory Conduct surveys to assess distribution and abundance; determine specific habitat management requirements; determine size and extent of Thomas County population; conduct population monitoring

Landscapes (BULs) Sandsage Prairies, possibly Upper Loup Rivers, though the specimen reports from that location may be spurious

Common Name Red-bellied Snake **Scientific Name** *Storeria occipitomaculata*

G-Rank G5 **S-Rank** S2 **Goal** 1 **Distribution** Disjunct

Criteria for selection as Tier 1 Disjunct population

Estimated population in NE 1,000-10,000 **Estimate based on** Expert opinion

Trends since 2005 in NE

Range in NE Central Nebraska along the Platte River Valley

Habitat Riverbanks and riparian woodlands, often with dense layers of leaf litter providing shelter and moisture.

Threats Lack of water flow at the landscape level; increased fluvial islands; fragmentation of habitat

Research/Inventory Conduct surveys to assess distribution and abundance; determine specific habitat management requirements; conduct natural history studies.

Landscapes (BULs) Central Platte River

Common Name Sagebrush Lizard **Scientific Name** *Sceloporus graciosus*

G-Rank G5 **S-Rank** S1 **Goal** 1 **Distribution** Peripheral

Criteria for selection as Tier 1 Disjunct

Estimated population in NE < 500 **Estimate based on** Expert opinion

Trend since 2005 Unknown

Range in NE Central portion of the Panhandle

Habitat Open, rocky, short-grass prairie, usually associated with sagebrush, higher elevations

Threats Grassland management that increases vegetative cover, elimination of sagebrush, habitat fragmentation

Research/Inventory Conduct surveys to assess distribution and abundance; determine specific habitat requirements; conduct population monitoring

Landscapes Panhandle Prairies, Wildcat Hills

Common Name Timber Rattlesnake **Scientific Name** *Crotalus horridus*

G-Rank G4 **S-Rank** S1 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 Declining: ranked as imperiled or vulnerable in nearly all states in its range

Estimated population in NE < 1,000 **Estimate based on** Field surveys

Trends since 2005 in NE Declining

Range in NE Very southeast portion of state

Habitat Deciduous woodland, riparian woodland - both in conjunction with rock outcrops

Threats Cedar encroachment, malicious killing, limestone quarrying

Climate Change Vulnerability Index: Not Vulnerable, presumed stable

Research/Inventory Conduct surveys to assess distribution and abundance; determine life history dynamics; determine specific habitat management requirements

Landscapes Missouri River, Sandstone Prairies, Southeast Prairies, Indian Cave Bluffs, Rulo Bluff

Common Name Western Massasauga **Scientific Name** *Sistrurus tergeminus*

G-Rank G3G4 **S-Rank** S1 **Goal** 10 **Distribution** Widespread

Criteria for selection as Tier 1 State listed, G3

Estimated population in NE 1,000 - 2,500 **Estimate based on** Field surveys

Trends since 2005 in NE Stable

Range in NE Very southeast portion of state

Habitat Wet mesic tall-grass prairie, wet meadow/marsh/wet prairie, lower-middle tall-grass prairie, cordgrass wet prairie, crayfish burrows

Threats Loss/degradation of tall-grass prairie habitat, woody invasion, tilling for agriculture, vehicle mortality

Climate Change Vulnerability Index: Highly Vulnerable

Research/Inventory Determine size/extent of Colfax County population; conduct surveys to assess distribution and abundance; conduct population monitoring

Landscapes Lower Platte River, Sandstone Prairies, Southeast Prairies

PLANTS

Common Name American Ginseng **Scientific Name** *Panax quinquefolius*

G-Rank G3G4 **S-Rank** S1 **Goal** 10 **Distribution** Peripheral

Criteria for selection as Tier 1 State listed, G3

Estimated population in NE 500 - 800 **Estimate based on** Expert opinion

Trend since 2005 in NE Unknown

Range in NE Missouri River bluffs

Habitat Oak-hickory-ironwood forest, bur oak-basswood-ironwood forest, red oak-basswood-ironwood forest

Threats Over-collecting, grazing of woodlands, logging, housing development, invasive species, lack of woodland management, brush encroachment

Climate Change Vulnerability Index: Moderately Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance; conduct population monitoring- resurvey known sites

Landscapes Indian Cave Bluffs, Missouri River, Ponca Bluffs, Rulo Bluffs

Common Name Barr's Milkvetch **Scientific Name** *Astragalus barrii*

G-Rank G3 **S-Rank** S1 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G3

Estimated population in NE < 250 **Estimate based on** Expert opinion

Trend since 2005 in NE Stable

Range in NE Dawes County

Habitat Badland, rock outcrop

Threats Off-road vehicle use, erosion

Climate Change Vulnerability Index: Highly Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance; conduct population monitoring

Landscapes Oglala Grasslands

Common Name Blowout Penstemon **Scientific Name** *Penstemon haydenii*
G-Rank G1G2 **S-Rank** S1 **Goal** 10 **Distribution** Endemic
Criteria for selection as Tier 1 State and federally listed, G1G2
Estimated population in NE 15,000-20,000 **Estimate based on** Annual monitoring, James Stubbendieck, University of Nebraska, Lincoln
Trend since 2005 in NE Wild (non-introduced) populations are declining
Range in NE Sandhills ecoregion
Habitat Sandhills dune prairie (blowouts)
Threats Loss of blowouts because of present range management practices, lack of fire, recent climatic conditions
Climate Change Vulnerability Index: Highly Vulnerable
Research/Inventory Determine methods for establishing and maintaining populations
Landscapes Central Platte River, Cherry County Wetlands, Dismal River Headwaters, Elkhorn River Headwaters, Panhandle Prairies, Sandhills Alkaline Lakes, Upper Niobrara River, Upper Loup Rivers and Tributaries

Common Name Colorado Butterfly Plant **Scientific Name** *Gaura neomexicana coloradensis*
G-Rank G3T2 **S-Rank** S1 **Goal** 5 **Distribution** Limited
Criteria for selection as Tier 1 State and federally listed, G2
Estimated population in NE < 200 **Estimate based on** 2008 field survey
Trend since 2005 in NE Declining
Range in NE Kimball County
Habitat Western floodplain terrace grassland
Threats Canada thistle invasion of habitat, herbicide spraying, groundwater level decline, haying and heavy grazing of habitat
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Conduct population monitoring; re-survey to evaluate effect of 2010 flooding; determine best management practices
Landscapes Kimball Grasslands

Common Name Dog-Parsley **Scientific Name** *Lomatium nuttallii*

G-Rank G3 **S-Rank** S2 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 G3

Estimated population in NE 1,000 - 5,000 **Estimate based on** Expert opinion

Trend since 2005 in NE Stable

Range in NE Sheridan, Scotts Bluff and Morrill counties

Habitat Rock outcrops

Threats Unknown, few if any

Climate Change Vulnerability Index: Moderately Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance

Landscapes Wildcat Hills, Oglala Grasslands, Pine Ridge

Common Name Gordon's Wild Buckwheat **Scientific Name** *Eriogonum gordonii*

G-Rank G4 **S-Rank** S2 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Regional endemic; ranked imperiled or vulnerable in most states in its range

Estimated population in NE 500 - 1,500 **Estimate based on** Expert opinion

Trends since 2005 in NE Unknown

Range in NE Dawes and Sioux counties

Habitat Rocky prairies (most likely western mixed-grass prairie); weathered and eroded Pierre shale in grasslands

Threats Unknown

Climate Change Vulnerability Index: Moderately Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance

Landscapes Oglala Grasslands, Panhandle Prairies, Upper Niobrara River

Common Name Hall's Bulrush **Scientific Name** *Schoenoplectus hallii*
G-Rank G2G3 **S-Rank** S3 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G2
Estimated population in NE 1,000 - 20,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Stable
Range in NE Eastern Sandhills ecoregion
Habitat Northern sedge wet meadow, northern cordgrass wet prairie, Sandhills freshwater marsh (open sand edge of wetlands)
Threats Wetland drainage, invasive species, pumping for irrigation
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Determine best management practices
Landscapes Elkhorn River Headwaters, Upper Loup Rivers and Tributaries

Common Name Large-Spike Prairie-Clover **Scientific Name** *Dalea cylindriceps*
G-Rank G3G4 **S-Rank** S2 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G3
Estimated population in NE 1,000 - 5,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Shortgrass Prairie ecoregion
Habitat Gravelly terrace prairies
Threats Invasive species, possibly heavy grazing
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to assess distribution and abundance
Landscapes North Platte River, Middle Niobrara, Sandsage Prairie, Panhandle Prairie, Upper Niobrara River

Common Name Matted Prickly-phlox

Scientific Name *Linanthus caespitosus*

G-Rank G4

S-Rank S1

Goal 7

Distribution Limited

Criteria for selection as Tier 1 Regional endemic, ranked as imperiled or vulnerable in most states in its range

Estimated population in NE 100 - 1,000

Estimate based on Expert opinion

Trends since 2005 in NE Unknown

Range in NE Scotts Bluff County

Habitat Rock outcrop

Threats Unknown - not many likely

Climate Change Vulnerability Index: Highly Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance

Landscapes Wildcat Hills, Kimball Grasslands

Common Name Meadow Lousewort

Scientific Name *Pedicularis crenulata*

G-Rank G4

S-Rank S1

Goal 7

Distribution Limited

Criteria for selection as Tier 1 Regional endemic, ranked as imperiled or vulnerable in most states in its range

Estimated population in NE 500 - 1,000

Estimate based on Expert opinion

Trends since 2005 in NE Stable

Range in NE Sioux County

Habitat Western streamside wet meadow

Threats Annual haying, heavy grazing, exotic plant invasion, water depletion

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance

Landscapes Upper Niobrara River

Common Name Missouri Sedge **Scientific Name** *Carex missouriensis*

G-Rank G4 **S-Rank** S1 **Goal** 7 **Distribution** Limited

Criteria for selection as Tier 1 Regional endemic, ranked as imperiled or vulnerable in most states in its range

Estimated population in NE 100 - 5,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Unknown

Range in NE Johnson, Richardson, Saline, and Otoe counties

Habitat Eastern cordgrass wet prairie, eastern sedge wet meadow, wet-mesic tall-grass prairie

Threats Conversion of prairie to cropland, herbicide spraying, invasive species, heavy grazing, tree encroachment

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance

Landscapes Southeast Prairies

Common Name Nodding-pogonia **Scientific Name** *Triphora trianthophora* var. *trianthophora*

G-Rank G3G4T3T4 **S-Rank** S1 **Goal** 4 **Distribution** Widespread

Criteria for selection as Tier 1 G3

Estimated population in NE 50 - 500 **Estimate based on** Expert opinion

Trend since 2005 in NE Unknown

Range in NE Southeast Nebraska, Missouri River bluffs

Habitat Red oak-basswood-ironwood forest, oak-hickory-ironwood forest

Threats Grazing of woodlands, logging, housing development, invasive species, lack of woodland management, brush encroachment

Climate Change Vulnerability Index: Highly Vulnerable

Research/Inventory Conduct surveys to assess distribution and abundance; conduct population monitoring

Landscapes Missouri River, Rulo Bluffs

Common Name Platte River Dodder **Scientific Name** *Cuscuta plattensis*
G-Rank G1Q **S-Rank** S1 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G1
Estimated population in NE 100 - 1,000 **Estimate based on** Expert opinion
Trend since 2005 Unknown
Range in NE Morrill County
Habitat Floodplains, possibly grasslands and woodland edge
Threats Invasive species, conversion of grasslands to cropland
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to assess distribution and abundance; conduct population monitoring
Landscapes North Platte River

Common Name Prairie Moonwort **Scientific Name** *Botrychium campestre*
G-Rank G3G4 **S-Rank** S1 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G3
Estimated population in NE 1,000 - 100,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Brown County
Habitat Bur oak-basswood-ironwood forest
Threats Unknown
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to assess distribution and abundance
Landscapes Keya Paha, Lower Niobrara River, Middle Niobrara, Verdigris-Bazile

Common Name Rocky Mountain Bulrush **Scientific Name** *Schoenoplectus saximontanus*
G-Rank G5 **S-Rank** S1 **Goal** 4 **Distribution** Widespread
Criteria for selection as Tier 1 Ranked imperiled or vulnerable in all states in its range
Estimated population in NE 500 - 1,500 **Estimate based on** Expert opinion
Trend since 2005 Unknown
Range in NE Northwest; historically known from Rainwater Basin, Perkins County, and northern Nebraska.
Habitat Ephemeral wetland shores, playas
Threats Siltation, wetland drainage, conversion of wetlands to cropland, invasive species
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to assess distribution and abundance
Landscapes Oglala Grasslands

Common Name Saltwort **Scientific Name** *Salicornia rubra*
G-Rank G5 **S-Rank** S1 **Goal** 10 **Distribution** Disjunct
Criteria for selection as Tier 1 State listed, disjunct
Estimated population in NE 1,000 - 20,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Likely declining
Range in NE Lancaster and southern Saunders counties
Habitat Eastern saline meadow
Threats Wetland drainage, development, reduced groundwater levels, loss of salinity in wetlands, invasive plants
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Research needed on how to restore and manage saline wetlands; determine methods for controlling narrowleaf cattail and reed canary grass in saline wetlands
Landscapes Saline Wetlands

Common Name Sandhill Goosefoot **Scientific Name** *Chenopodium cycloides*
G-Rank G3G4 **S-Rank** S1 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 G3, Disjunct
Estimated population in NE 1,500 - 20,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Perkins, Chase and Dundy counties
Habitat Sandsage prairie
Threats Heavy grazing, herbicide spraying, conversion of prairie to cropland
Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable
Research/Inventory Conduct surveys to assess distribution and abundance
Landscapes Sandsage Prairie

Common Name Short's Milkvetch **Scientific Name** *Astragalus shortianus*
G-Rank G4 **S-Rank** S1 **Goal** 7 **Distribution** Limited
Criteria for selection as Tier 1 Regional endemic; ranked as imperiled or vulnerable in most states in its range
Estimated population in NE 50 - 1,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Kimball and Banner counties
Habitat Rocky and gravelly western mixed-grass prairie
Threats Unknown, wind energy development?
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Conduct surveys to assess distribution and abundance
Landscapes Kimball Grasslands

Common Name Small White Lady's-Slipper **Scientific Name** *Cypripedium candidum*
G-Rank G4 **S-Rank** S1 **Goal** 10 **Distribution** Widespread
Criteria for selection as Tier 1 State listed
Estimated population in NE 1,000 - 2,000 **Estimate based on** Field surveys
Trends since 2005 in NE Stable
Range in NE Loup River valleys in the Mixedgrass Prairie ecoregion and eastern Sandhills ecoregion
Habitat Northern sedge wet meadow, northern cordgrass wet prairie, wet-mesic tall-grass prairie
Threats Conversion of meadows to cropland and development, invasive species, reduced groundwater levels, annual mid-summer haying, herbicide spraying
Climate Change Vulnerability Index: Moderately Vulnerable
Research/Inventory Research to determine best management practices; continue surveys to assess distribution and abundance
Landscapes Elkhorn River Headwaters, Lower Loup Rivers, Middle Niobrara

Common Name Snow Trillium **Scientific Name** *Trillium nivale*
G-Rank G4 **S-Rank** S1 **Goal** 1 **Distribution** Peripheral
Criteria for selection as Tier 1 Ranked as imperiled or vulnerable in nearly all states in its range
Estimated population in NE 500 - 1,000 **Estimate based on** Expert opinion
Trends since 2005 in NE Unknown
Range in NE Cass County
Habitat Oak-hickory-ironwood forest, bur oak-basswood-ironwood forest, red oak-basswood-ironwood forest
Threats Invasive species, logging, heavy grazing
Climate Change Vulnerability Index: Extremely Vulnerable
Research/Inventory Re-inventory known site
Landscapes Only known occurrence is not in a BUL

Common Name Ute Ladies'-tresses **Scientific Name** *Spiranthes diluvialis*

G-Rank G2G3 **S-Rank** S1 **Goal** 2 **Distribution** Limited

Criteria for selection as Tier 1 State and federally listed, G2

Estimated population in NE 800 - 1,500 **Estimate based on** 2010 field survey

Trends since 2005 in NE Possibly declining

Range in NE Sioux County

Habitat Western alkaline meadow

Threats Reduced groundwater levels, invasive species, conversion of meadows to cropland, annual haying of meadows

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Determine best management practices

Landscapes Upper Niobrara River

Common Name Western Prairie Fringed Orchid **Scientific Name** *Platanthera praeclara*

G-Rank G3 **S-Rank** S2 **Goal** 10 **Distribution** Limited

Criteria for selection as Tier 1 State and federally listed, G3

Estimated population in NE 2,000 - 5,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Cyclical with weather; declined during dry years; may be increasing since 2005, but overall trend is decline

Range in NE Tallgrass Prairie and Sandhills ecoregions

Habitat Eastern cordgrass wet prairie, northern cordgrass wet prairie, wet-mesic tallgrass prairie, tallgrass prairie

Threats Invasive species, herbicide spraying, conversion of prairie to cropland and development, annual mid-summer haying, specific livestock grazing that may reduce native plant diversity and promote uniform habitat structure.

Climate Change Vulnerability Index: Extremely Vulnerable

Research/Inventory Determine best management practices

Landscapes Central Platte River, Cherry County Wetlands, Elkhorn River Headwaters, Lower Platte River, Upper Loup Rivers and Tributaries, Willow Creek Prairies

Common Name Wolf's Spikerush **Scientific Name** *Eleocharis wolfii*

G-Rank G3G5 **S-Rank** S4 **Goal** 7 **Distribution** Widespread

Criteria for selection as Tier 1 G3G5

Estimated population in NE 10,000 - 50,000 **Estimate based on** Expert opinion

Trends since 2005 in NE Unknown

Range in NE Primarily Sandhills ecoregion

Habitat Northern cordgrass wet prairie, northern sedge wet prairie

Threats Wetland drainage, invasive species

Research/Inventory Conduct surveys to assess distribution and abundance

Landscapes Cherry County Wetlands, Elkhorn River Headwaters, Upper Loup Rivers and Tributaries, Willow Creek Prairies

Section 3: Tier 2 At-risk species - 2018

Tier 2 species include those that did not meet the Tier 1 criteria but were ranked by the Nebraska Natural Heritage Program as either State Critically Imperiled (S1), State Imperiled (S2) or State Vulnerable (S3) (see appendix 2 for explanation of ranks). Because of the large number of at-risk plant species, criteria were modified to include only S1 or S2 plant species. The Tier 2 list is used to help prioritize conservation planning/actions and does not have legal or regulatory ramifications. Tier 2 species are typically those that are not at-risk from a global or national perspective but are rare or imperiled within Nebraska. Conservation of these species is needed to ensure they remain a part of Nebraska's flora and fauna.

During this revision, the "S-Ranks" were reviewed and revised for selected amphibians, birds, fish, insects, mammals, mollusks, plants, and reptiles.

The Tier 2 at-risk species lists will be periodically reviewed and revised by taxon experts. This revision will occur on an on-going basis as new information on the abundance, distribution, and population trends becomes available, with an overall review at least every five years. The Tier 2 list was reviewed and revised with input from taxon experts during workshops held in 2017 and 2018.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Amphibians			
American Toad	<i>Anaxyrus americanus</i>	G5	S1
Blanchard's Cricket Frog	<i>Acris blanchardi</i>	G5	S3
Great Plains Narrowmouth Toad	<i>Gastrophryne olivacea</i>	G5	S2
Northern Leopard Frog	<i>Lithobates pipiens</i>	G5	S3
Smallmouth Salamander	<i>Ambystoma texanum</i>	G5	S1
Birds			
Acadian Flycatcher	<i>Empidonax vireescens</i>	G5	S2?
American Avocet	<i>Recurvirostra americana</i>	G5	S3
American Wigeon	<i>Anas americana</i>	G5	S2
American Woodcock	<i>Scolopax minor</i>	G5	S3
Bald Eagle	<i>Haliaeetus leucocephalus</i>	G5	S3
Barn Owl	<i>Tyto alba</i>	G5	S3
Black-and-white Warbler	<i>Mniotilta varia</i>	G5	S3
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	G5	S3
Black-necked Stilt	<i>Himantopus mexicanus</i>	G5	S3
Brown Creeper	<i>Certhia americana</i>	G5	S2
Bullock's Oriole	<i>Icterus bullockii</i>	G5	S3
Canvasback	<i>Aythya valisineria</i>	G5	S3
Cassin's Kingbird	<i>Tyrannus vociferans</i>	G5	S3
Cassin's Sparrow	<i>Aimophila cassinii</i>	G5	S3
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	G5	S3
Cinnamon Teal	<i>Anas cyanoptera</i>	G5	S1S2
Clark's Grebe	<i>Aechmophorus clarkii</i>	G5	S2
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	G5	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Dark-eyed Junco	<i>Junco hyemalis</i>	G5	S3
Eastern Meadowlark	<i>Sturnella magna</i>	G5	S3
Eastern Whip-poor-will	<i>Caprimulgus vociferus</i>	G5	S3
Forster's Tern	<i>Sterna forsteri</i>	G5	S2
Golden Eagle	<i>Aquila chrysaetos</i>	G5	S3
Greater Prairie-Chicken	<i>Tympanuchus cupido</i>	G4	S3S4
Kentucky Warbler	<i>Geothlypis formosa</i>	G5	S3
King Rail	<i>Rallus elegans</i>	G4	S1
Lesser Scaup	<i>Aythya affinis</i>	G5	S3
Lewis's Woodpecker	<i>Melanerpes lewis</i>	G4	S1
Louisiana Waterthrush	<i>Parkesia motacilla</i>	G5	S1
Marsh Wren	<i>Cistothorus palustris</i>	G5	S3
Merlin	<i>Falco columbarius</i>	G5	S1
Mississippi Kite	<i>Ictinia mississippiensis</i>	G5	S1
Northern Pintail	<i>Anas acuta</i>	G5	S3
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	G5	S1
Peregrine Falcon	<i>Falco peregrinus</i>	G4	S3
Pied-billed Grebe	<i>Podilymbus podiceps</i>	G5	S3
Pileated Woodpecker	<i>Dryocopus pileatus</i>	G5	S1
Pine Siskin	<i>Spinus pinus</i>	G5	S3
Plumbeous Vireo	<i>Vireo plumbeus</i>	G5	S2
Prairie Falcon	<i>Falco mexicanus</i>	G5	S2
Prothonotary Warbler	<i>Protonotaria citrea</i>	G5	S2
Pygmy Nuthatch	<i>Sitta pygmaea</i>	G5	S3
Red-shouldered Hawk	<i>Buteo lineatus</i>	G5	S1
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	G5	S3
Sandhill Crane	<i>Grus canadensis</i>	G5	S3
Savannah Sparrow	<i>Passerculus sandwichensis</i>	G5	S3
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>	G5	S3
Snowy Plover	<i>Charadrius nivosus</i>	G4	S1
Summer Tanager	<i>Piranga rubra</i>	G5	S3S4
Swamp Sparrow	<i>Melospiza georgiana</i>	G5	S3
Townsend's Solitaire	<i>Myadestes townsendi</i>	G5	S2
Trumpeter Swan	<i>Cygnus buccinatoris</i>	G4	S2
Tufted Titmouse	<i>Baeolophus bicolor</i>	G5	S3
Violet-green Swallow	<i>Tachycineta thalassina</i>	G5	S3
Western Grebe	<i>Aechmophorus occidentalis</i>	G5	S3
White-throated Swift	<i>Aeronautes saxatalis</i>	G5	S3
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	G5	S3
Yellow-throated Vireo	<i>Vireo flavifrons</i>	G5	S3
Yellow-throated Warbler	<i>Setophaga dominica</i>	G5	S1

Fish

American Eel	<i>Anguilla rostrata</i>	G4	SNR
Black Buffalo	<i>Ictiobus niger</i>	G5	S2
Bluntnose Minnow	<i>Pimephales notatus</i>	G5	S3
Burbot	<i>Lota lota</i>	G5	S1
Common Shiner	<i>Luxilus cornutus</i>	G5	S2
Longnose Sucker	<i>Catostomus catostomus</i>	G5	S2

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Paddlefish	<i>Polyodon spathula</i>	G4	S2
Pearl Dace	<i>Margariscus nachtriebi</i>	G5	S2
Shoal Chub	<i>Macrhybopsis hyostoma</i>	G5	S3
Silver Chub	<i>Macrhybopsis storeriana</i>	G5	S2
Skipjack Herring	<i>Alosa chrysochloris</i>	G5	S1
Tadpole Madtom	<i>Noturus gyrinus</i>	G5	S3
Western Blacknose Dace	<i>Rhinichthys obtusus</i>	G5	S2

Insects

A Grasshopper	<i>Encoptolophus subgracilis</i>	G5	S1
A Scarab Beetle	<i>Rhyssemus neglectus</i>	GNR	S1
Acastus Checkerspot	<i>Chlosyne acastus</i>	G4G5	S1
Afranius Duskywing	<i>Erynnis afranius</i>	G5	S2
Agrippina Underwing	<i>Catocala agrippina</i>	G5	S1
Aholibah Underwing	<i>Catocala aholibah</i>	G5	S1
American Copper	<i>Lycaena phlaeas</i>	G5	S1S2
Anicia Checkerspot	<i>Euphydryas anicia</i>	G5	S3
Anise Swallowtail	<i>Papilio zelicaon</i>	G5	S3
Aphrodite Fritillary	<i>Speyeria aphrodite</i>	G5	S3
Arachne Checkerspot	<i>Poladyras arachne</i>	G5	S1
Arrowhead Blue	<i>Glaucopsyche pius</i>	G5	S1
Badlands Tiger Beetle	<i>Cicindela decemnotata</i>	G4	SNR
Banded Hairstreak	<i>Satyrium calanus</i>	G5	S2S3
Beautiful Tiger Beetle	<i>Cicindela pulchra</i>	G4	S1
Broad-winged Skipper	<i>Poanes viator viator</i>	G5T4	S2
Callippe Fritillary	<i>Speyeria callippe</i>	G5	S1
Cobweb Skipper	<i>Hesperia metea</i>	G4	S1
Common Branded Skipper	<i>Hesperia colorado</i>	G5	S3
Coral Hairstreak	<i>Satyrium titus</i>	G5	S3
Coronis Fritillary	<i>Speyeria coronis</i>	G5	S3
Creamy Marblewing	<i>Euchloe ausonides palaeoreios</i>	G4G5TNR	S1
Creeping Water Bug	<i>Ambrysus mormon</i>	GNR	S2
Crossline Skipper	<i>Polites origenes</i>	G4G5	S3
Desert Forktail	<i>Ischnura barberi</i>	G4	S1
Dion Skipper	<i>Euphyes dion</i>	G4	S2
Dogface	<i>Colias cesonia</i>	G5	S3
Dotted Blue	<i>Euphilotes ancilla</i>	G5	S1S2
Dun Skipper	<i>Euphyes vestris</i>	G5	S3
Dusted Skipper	<i>Atrytonopsis hianna</i>	G4G5	S3
Elusive Clubtail	<i>Gomphus notatus</i>	G3	SNR
Field Crescentspot	<i>Phyciodes pratensis</i>	G5	S1
Fulvia Checkerspot	<i>Thessalia fulvia</i>	G5	S2S3
Garita Skipperling	<i>Oarisma garita</i>	G5	S2
Gray Comma	<i>Polygonia progne</i>	G5	S3
Great Plains Giant Tiger Beetle	<i>Amblycheila cylindriformis</i>	G4G5	S1
Green Skipper	<i>Hesperia viridis</i>	G5	S1
Greenish Blue	<i>Plebejus saepiolus</i>	G5	S1
Grizzly Spur-throat Grasshopper	<i>Melanoplus punctulatus</i>	G4	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Habilis Underwing	<i>Catocala habilis</i>	G5	S1
Harvester	<i>Feniseca tarquinius</i>	G5	S2
Henry's Elfin	<i>Incisalia henrici</i>	G5	S2
Herd Mayfly	<i>Paraleptophlebia gregalis</i>	G3G4	S1
Hermia's Underwing	<i>Catocala hermia</i>	G5	S1
Hickory Hairstreak	<i>Satyrrium caryaevorum</i>	G4	S1S2
Hoary Edge	<i>Achalarus lyciades</i>	G5	S1
Hobomok Skipper	<i>Poanes hobomok</i>	G5	S3S4
Horace's Duskywing	<i>Erynnis horatius</i>	G5	S3
Indra Swallowtail	<i>Papilio indra</i>	G5	S1S2
Juvenal's Duskywing	<i>Erynnis juvenalis</i>	G5	S2
Large Heath	<i>Coenonympha tullia</i>	G5	S2
Little Glassywing	<i>Pompeius verna</i>	G5	S2S3
Long Dash	<i>Polites mystic</i>	G5	S3
Mead's Wood Nymph	<i>Cercyonis meadii</i>	G5	S1
Milbert's Tortoiseshell	<i>Nymphalis milberti</i>	G5	S3
Mormon Fritillary	<i>Speyeria mormonia kimemela</i>	G5TNR	S1
Mottled Little Skipper	<i>Amblyscirtes nysa</i>	G5	S1
Mulberry Wing	<i>Poanes massasoit</i>	G4	SNR
Mylitta Crescent	<i>Phyciodes mylitta</i>	G5	S1
Nevada Tiger Beetle	<i>Cicindela nevadica knausii</i>	G5T5	S2
Northern Broken Dash	<i>Wallengrenia egeremet</i>	G5	S3
Northern Crescent	<i>Phyciodes cocyta</i>	G5	S1S2
Northern Pearlyeye	<i>Enodia anthedon</i>	G5	S3
Obscure Underwing	<i>Catocala obscura</i>	G5	S1
Olive Hairstreak	<i>Mitoura grynea</i>	G5	S3
Orange Roadside Skipper	<i>Amblyscirtes simius</i>	G4	S1
Oslar's Roadside Skipper	<i>Amblyscirtes oslari</i>	G4	S2
Pahaska Skipper	<i>Hesperia pahaska</i>	G5	S2
Painted Crescentspot	<i>Phyciodes pictus</i>	G5	S2
Pallid Crescentspot	<i>Phyciodes pallidus</i>	G5	S1
Phoebus' Parnassian	<i>Parnassius smintheus</i>	G5	S1
Pine White	<i>Neophasia menapia</i>	G5	S2
Plains Gray Skipper	<i>Polites rhesus</i>	G4	S2
Prairie Long-lipped Tiger Beetle	<i>Cicindela nebraskana</i>	G5	S1
Purplish Copper	<i>Lycaena helloides</i>	G5	S3
Queen Alexandra's Sulphur	<i>Colias alexandra</i>	G5	S3
Residua Underwing	<i>Catocala residua</i>	G5	S1
Riding's Satyr	<i>Neominois ridingsii</i>	G5	S2
Robinson's Underwing	<i>Catocala robinsoni</i>	G4	S1
Ruddy Copper	<i>Lycaena rubida</i>	G5	S3
Sagebrush Buck Moth	<i>Hemileuca hera</i>	G5	S1
Salt Creek Grasshopper	<i>Trimerotropis salina</i>	G5	S2?
Scalloped Sootywing	<i>Staphylus hayhurstii</i>	G5	S3
Serene Underwing	<i>Catocala serena</i>	G5	S1
Shasta Blue	<i>Icaricia shasta</i>	G5	S2
Silvery Blue	<i>Glaucopsyche lygdamus</i>	G5	S3
Silvery Checkerspot	<i>Chlosyne nycteis</i>	G5	S3

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Sleepy Duskywing	<i>Erynnis brizo</i>	G5	S2
Small Wood Nymph	<i>Cercyonis oetus</i>	G5	S1
Southern Cloudywing	<i>Thorybes bathyllus</i>	G5	S2
Spring White	<i>Pieris (Pontia) sisymbrii nordini</i>	G5TNR	S3
Strecker's Giant Skipper	<i>Megathymus streckeri</i>	G5	S3
Striped Hairstreak	<i>Satyrrium liparops</i>	G5	S2
Sagebrush Buck Moth	<i>Hemileuca hera</i>	G5	S1
Tawny Emperor	<i>Asterocampa clyton</i>	G5	S2S3
Taxiles Skipper	<i>Poanes taxiles</i>	G5	S2S3
Uhler's Arctic	<i>Oeneis uhleri</i>	G5	S2S3
Ulalume Underwing	<i>Catocala ulalume</i>	G4	S1
Uncas Skipper	<i>Hesperia uncas</i>	G5	S2
Variable Cuckoo Bumble Bee	<i>Bombus variabilis</i>	GU	S2
Variable Tiger Beetle	<i>Cicindela terricola cinctipennis</i>	G5T5	S1
Weidemeyer's Admiral	<i>Limenitis weidemeyerii</i>	G5	S3
Western Black Swallowtail	<i>Papilio bairdii</i>	G5	S3
Western Green Hairstreak	<i>Callophrys affinis homoperplexa</i>	G5TNR	S1S2
Western Tailed Blue	<i>Everes amyntula</i>	G5	S1
Western White	<i>Pontia occidentalis</i>	G5	S2
White-cloaked Tiger Beetle	<i>Cicindela togata</i>	G5	S1
Widow Underwing	<i>Catocala vidua</i>	G5	S1
Wild Indigo Duskywing	<i>Erynnis baptisiae</i>	G5	S3
Woodland Grasshopper	<i>Paratylotropidia brunneri</i>	G4G5	S1
Yellow-grey Underwing	<i>Catocala luctuosa</i>	G4	S1
Yucca Skipper	<i>Megathymus yuccae coloradensis</i>	G5T5	S3S4
Zabulon Skipper	<i>Poanes zabulon</i>	G5	S2
Zebra Swallowtail	<i>Eurytides marcellus</i>	G5	S3
Zerene Fritillary	<i>Speyeria zerene</i>	G5	S1S2

Mammals

Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>	G4	S3
Bushy-tailed Woodrat	<i>Neotoma cinerea</i>	G5	S3
Dwarf Shrew	<i>Sorex nanus</i>	G4	S1
Eastern Chipmunk	<i>Tamias striatus</i>	G5	S1
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>	G5	S3
Least Chipmunk	<i>Tamias minimus</i>	G5	S1
Long-legged Myotis	<i>Myotis volans</i>	G4G5	S1
Long-tailed Weasel	<i>Mustela frenata</i>	G5	S2
Merriam's Shrew	<i>Sorex merriami</i>	G4	S1
Mountain Lion	<i>Felis concolor</i>	G5	S1
Olive-backed Pocket Mouse	<i>Perognathus fasciatus</i>	G5	S1
Silky Pocket Mouse	<i>Perognathus flavus</i>	G5	S?
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	G4	S1
White-tailed Jackrabbit	<i>Lepus townsendii</i>	G5	S3
Woodland Vole	<i>Microtus pinetorum</i>	G5	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Mollusks			
A Freshwater Snail	<i>Fossaria techella</i>	G3G4QSNR	
Fatmucket	<i>Lampsilis siliquioidea</i>	G5	S1
Pondmussel	<i>Ligumia subrostrata</i>	G5	S1
Threeridge	<i>Amblema plicata</i>	G5	S1
Yellow Sandshell	<i>Lampsilis teres</i>	G5	S1
Reptiles			
Copperhead	<i>Agkistrodon contortrix</i>	G5	S2
Dekay's Brownsnake	<i>Storeria dekayi</i>	G5	S3
Eastern Hognose Snake	<i>Heterodon platirhinos</i>	G5	S3
Five-lined Skink	<i>Eumeces fasciatus</i>	G5	S1
Graham's Crayfish Snake	<i>Regina grahamii</i>	G5	S2
Mountain Short-horned Lizard	<i>Phrynosoma hernandesi</i>	G5	S3
Plains Blackhead Snake	<i>Tantilla nigriceps</i>	G5	S1
Prairie Kingsnake	<i>Lampropeltis calligaster</i>	G5	S2
Red-eared Slider	<i>Trachemys scripta elegans</i>	G5T5	S1
Slender Glass Lizard	<i>Ophisaurus attenuatus</i>	G5	S1
Smooth Green Snake	<i>Liochlorophis vernalis</i>	G5	S1
Smooth Soft-shelled Turtle	<i>Apalone mutica</i>	G5	S1
Speckled Kingsnake	<i>Lampropeltis holbrooki</i>	G5	S1
Terrestrial Garter Snake	<i>Thamnophis elegans</i>	G5	S1
Western Foxsnake	<i>Pantherophis ramspotti</i>	G5	S2
Western Ribbon Snake	<i>Thamnophis proximus</i>	G5	S2
Western Worm Snake	<i>Carphophis vermis</i>	G5	S2
Plants			
Alyssum-leaf Phlox	<i>Phlox alyssifolia</i>	G5	S1
American Dragon's-head	<i>Dracocephalum parviflorum</i>	G5	S1
American Eelgrass	<i>Vallisneria americana</i>	G5	S1
American False-pennyroyal	<i>Hedeoma pulegioides</i>	G5	S1
American Lotus	<i>Nelumbo lutea</i>	G4	S1S3
American Pillwort	<i>Pilularia americana</i>	G5	S1
American Sweetflag	<i>Acorus americanus</i>	G5	S2
Antelope-Horns	<i>Asclepias asperula</i> var. <i>decumbens</i>	G5TNRS	S1
Arrowfeather Three-awn	<i>Aristida purpurascens</i> var. <i>purpurascens</i>	G5T5	S1
Ashy Sunflower	<i>Helianthus mollis</i>	G4G5	S1
Autumn Coral-root	<i>Corallorhiza odontorhiza</i> var. <i>odontorhiza</i>	G5TNRS	S1?
Awed Slender Wheatgrass	<i>Elymus trachycaulus</i> var. <i>andinus</i>	G5T5	S1
Bay Forget-me-not	<i>Myosotis laxa</i>	G5	S1
Beaked Spikerush	<i>Eleocharis rostellata</i>	G5	S1
Bearberry	<i>Arctostaphylos uva-ursi</i>	G5	S1
Bearded Short-husk	<i>Brachyelytrum erectum</i>	G5	S2
Bebb's Sedge	<i>Carex bebbii</i>	G5	S1S3
Berlandier's Flax	<i>Linum berlandieri</i> var. <i>berlandieri</i>	G5T5?	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Big-fruit Dodder	<i>Cuscuta umbrosa</i>	G5	S1S3
Bigroot Morning-glory	<i>Ipomoea pandurata</i>	G5	S1
Birdfoot Violet	<i>Viola pedata</i> var. <i>pedata</i>	G5	TNRS1
Black-foot Quillwort	<i>Isoetes melanopoda</i> ssp. <i>melanopoda</i>	G5	TNRS1
Blackjack Oak	<i>Quercus marilandica</i> var. <i>marilandica</i>	G5	T4T5S1
Black-seed Ricegrass	<i>Piptatherum racemosum</i>	G5	S2
Blue Cohosh	<i>Caulophyllum thalictroides</i>	G5	S1
Blue Larkspur	<i>Delphinium nuttallianum</i>	G5	S1
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	G5	S1
Bodin's Milk-vetch	<i>Astragalus bodinii</i>	G4	S1
Bouquet Mud-plantain	<i>Heteranthera multiflora</i>	G4	S1
Branched Noseburn	<i>Tragia ramosa</i>	G5	S1
Brazilian Watermeal	<i>Wolffia brasiliensis</i>	G5	S1
Britton's Skullcap	<i>Scutellaria brittonii</i>	G4G5	S2
Broad-leaf Spring-Panicum	<i>Dichanthelium latifolium</i>	G5	S1
Broom Groundsel	<i>Senecio spartioides</i>	G5	S1
Brown Bog Sedge	<i>Carex buxbaumii</i>	G5	S2
Buckley's Penstemon	<i>Penstemon buckleyi</i>	G4G5	S1
Buff Fleabane	<i>Erigeron ochroleucus</i>	G5	S2
Bulblet Bladder Fern	<i>Cystopteris bulbifera</i>	G5	S1
Bush's Sedge	<i>Carex bushii</i>	G4	S1S2
Bushy Seedbox	<i>Ludwigia alternifolia</i>	G5	S1
Butterweed	<i>Packera glabella</i>	G5	S1
Buttonbush	<i>Cephalanthus occidentalis</i>	G5	S1S3
Button-snakeroot	<i>Eryngium yuccifolium</i> var. <i>yuccifolium</i>	G5	T5 S1
California Amaranth	<i>Amaranthus californicus</i>	G4	S2
Canada Hawkweed	<i>Hieracium kalmii</i> var. <i>canadense</i>	G5	T5 S1
Canada Lousewort	<i>Pedicularis canadensis</i> var. <i>canadensis</i>	G5	T5 S1
Canada Nailwort	<i>Paronychia canadensis</i>	G5	S1
Capitate Spikerush	<i>Eleocharis geniculata</i>	G5	S1
Cardinal Flower	<i>Lobelia cardinalis</i>	G5	S1
Carolina False Dandelion	<i>Pyrrhopappus carolinianus</i>	G5	S1
Carruth's Sagewort	<i>Artemisia carruthii</i>	G4?	S1
Chapman's Bluegrass	<i>Poa chapmaniana</i>	G5	S1
Chickasaw Plum	<i>Prunus angustifolia</i>	G5	S1
Clammy Hedge-hyssop	<i>Gratiola neglecta</i>	G5	S1
Clasping-leaf Milkweed	<i>Asclepias amplexicaulis</i>	G5	S1
Coreopsis Beggar-ticks	<i>Bidens polylepis</i>	G5	S2
Creeping Juniper	<i>Juniperus horizontalis</i>	G5	S1
Creeping Lovegrass	<i>Eragrostis reptans</i>	G5	S1
Creeping Polemonium	<i>Polemonium reptans</i>	G5	S1
Crested Wood Fern	<i>Dryopteris cristata</i>	G5	S1
Culver's Root	<i>Veronicastrum virginicum</i>	G4	S1
Cut-leaf Cyclanthera	<i>Cyclanthera dissecta</i>	G5	S1
Cut-leaf Toothwort	<i>Cardamine concatenata</i>	G5	S1
Cut-leaf Water-milfoil	<i>Myriophyllum pinnatum</i>	G5	S1
Desert Centaury	<i>Zeltnera exaltata</i>	G5	S1
Douglas's Knotweed	<i>Polygonum douglasii</i>	G5	S2
Downy Ground-cherry	<i>Physalis missouriensis</i>	G5?	S1

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Drummond's Wild Onion	<i>Allium drummondii</i>	G5	S1
Dwarf Ground-cherry	<i>Physalis pumila</i>	G5	S1
Dwarf Indigo-bush	<i>Amorpha nana</i>	G5	S1
Dwarf Juniper	<i>Juniperus communis</i>	G5	S1
Dwarf Larkspur	<i>Delphinium tricornis</i>	G5	S1S3
Dwarf Locoweed	<i>Oxytropis multiceps</i>	G5	S2
Dwarf Phlox	<i>Microsteris gracilis</i>	G5	S1
Dwarf Spikerush	<i>Eleocharis coloradoensis</i>	GNR	S1
Dwarf St. John's-wort	<i>Hypericum mutilum</i> var. <i>mutilum</i>	G5TNR	S1
Dwarf Swamp Raspberry	<i>Rubus pubescens</i>	G5	S1
Dwarf-dandelion	<i>Krigia cespitosa</i>	G5	S1
Ear-leaf Toothcup	<i>Ammannia auriculata</i>	G5	S1
Early Blue-top Fleabane	<i>Erigeron vetensis</i>	G4	S1
Early Buttercup	<i>Ranunculus fascicularis</i>	G5	S1
Eastern Cleomella	<i>Cleomella angustifolia</i>	G5	S2
Eastern Star Sedge	<i>Carex radiata</i>	G4	S1
Eastern Toothed Spurge	<i>Euphorbia dentata</i>	G5	S1
Ebony Spleenwort	<i>Asplenium platyneuron</i>	G5	S2
Engelmann's Flatsedge	<i>Cyperus engelmannii</i>	G4Q	S2
False Dragon's-head	<i>Physostegia parviflora</i>	G4G5	S1
False Lily-of-the-valley	<i>Maianthemum canadense</i> var. <i>interius</i>	G5T4	S1
False Melic	<i>Schizachne purpurascens</i>	G5	S1
False-garlic	<i>Nothoscordum bivalve</i>	G4	S1
Fendler's Aster	<i>Symphyotrichum fendleri</i>	G4?	S1
Field Milk-vetch	<i>Astragalus agrestis</i>	G5	S1
Field Thistle	<i>Cirsium discolor</i>	G5	S1S2
Finger Coreopsis	<i>Coreopsis palmata</i>	G5	S1S3
Flat-top Aster	<i>Doellingeria umbellata</i> var. <i>pubens</i>	G5T5	S2
Floating Primrose-willow	<i>Ludwigia peploides</i> var. <i>glabrescens</i>	G5T5	S1
Forest Muhly	<i>Muhlenbergia sylvatica</i>	G5	S1S3
Foxglove Penstemon	<i>Penstemon digitalis</i>	G5	S1
Frank's Sedge	<i>Carex frankii</i>	G5	S1S2
Fraser's Wild Onion	<i>Allium canadense</i> var. <i>fraseri</i>	G5T4T5S2	
Fremont's Evening-primrose	<i>Oenothera macrocarpa</i> ssp. <i>fremontii</i>	G5T3	S1
Fremont's Leather-flower	<i>Clematis fremontii</i>	G5	S1
Fries' Pondweed	<i>Potamogeton friesii</i>	G4	S2
Frost Grape	<i>Vitis vulpina</i>	G5	S1
Gardner's Saltbush	<i>Atriplex gardneri</i> var. <i>gardneri</i>	G5TNR	S1
Georgia Bulrush	<i>Scirpus georgianus</i>	G5	S1S3
Geyer's Larkspur	<i>Delphinium geyeri</i>	G5	S1
Giant St. John's-wort	<i>Hypericum pyramidatum</i>	G4	S1S3
Gilia Beardtongue	<i>Penstemon ambiguus</i> var. <i>ambiguus</i>	G4G5T4T5S1	
Glade Blue Curls	<i>Trichostema brachiatum</i>	G5	S1
Golden Fumewort	<i>Corydalis aurea</i>	G5	S1
Golden-fruit Sedge	<i>Carex aureolensis</i>	GNR	S1
Graceful Buttercup	<i>Ranunculus inamoenus</i> var. <i>inamoenus</i>	G5T5	S1
Graham's Rock Cress	<i>Boechea grahamii</i>	G5	S1S3
Graybark Grape	<i>Vitis cinerea</i> var. <i>cinerea</i>	G4G5TNR	S1
Great Plains Twin-pod	<i>Physaria brassicoides</i>	G5	S1

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Greater Straw Sedge	<i>Carex normalis</i>	G5	S1
Green Dragon	<i>Arisaema dracontium</i>	G5	S2
Green-flower Hedgehog Cactus	<i>Echinocereus viridiflorus</i>	G5	S2
Green-flower Wintergreen	<i>Pyrola chlorantha</i>	G5	S1
Green-fruit Bur-reed	<i>Sparganium emersum</i>	G5	S2
Gronovius' Dodder	<i>Cuscuta gronovii</i>	G5	S1S3
Gunnison's Mariposa-lily	<i>Calochortus gunnisonii</i> var. <i>gunnisonii</i>	G5TNR	S1
Hairy Bugseed	<i>Corispermum villosum</i>	G4?	S1
Hairy Gayfeather	<i>Liatris hirsuta</i>	G4?	S1S3
Hairy Mountain-mint	<i>Pycnanthemum verticillatum</i> var. <i>pilosum</i>	G5T5	S1
Hairy Pinweed	<i>Lechea mucronata</i>	G5	S1
Hairy Wood Sedge	<i>Carex hirtifolia</i>	G5	S1
Hairy-stem Gooseberry	<i>Ribes hirtellum</i>	G5	S1
Hispid Hedge-nettle	<i>Stachys hispida</i>	GNR	S1
Hoary-pea	<i>Tephrosia virginiana</i>	G5	S1
Hooded Ladies'-tresses	<i>Spiranthes romanzoffiana</i>	G5	S1
Hooked Buttercup	<i>Ranunculus recurvatus</i> var. <i>recurvatus</i>	G5T5	S2
Hooker's Townsendia	<i>Townsendia hookeri</i>	G5	S1
Hook-spur Violet	<i>Viola adunca</i> var. <i>adunca</i>	G5T5	S1
Hop Sedge	<i>Carex lupulina</i>	G5	S1
Hudson Bay Anemone	<i>Anemone multifida</i> var. <i>multifida</i>	G5T5	S1
Indian Blanket-flower	<i>Gaillardia pulchella</i> var. <i>pulchella</i>	G4G5T4T5	S1S3
Indian-pipe	<i>Monotropa uniflora</i>	G5	S1
Indian-tobacco	<i>Lobelia inflata</i>	G5	S1
Inflated Duckweed	<i>Lemna gibba</i>	G4G5	S2
Inflated Sedge	<i>Carex vesicaria</i> var. <i>monile</i>	G5T4	S1
Intermountain Aster	<i>Symphyotrichum ascendens</i>	G5	S1
Iowa Crab Apple	<i>Malus ioensis</i> var. <i>ioensis</i>	G4G5T4T5	S1S3
James's Rush-pea	<i>Pomaria jamesii</i>	G5	S1
Joint-leaf Rush	<i>Juncus articulatus</i>	G5	S1
Kiss-me-quick	<i>Portulaca pilosa</i>	G5	S1
Lace Grass	<i>Eragrostis capillaris</i>	G5	S1
Lance-leaf Cottonwood	<i>Populus</i> × <i>acuminata</i>	GNA	S1
Large-leaf Pondweed	<i>Potamogeton amplifolius</i>	G5	S1
Lavender Giant-hyssop	<i>Agastache foeniculum</i>	G5	S1
Least Duckweed	<i>Lemna minuta</i>	G4	S1
Least Muhly	<i>Muhlenbergia minutissima</i>	G5	S1
Leopard-lily	<i>Fritillaria atropurpurea</i>	G5	S2
Lesser Bladderwort	<i>Utricularia minor</i>	G5	S1
Limber Pine	<i>Pinus flexilis</i>	G4	S1
Limestone Adder's-tongue	<i>Ophioglossum engelmannii</i>	G5	S1
Limestone Wild-petunia	<i>Ruellia strepens</i>	G4G5	S2
Loesel's Twayblade	<i>Liparis loeselii</i>	G5	S1
Long-barb Arrowhead	<i>Sagittaria longiloba</i>	G5	S1
Long-beak Willow	<i>Salix bebbiana</i>	G5	S1
Long-bract Green Orchid	<i>Dactylorhiza viridis</i>	G5	S1
Long-leaf Tick-clover	<i>Desmodium cuspidatum</i> var. <i>longifolium</i>	G5T5?	S1S3
Low Pussytoes	<i>Antennaria dimorpha</i>	G5	S1
Low Sedge	<i>Carex umbellata</i>	G5	S1

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Mare's-tail	<i>Hippuris vulgaris</i>	G5	S1
Marsh Arrow-grass	<i>Triglochin palustris</i>	G5	S1
Marsh Vetchling	<i>Lathyrus palustris</i>	G5	S1S3
Marsh-St. John's-wort	<i>Triadenum fraseri</i>	G5	S2
Mat Muhly	<i>Muhlenbergia richardsonis</i>	G5	S1
Menzies' Catchfly	<i>Silene menziesii</i>	G5	S1
Midwestern Summer Bluets	<i>Houstonia purpurea</i> var. <i>calycosa</i>	G5T5	S1
Missouri Spurge	<i>Euphorbia missurica</i> var. <i>missurica</i>	G5TNRS	S1S3
Montana Wild-rye	<i>Elymus albicans</i>	G5	S1
Moss Phlox	<i>Phlox bryoides</i>	G4Q	S2
Mountain Birch	<i>Betula occidentalis</i>	G5	S1
Mountain Bladder-pod	<i>Physaria montana</i>	G5	S2
Mountain Brome	<i>Bromus marginatus</i>	G5	S2
Mountain White-camas	<i>Anticlea elegans</i> var. <i>elegans</i>	G5T5	S1
Mud Sedge	<i>Carex limosa</i>	G5	S1
Mullein-foxglove	<i>Dasistoma macrophylla</i>	G4	S1
Nannyberry	<i>Viburnum lentago</i>	G5	S1
Narrow-leaf Cottonwood	<i>Populus angustifolia</i>	G5	S1
Narrow-leaf Hawkweed	<i>Hieracium umbellatum</i>	G5	S1
Narrow-leaf Mountain-mint	<i>Pycnanthemum tenuifolium</i>	G5	S1
Narrow-leaf Paleseed	<i>Leucospora multifida</i>	G5	S1
Narrow-leaf Pinweed	<i>Lechea tenuifolia</i>	G5	S1
Narrow-leaf Vervain	<i>Verbena simplex</i>	G5	S1
Nevada Bulrush	<i>Amphiscirpus nevadensis</i>	G4	S2
New Mexico Checker-mallow	<i>Sidalcea neomexicana</i> var. <i>neomexicana</i>	G4?TNRS	S1
Nodding Brome	<i>Bromus porteri</i>	G5	S2?
Nodding Mouse-ear Chickweed	<i>Cerastium nutans</i> var. <i>nutans</i>	G5T5	S1
Nodding Wild Onion	<i>Allium cernuum</i>	G5	S2
Nodding Wild-buckwheat	<i>Eriogonum cernuum</i>	G5	S1
Northern Adder's-tongue	<i>Ophioglossum pusillum</i>	G5	S2
Northern Dewberry	<i>Rubus flagellaris</i>	G5	S1
Northern Marsh Buttercup	<i>Ranunculus caricetorum</i>	G5	S1
Northern Shooting-star	<i>Primula pauciflora</i> var. <i>pauciflora</i>	G5T5	S2
Northern Water-starwort	<i>Callitriche hermaphroditica</i>	G5	S2
Northwest Territory Sedge	<i>Carex utriculata</i>	G5	S1
Notch-bract Waterleaf	<i>Hydrophyllum appendiculatum</i>	G5	S1
Ohio Buckeye	<i>Aesculus glabra</i> var. <i>arguta</i>	G5T4?QS	S1S2
Old-field Cinquefoil	<i>Potentilla simplex</i>	G5	S1
One-flower Broomrape	<i>Orobanche uniflora</i>	G5	S1
One-sided Wintergreen	<i>Orthilia secunda</i>	G5	S1
Ostrich Fern	<i>Matteuccia struthiopteris</i> var. <i>pennsylvanica</i>	G5T5	S1
Pale False-dandelion	<i>Agoseris glauca</i> var. <i>glauca</i>	G5T5	S1
Pale Fumewort	<i>Corydalis flavula</i>	G5	S1
Pale Gentian	<i>Gentiana alba</i>	G4	S1
Pale Goosefoot	<i>Chenopodium pallescens</i>	G5	S1
Pale Indian-plantain	<i>Arnoglossum atriplicifolium</i>	G4G5	S2
Pale Purple Coneflower	<i>Echinacea pallida</i>	G4	S1
Panicled Bulrush	<i>Scirpus microcarpus</i>	G5	S1
Pearly Everlasting	<i>Anaphalis margaritacea</i>	G5	S1

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Pennsylvania Bitter Cress	<i>Cardamine pennsylvanica</i>	G5	S1
Perennial Bursage	<i>Ambrosia tomentosa</i>	G4	S1
Perennial Gumweed	<i>Grindelia perennis</i>	G5	S1
Persimmon	<i>Diospyros virginiana</i>	G5	S1
Pine-drops	<i>Pterospora andromedea</i>	G5	S2
Pinesap	<i>Monotropa hypopitys</i>	G5	S1
Pitcher's Leather-flower	<i>Clematis pitcheri</i> var. <i>pitcheri</i>	G4G5TNR	S1
Plains Cutleaf Violet	<i>Viola viarum</i>	G5	S1
Plains Frostweed	<i>Crocanthemum bicknellii</i>	G5	S1S2
Platte River Cinquefoil	<i>Potentilla plattensis</i>	G4	S1
Playa Lovegrass	<i>Eragrostis pilosa</i> var. <i>perplexa</i>	G4TNR	S1
Poison Suckle	<i>Suckleya suckleyana</i>	G5	S1
Poverty Oatgrass	<i>Danthonia spicata</i>	G5	S1
Prairie Bluebells	<i>Mertensia lanceolata</i> var. <i>lanceolata</i>	G5T5	S2
Prairie Broomweed	<i>Amphiachyris dracunculoides</i>	G4G5	S1S2
Prairie Buttercup	<i>Ranunculus rhomboideus</i>	G5	S1
Prairie Fawn-lily	<i>Erythronium mesochoreum</i>	G4G5	S2
Prairie Ninebark	<i>Physocarpus intermedius</i>	G3G5	S2
Prairie Pinweed	<i>Lechea stricta</i>	G4?	S1
Prickly Naiad	<i>Najas marina</i>	G5	S1
Prince's-plume	<i>Stanleya pinnata</i> var. <i>pinnata</i>	G5T4T5	S1
Pull-up Muhly	<i>Muhlenbergia filiformis</i>	G5	S1
Purple Cudweed	<i>Gamochaeta purpurea</i>	G5	S1
Purple Giant-hyssop	<i>Agastache scrophulariifolia</i>	G4	S1
Purple Milkweed	<i>Asclepias purpurascens</i>	G5?	S2
Purple Rattlesnake-root	<i>Prenanthes racemosa</i> var. <i>multiflora</i>	G5T4?	S1
Purple Spikerush	<i>Eleocharis atropurpurea</i>	G4G5	S1
Purple-stem Cliff-brake	<i>Pellaea atropurpurea</i>	G5	S2
Quaking Aspen	<i>Populus tremuloides</i>	G5	S1S3
Ramp	<i>Allium tricoccum</i> var. <i>burdickii</i>	G5T4T5	S2
Raven-foot Sedge	<i>Carex crus-corvi</i>	G5	S1
Red Lovegrass	<i>Eragrostis secundiflora</i> var. <i>capitata</i>	G5TNR	S1
Red Raspberry	<i>Rubus strigosus</i>	G5	S1
Red-seed Plantain	<i>Plantago rhodosperma</i>	GNR	S1
Rillscale	<i>Stutzia dioica</i>	G4	S1
River Grass	<i>Scolochloa festucacea</i>	G5	S1
Rockpink Fame-flower	<i>Phemeranthus calycinus</i>	G5	S1S2
Rocky Mountain Fescue	<i>Festuca saximontana</i> var. <i>saximontana</i>	G5T5	S1
Rocky Mountain Gayfeather	<i>Liatris ligulistylis</i>	G5?	S1
Rocky Mountain Iris	<i>Iris missouriensis</i>	G5	S1
Rocky Mountain Knotweed	<i>Polygonum sawatchense</i> ssp. <i>sawatchense</i>	G4G5TNR	S2
Rocky Mountain Navarretia	<i>Navarretia saximontana</i>	G4?	S1
Rose Heath Daisy	<i>Chaetopappa ericoides</i>	G5	S2
Rough Buttonweed	<i>Diodia teres</i> var. <i>teres</i>	G5T5	S1
Rough-fruit Fairybells	<i>Prosartes trachycarpa</i>	G5	S1
Round-head Prairie-clover	<i>Dalea multiflora</i>	G5	S1
Round-pod St. John's-wort	<i>Hypericum sphaerocarpum</i>	G5	S1
Round-stem False Foxglove	<i>Agalinis gattereri</i>	G4	S1S3
Sagebrush Buttercup	<i>Ranunculus glaberrimus</i> var. <i>ellipticus</i>	G5T5	S1

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Saltmarsh Aster	<i>Symphyotrichum subulatum</i>	G5	S1S3
Sandberg's Beggar-ticks	<i>Bidens connata</i> var. <i>gracilipes</i>	G5TNR	S1
Saskatchewan Cinquefoil	<i>Potentilla effusa</i> var. <i>effusa</i>	G5?	TNR
Scribner's Groundsel	<i>Senecio scribneri</i>	G2G3	S1
Sea Milkwort	<i>Lysimachia maritima</i>	G5	S1
Seaside Heliotrope	<i>Heliotropium curassavicum</i> var. <i>curassavicum</i>	G5T5	S1
Seaside Heliotrope	<i>Heliotropium curassavicum</i> var. <i>obovatum</i>	G5T5	S1
Secund Bladder-Pod	<i>Physaria arenosa</i> var. <i>arenosa</i>	G5T5	S1
Seep Monkey-Flower	<i>Mimulus guttatus</i>	G5	S1
Seneca Snakeroot	<i>Polygala senega</i>	G4G5	S1
Sessile-leaf Tick-clover	<i>Desmodium sessilifolium</i>	G5	S1
Sharpwing Monkey-flower	<i>Mimulus alatus</i>	G5	S1S2
Shining Sumac	<i>Rhus copallinum</i> var. <i>latifolia</i>	G5T5	S1
Short-pod Draba	<i>Draba brachycarpa</i>	G4G5	S1
Short-ray Fleabane	<i>Erigeron lonchophyllus</i>	G5	S1
Short-ray Prairie-coneflower	<i>Ratibida tagetes</i>	G4G5	S1
Short's Rock Cress	<i>Boechera dentata</i>	G5	S2
Short-seed Waterwort	<i>Elatine brachysperma</i>	G5	S1
Short-stem Wild-buckwheat	<i>Eriogonum brevicaule</i> var. <i>brevicaule</i>	G4T4?	S1
Showy Orchid	<i>Galearis spectabilis</i>	G5	S1
Showy-wand Goldenrod	<i>Solidago speciosa</i> var. <i>pallida</i>	G5T4	S1
Silverweed	<i>Potentilla anserina</i>	G5	S1
Slender Cotton-grass	<i>Eriophorum gracile</i>	G5	S2
Slender Ladies'-tresses	<i>Spiranthes lacera</i> var. <i>gracilis</i>	G5T4T5	S1
Slender Lip Fern	<i>Cheilanthes feei</i>	G5	S2
Slender Yellow Cress	<i>Rorippa tenerrima</i>	G5	S1
Slender-leaf Spring-panicum	<i>Dichanthelium linearifolium</i>	G5	S1
Slim-flower Muhly	<i>Muhlenbergia tenuiflora</i>	G5	S1
Slim-leaf Scurf-pea	<i>Pediomelum linearifolium</i>	G4?	S1
Small Bluets	<i>Houstonia pusilla</i>	G5	S1
Small Sundrops	<i>Oenothera perennis</i>	G5	S2
Small Venus's-looking-glass	<i>Triodanis biflora</i>	G5	S1
Small-flower Bitter Cress	<i>Cardamine parviflora</i>	G5	S1
Small-flower Prairie-star	<i>Lithophragma parviflora</i>	G5	S1
Small-flower Sandpuffs	<i>Tripterocalyx micranthus</i>	G5	S1
Small-flower Wallflower	<i>Erysimum inconspicuum</i>	G5	S2
Smith's Hybrid Aspen	<i>Populus</i> × <i>smithii</i>	GNA	S1
Smooth Cliff-brake	<i>Pellaea glabella</i> var. <i>glabella</i>	G5T5	S1
Smooth False Foxglove	<i>Agalinis purpurea</i>	G5	S1S3
Soft Rush	<i>Juncus effusus</i> var. <i>solutus</i>	G5T5	S1
Smooth Four-o'clock	<i>Mirabilis glabra</i>	G5	S2
Southern Chervil	<i>Chaerophyllum tainturieri</i> var. <i>tainturieri</i>	G5T4T5	S1
Southern Wild Senna	<i>Senna marilandica</i>	G5	S1S3
Spike Hawthorn	<i>Crataegus macracantha</i> var. <i>occidentalis</i>	G5TNR	S1
Spikebent	<i>Agrostis exarata</i> var. <i>minor</i>	G5TNRQ	S1
Spiked Muhly	<i>Muhlenbergia glomerata</i>	G5	S2
Spike-fescue	<i>Leucopoa kingii</i>	G5	S2
Spikenard	<i>Aralia racemosa</i>	G5	S1
Spinulose Wood Fern	<i>Dryopteris carthusiana</i>	G5	S2

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Spotted Evening-primrose	<i>Oenothera canescens</i>	G4G5	S2
Spotted St. John's-wort	<i>Hypericum punctatum</i>	G5	S1
Spreading Fleabane	<i>Erigeron divergens</i>	G5	S2
Spreading Pygmyleaf	<i>Loeflingia squarrosa</i> var. <i>texana</i>	G5T4?	S1
Spring Avens	<i>Geum vernum</i>	G5	S1
Spring Bitter Cress	<i>Cardamine bulbosa</i>	G5	S1S3
Spring Coral-root	<i>Corallorhiza wisteriana</i>	G5	S1
Spring Forget-me-not	<i>Myosotis verna</i>	G5	S1
Spring Ladies'-tresses	<i>Spiranthes vernalis</i>	G5	S1S3
Starved Spring-panicum	<i>Dichanthelium depauperatum</i>	G5	S1
Stickleaf	<i>Mentzelia oligosperma</i>	G4	S1
Sticky Crane's-bill	<i>Geranium viscosissimum</i>	G5	S1
Straight-leaf Pondweed	<i>Potamogeton strictifolius</i>	G5	S1
Streambank Ragwort	<i>Packera pseud aurea</i> var. <i>semicordata</i>	G5T3T5S1	
Striped Coral-Root	<i>Corallorhiza striata</i> var. <i>vreelandii</i>	G5T3T5S1	
Sugarbowls	<i>Clematis hirsutissima</i> var. <i>scottii</i>	G4T4?	S1
Summer Coral-root	<i>Corallorhiza maculata</i> var. <i>occidentalis</i>	G5T3T5S1	
Summer Grape	<i>Vitis aestivalis</i> var. <i>aestivalis</i>	G5T5	S1
Summer Orophaca	<i>Astragalus hyalinus</i>	G4	S2
Tall Cotton-grass	<i>Eriophorum angustifolium</i> var. <i>angustifolium</i>	G5T5	S2
Taper-tip Rush	<i>Juncus acuminatus</i>	G5	S1
Texas Bergia	<i>Bergia texana</i>	G5	S1
Texas Dropseed	<i>Sporobolus texanus</i>	G5	S1
Texas Sandwort	<i>Minuartia michauxii</i> var. <i>texana</i>	G5T3T5S2	
Texas Sedge	<i>Carex texensis</i>	G5	S1
Thick-spike Gayfeather	<i>Liatris pycnostachya</i> var. <i>pycnostachya</i>	G5T5	S1S3
Thread-leaf Pondweed	<i>Stuckenia filiformis</i> var. <i>occidentalis</i>	G5T5	S1
Three-flower Melic Grass	<i>Melica nitens</i>	G5	S1
Three-nerve Fleabane	<i>Erigeron subtrinervis</i>	G5	S2
Tine-leaf Milk-vetch	<i>Astragalus pectinatus</i>	G5	S1
Tube Penstemon	<i>Penstemon tubiflorus</i> var. <i>tubiflorus</i>	G5T4T5S1	
Tuberous False Dandelion	<i>Pyrrhopappus grandiflorus</i>	G5	S1
Tufted Fleabane	<i>Erigeron caespitosus</i>	G5	S2
Twisted Yellow-eyed-grass	<i>Xyris torta</i>	G5	S2
Two-leaf Waterweed	<i>Elodea bifoliata</i>	G4G5	S1
Vernal Water-starwort	<i>Callitriche palustris</i>	G5	S2
Violet Lespedeza	<i>Lespedeza violacea</i>	G5	S1
Virginia Spring-beauty	<i>Claytonia virginica</i>	G5	S1
Water Dock	<i>Rumex verticillatus</i>	G5	S1
Water Horsetail	<i>Equisetum fluviatile</i>	G5	S1
Water Sedge	<i>Carex aquatilis</i> var. <i>substricta</i>	G5TNRS2	
Watershield	<i>Brasenia schreberi</i>	G5	S2
Water-thread Pondweed	<i>Potamogeton diversifolius</i>	G5	S2
Wax-flower Shinleaf	<i>Pyrola elliptica</i>	G5	S1
Wedge-leaf Draba	<i>Draba cuneifolia</i> var. <i>cuneifolia</i>	G5T5	S1
Welsh's Bugseed	<i>Corispermum welshii</i>	G2G4	S1
Western Marsh Cudweed	<i>Gnaphalium palustre</i>	G5	S1S3
Western Prairie Flax	<i>Linum lewisii</i> var. <i>lewisii</i>	G5T5	S1
Western Rattlesnake-plantain	<i>Goodyera oblongifolia</i>	G5	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Whip Nut-Rush	<i>Scleria triglomerata</i>	G5	S1S2
White Arrow-leaf Aster	<i>Symphyotrichum urophyllum</i>	G4G5	S1
White Baneberry	<i>Actaea pachypoda</i>	G5	S1
White Bear Sedge	<i>Carex albursina</i>	G5	S1
White Oak	<i>Quercus alba</i>	G5	S1
White Water-lily	<i>Nymphaea odorata</i> ssp. <i>tuberosa</i>	G5T5	S1S3
White Woodland Aster	<i>Symphyotrichum lateriflorum</i>	G5	S1
White-scale Sedge	<i>Carex xerantica</i>	G5	S2
White-stem Blazing-star	<i>Mentzelia albicaulis</i>	G5	S1
White-stem Pondweed	<i>Potamogeton praelongus</i>	G5	S1
Whorled Water-milfoil	<i>Myriophyllum verticillatum</i>	G5	S1
Wild Geranium	<i>Geranium maculatum</i>	G5	S1
Wild Yam	<i>Dioscorea villosa</i>	G4G5	S1
Wild-goose Plum	<i>Prunus hortulana</i>	G4?	S1
Wire-lettuce	<i>Stephanomeria runcinata</i>	G5	S2
Wood Mint	<i>Blephilia hirsuta</i>	G5?	S1
Wool-grass	<i>Scirpus cyperinus</i>	G5	S1
Woolly-fruit Sedge	<i>Carex lasiocarpa</i> var. <i>americana</i>	G5T5	S1
Yellow Lady's-slipper	<i>Cypripedium parviflorum</i>	G5	S1
Yellow Marsh-marigold	<i>Caltha palustris</i>	G5	S2
Yellow Pond-lily	<i>Nuphar variegata</i>	G5	S2
Yellow Stonecrop	<i>Sedum lanceolatum</i> var. <i>lanceolatum</i>	G5T5	S2
Yellow Valley Violet	<i>Viola vallicola</i>	G5?	S2
Yellow Vetchling	<i>Lathyrus ochroleucus</i>	G5	S2
Yellow-fruit Sedge	<i>Carex brachyglossa</i>	G5	S1S3
Zigzag Goldenrod	<i>Solidago flexicaulis</i>	G5	S1

Section 4: 2018 Changes to the Tier 1 and Tier 2 Lists

Added to Tier 1 list

	<u>Common Name</u>	<u>Scientific Name</u>	<u>2011 Legacy Status</u>	<u>2018 Legacy Status</u>
Birds				
	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>		Tier 1
	Black-billed Magpie	<i>Pica hudsonia</i>	Tier 2	Tier 1
	Black Tern	<i>Chlidonias niger</i>	Tier 2	Tier 1
Crustaceans				
	Ornate Fairy Shrimp	<i>Eubbranchipus ornatus</i>		Tier 1
	Potassium-loving Fairy Shrimp	<i>Branchinecta potassa</i>		Tier 1
Fishes				
	Flathead Chub	<i>Platygobio gracilis</i>	Tier 2	Tier 1
	Plains Minnow	<i>Hybognathus placitus</i>	Tier 2	Tier 1
	Western Silvery Minnow	<i>Hybognathus argyritis</i>	Tier 2	Tier 1
Insects				
	Byssus Skipper	<i>Problema byssus kumskaka</i>	Tier 2	Tier 1
	Fox Mayfly	<i>Cercobrachys fox</i>	Tier 2	Tier 1
	Hourglass Drone Fly	<i>Eristalis brousii</i>		Tier 1
	Kohler's Fritillary	<i>Boloria selene sabulocollis</i>		Tier 1
	Lakota Mayfly	<i>Apobaetis lakota</i>	Tier 2	Tier 1
	Lichen Grasshopper	<i>Trimerotropis saxatilis</i>		Tier 1
	Long-nosed Mayfly	<i>Sparbarus nasutus</i>	Tier 2	Tier 1
	Monarch	<i>Danaus plexippus</i>		Tier 1
	Nebraska Fritillary	<i>Boloria selene nebraskensis</i>	Tier 2	Tier 1
	Pawnee Stonefly	<i>Perlesta xube</i>	Tier 2	Tier 1
	Sandy Tiger Beetle	<i>Cicindela limbata limbata</i>		Tier 1
	Smoky-eyed Brown	<i>Lethe eurydice fumosa</i>	Tier 2	Tier 1
	Southern Plains Bumble Bee	<i>Bombus fraternus</i>		Tier 1
	Suckley's Cuckoo Bumble Bee	<i>Bombus suckleyi</i>		Tier 1
	Two-lined Stonefly	<i>Perlesta golconda</i>	Tier 2	Tier 1
	Two-spotted Skipper	<i>Euphyes bimacula illinois</i>		Tier 1
	Western Bumble Bee	<i>Bombus occidentalis occidentalis</i>		Tier 1
	Winnebago Mayfly	<i>Cercobrachys winnebago</i>		Tier 1

Added to Tier 1 list cont.

	<u>Common Name</u>	<u>Scientific Name</u>	<u>2011 Legacy Status</u>	<u>2018 Legacy Status</u>
Mammals				
	Eastern Little Brown Bat	<i>Myotis lucifugus lucifugus</i>		Tier 1
	Eastern Red Bat	<i>Lasiurus borealis</i>		Tier 1
	Hoary Bat	<i>Lasiurus cinereus</i>		Tier 1
	Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Tier 2	Tier 1
	Plains Spotted Skunk	<i>Spilogale putorius interupta</i>	Tier 2	Tier 1
	Silver-haired Bat	<i>Lasionycteris noctivagans</i>		Tier 1
	Tricolored Bat	<i>Perimyotis subflavus</i>		Tier 1
Mollusks				
	Niobrara Ambersnail	<i>Oxyloma haydeni</i>	Tier 2	Tier 1
	Oxbow Snail	<i>Galba (Fossaria) cockerelli</i>		Tier 1
Reptiles				
	Glossy Snake	<i>Arizona elegans</i>	Tier 2	Tier 1
	Red-bellied Snake	<i>Storeria occipitomaculata</i>	Tier 2	Tier 1

Removed from Tier 1 list

Birds				
	Bell's Vireo	<i>Vireo bellii</i>	Tier 1	
	Cerulean Warbler	<i>Setophaga cerulea</i>	Tier 1	
	Greater Prairie-Chicken	<i>Tympanuchus cupido</i>	Tier 1	Tier 2
	Trumpeter Swan	<i>Cygnus buccinator</i>	Tier 1	Tier 2
Mammals				
	North American River Otter	<i>Lontra canadensis</i>	Tier 1	
	Plains Harvest Mouse	<i>Reithrodontomys montanus griseus</i>	Tier 1	
Mollusks				
	Higgins Eye	<i>Lampsilis higginsii</i>	Tier 1	

Added to Tier 2 list

Amphibians				
	Blanchard's Cricket Frog	<i>Acris blanchardi</i>		Tier 2
	Northern Leopard Frog	<i>Lithobates pipiens</i>		Tier 2

Added to Tier 2 list cont.

	<u>Common Name</u>	<u>Scientific Name</u>	<u>2011 Legacy Status</u>	<u>2018 Legacy Status</u>
Birds	American Avocet	<i>Recurvirostra americana</i>		Tier 2
	Bullock's Oriole	<i>Icterus bullockii</i>		Tier 2
	Eastern Meadowlark	<i>Sturnella magna</i>		Tier 2
	Greater Prairie-chicken	<i>Tympanuchus cupido</i>	Tier 1	Tier 2
	Marsh Wren	<i>Cistothorus palustris</i>		Tier 2
	Northern Pintail	<i>Anas acuta</i>		Tier 2
	Pied-billed Grebe	<i>Podilymbus podiceps</i>		Tier 2
	Trumpeter Swan	<i>Cygnus buccinator</i>	Tier 1	Tier 2
	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>		Tier 2
Fishes	Longnose Sucker	<i>Catostomus catostomus</i>		Tier 2
	Shoal Chub	<i>Macrhybopsis hyostoma</i>		Tier 2
	Silver Chub	<i>Macrhybopsis storeriana</i>		Tier 2
	Skipjack Herring	<i>Alosa chrysochloris</i>		Tier 2
Insects	Agrippina Underwing	<i>Catocala agrippina</i>		Tier 2
	Aholibah Underwing	<i>Catocala aholibah</i>		Tier 2
	Hermia's Underwing	<i>Catocala hermia</i>		Tier 2
	Mottled Little Skipper	<i>Amblyscirtes nysa</i>		Tier 2
	Nevada Tiger Beetle	<i>Cicindela nevadica knausii</i>		Tier 2
	Obscure Underwing	<i>Catocala obscura</i>		Tier 2
	Pine White	<i>Neophasia menapia</i>		Tier 2
	Sagebrush Buck Moth	<i>Hemileuca hera</i>		Tier 2
	Spring White	<i>Pieris (Pontia) sisymbrii nordini</i>		Tier 2
	Ulalume Underwing	<i>Catocala ulalume</i>		Tier 2
	Variable Cuckoo Bumble Bee	<i>Bombus variabilis</i>		Tier 2
	Variable Tiger Beetle	<i>Cicindela terricola cinctipennis</i>		Tier 2
	Woodland Grasshopper	<i>Paratylotropidia brunneri</i>		Tier 2
Mammals	Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>		Tier 2
Plants	Dwarf Juniper	<i>Juniperus communis</i>		Tier 2
	Dwarf Phlox	<i>Microsteris gracilis</i>		Tier 2
	Eastern Cleomella	<i>Cleomella angustifolia</i>		Tier 2
	False Melic	<i>Schizachne purpurascens</i>		Tier 2
Reptiles	Dekay's Brownsnake	<i>Storeria dekayi</i>		Tier 2
	Western Foxsnake	<i>Pantherophis ramspotti</i>		Tier 2

Removed from Tier 2 list

	<u>Common Name</u>	<u>Scientific Name</u>	<u>2011 Legacy Status</u>	<u>2018 Legacy Status</u>
Birds	Black-billed Magpie	<i>Pica hudsonia</i>	Tier 2	Tier 1
	Black Tern	<i>Chlidonias niger</i>	Tier 2	Tier 1
	Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	Tier 2	
	Carolina Wren	<i>Thryothorus ludovicianus</i>	Tier 2	
	Clark's Nutcracker	<i>Nucifraga columbiana</i>	Tier 2	
	Sedge Wren	<i>Cistothorus platensis</i>	Tier 2	
	Sharp-shinned Hawk	<i>Accipiter striatus</i>	Tier 2	
	Swainson's Hawk	<i>Buteo swainsoni</i>	Tier 2	
	White-eyed Vireo	<i>Vireo griseus</i>	Tier 2	
	White-faced Ibis	<i>Plegadis chihi</i>	Tier 2	
	Wilson's Snipe	<i>Gallinago delicata</i>	Tier 2	
Fishes	Blackside Darter	<i>Percina maculata</i>	Tier 2	
	Bowfin	<i>Amia calva</i>	Tier 2	
	Chestnut Lamprey	<i>Ichthyomyzon castaneus</i>	Tier 2	
	Flathead Chub	<i>Platygobio gracilis</i>	Tier 2	Tier 1
	Lake Chub	<i>Couesius plumbeus</i>	Tier 2	
	Plains Minnow	<i>Hybognathus placitus</i>	Tier 2	Tier 1
	Silver Lamprey	<i>Ichthyomyzon unicuspis</i>	Tier 2	
	Trout Perch	<i>Percopsis omiscomaycus</i>	Tier 2	
Western Silvery Minnow	<i>Hybognathus argyritis</i>	Tier 2	Tier 1	
Insects	Acadian Hairstreak	<i>Satyrium acadicum</i>	Tier 2	
	Arogos Skipper	<i>Atrytone arogos</i>	Tier 2	
	Byssus Skipper	<i>Problema byssus kumskaka</i>	Tier 2	Tier 1
	Delaware Skipper	<i>Atrytone logan</i>	Tier 2	
	Delilah Underwing	<i>Catocala delilah</i>	Tier 2	
	Fiery Skipper	<i>Hylephila phyleus</i>	Tier 2	
	Fox Mayfly	<i>Cercobrachys fox</i>	Tier 2	Tier 1
	Hairy Duskywing	<i>Erynnis persius fredericki</i>	Tier 2	
	Lakota Mayfly	<i>Apobaetis lakota</i>	Tier 2	Tier 1
	Long-nosed Mayfly	<i>Sparbarus nasutus</i>	Tier 2	Tier 1
	Pawnee Stonefly	<i>Perlesta xube</i>	Tier 2	Tier 1
	Silver-bordered Fritillary	<i>Boloria selene</i>	Tier 2	Tier 1
	Sleepy Orange	<i>Eurema nicippe</i>	Tier 2	
	Smoky-eyed Brown	<i>Lethe eurydice fumosa</i>	Tier 2	Tier 1
	Two-lined Stonefly	<i>Perlesta golconda</i>	Tier 2	Tier 1

Removed from Tier 2 list cont.

	<u>Common Name</u>	<u>Scientific Name</u>	<u>2011 Legacy Status</u>	<u>2018 Legacy Status</u>
Mammals	Black-tailed Jackrabbit	<i>Lepus californicus</i>	Tier 2	
	Eastern Pipistrelle	<i>Pipistrellus subflavus</i>	Tier 2	Tier 1
	Eastern Spotted Skunk	<i>Spilogale putorius</i>	Tier 2	Tier 1
	Eastern Woodrat	<i>Neotoma floridana</i>	Tier 2	
	Evening Bat	<i>Nycticeius humeralis</i>	Tier 2	
	Hispid Cotton Rat	<i>Sigmodon hispidus</i>	Tier 2	
	Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Tier 2	Tier 1
	Mollusks	Black Sandshell	<i>Ligumia recta</i>	Tier 2
Niobrara Ambersnail		<i>Oxyloma haydeni</i>	Tier 2	Tier 1
Wabash Pigtoe		<i>Fusconaia flava</i>	Tier 2	
Plants	Alkali Blite	<i>Chenopodium rubrum</i> var. <i>humile</i>	Tier 2	
	Bog Rush	<i>Juncus biflorus</i>	Tier 2	
	Bog White Violet	<i>Viola lanceolata</i>	Tier 2	
	Broad-leaf Milkweed	<i>Asclepias latifolia</i>	Tier 2	
	Buffalo Clover	<i>Trifolium reflexum</i>	Tier 2	
	Camphor-weed	<i>Heterotheca latifolia</i>	Tier 2	
	Chaffweed	<i>Anagallis minima</i>	Tier 2	
	Curly Three-awn	<i>Aristida desmantha</i>	Tier 2	
	Cursed Crowfoot	<i>Ranunculus sceleratus</i> var. <i>multifidus</i>	Tier 2	
	Dusty-maiden	<i>Chaenactis douglasii</i> var. <i>douglasii</i>	Tier 2	
	Dwarf Skullcap	<i>Scutellaria parvula</i>	Tier 2	
	Erect Knotweed	<i>Polygonum erectum</i>	Tier 2	
	Few-flower Spikerush	<i>Eleocharis quinqueflora</i>	Tier 2	
	Fireweed	<i>Chamerion angustifolium</i>	Tier 2	
	Golden-glow	<i>Rudbeckia laciniata</i> var. <i>ampla</i>	Tier 2	
	Goldenweed	<i>Grindelia ciliata</i>	Tier 2	
	Grass-leaf Arrowhead	<i>Sagittaria graminea</i>	Tier 2	
	Great Basin Wild-rye	<i>Leymus cinereus</i>	Tier 2	
	Great Plains Flatsedge	<i>Cyperus lupulinus</i> ssp. <i>macilentus</i>	Tier 2	
	Hairy Goldenaster	<i>Heterotheca villosa</i> var. <i>minor</i>	Tier 2	
	Hoary-aster	<i>Dieteria canescens</i> var. <i>glabra</i>	Tier 2	
	Inland Serviceberry	<i>Amelanchier interior</i>	Tier 2	
	James' Nailwort	<i>Paronychia jamesii</i> var. <i>jamesii</i>	Tier 2	
May-apple	<i>Podophyllum peltatum</i>	Tier 2		
Mutton Grass	<i>Poa fendleriana</i>	Tier 2		

Removed from Tier 2 list cont.

	<u>Common Name</u>	<u>Scientific Name</u>	<u>2011 Legacy Status</u>	<u>2018 Legacy Status</u>
Plants cont.	Narrow-leaf False Foxglove	<i>Agalinis tenuifolia</i> var. <i>macrophylla</i>	Tier 2	
	Northern Manna Grass	<i>Glyceria borealis</i>	Tier 2	
	Northwestern Lady Fern	<i>Athyrium filix-femina</i> var. <i>cyclosorum</i>	Tier 2	
	Pinnate Tansy Mustard	<i>Descurainia pinnata</i> var. <i>osmiarum</i>	Tier 2	
	Plains Blackberry	<i>Rubus laudatus</i>	Tier 2	
	Poverty Sumpweed	<i>Iva axillaris</i> var. <i>axillaris</i>	Tier 2	
	Powdery Cloak Fern	<i>Argyrochosma dealbata</i>	Tier 2	
	Prairie White Aster	<i>Symphotrichum falcatum</i> var. <i>falcatum</i>	Tier 2	
	Rocky Mountain Maple	<i>Acer glabrum</i>	Tier 2	
	Rose Highbush Blackberry	<i>Rubus rosa</i>	Tier 2	
	Rosinweed	<i>Silphium integrifolium</i> var. <i>integrifolium</i>	Tier 2	
	Ross' Sedge	<i>Carex rossii</i>	Tier 2	
	Rough-pod Copperleaf	<i>Acalypha ostryifolia</i>	Tier 2	
	Round-leaf Bladder-pod	<i>Physaria ovalifolia</i> var. <i>ovalifolia</i>	Tier 2	
	Rydberg's Wild-rye	<i>Elymus vulpinus</i>	Tier 2	
	Saltmarsh Sand-spurry	<i>Spergularia salina</i>	Tier 2	
	Sandbar Lovegrass	<i>Eragrostis frankii</i>	Tier 2	
	Slender Fimbry	<i>Fimbristylis autumnalis</i>	Tier 2	
	Snowberry	<i>Symphoricarpos albus</i>	Tier 2	
	Spotted Water-hemlock	<i>Cicuta maculata</i> var. <i>bolanderi</i>	Tier 2	
	Sticky Gilia	<i>Aliciella pinnatifida</i>	Tier 2	
	Texas Toadflax	<i>Nuttallanthus texanus</i>	Tier 2	
	Vahl's Fimbry	<i>Fimbristylis vahlii</i>	Tier 2	
Veiny Pepper-grass	<i>Lepidium oblongum</i> var. <i>oblongum</i>	Tier 2		
Virginia Wild-rye	<i>Elymus virginicus</i> var. <i>intermedius</i>	Tier 2		
White Boltonia	<i>Boltonia asteroides</i> var. <i>latisquama</i>	Tier 2		
Reptiles	Glossy Snake	<i>Arizona elegans</i>	Tier 2	Tier 1
	Red-bellied Snake	<i>Storeria occipitomaculata</i>	Tier 2	Tier 1

Appendix 1: Species Experts Contributing to the SGCN List Revision

Birds

Mike Fritz	Nebraska Game and Parks Commission
Joel Jorgensen	Nebraska Game and Parks Commission
Wayne Mollhoff	Nebraska Ornithologists' Union
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Fishes

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Mike Fritz	Nebraska Game and Parks Commission
Sarah Gaughan	University of Nebraska - Omaha
Robert Hrabik	Missouri Department of Conservation
Gerald Mestl	Nebraska Game and Parks Commission
Steve Schainost	Nebraska Game and Parks Commission
David Schumacher	Nebraska Department of Environmental Quality

Insects

Mathew L. Brust	Chadron State College
Neil Dankert	
Mike Fritz	Nebraska Game and Parks Commission
Steve Spomer	University of Nebraska - Lincoln

Reptiles and Amphibians

Dennis Ferraro	University of Nebraska - Lincoln
Dan Fogell	Southeast Community College
Mike Fritz	Nebraska Game and Parks Commission
Colleen Rothe-Groleau	Nebraska Game and Parks Commission

Mammals

Mike Fritz	Nebraska Game and Parks Commission
Keith Geluso	University of Nebraska - Kearney
Cliff Lemen	
Jeremy White	University of Nebraska – Omaha
Sam Wilson	Nebraska Game and Parks Commission

Mollusks

Mike Fritz	Nebraska Game and Parks Commission
Steve Schainost	Nebraska Game and Parks Commission

Plants

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Appendix 2: Natural Heritage Conservation Status Ranks

Natural Heritage conservation status ranks are assigned using a standardized methodology developed by NatureServe and the network of Natural Heritage Programs (NHP) (Faber-Langendoen 2012, Master 2012). This system is used by NatureServe and all NHPs to identify rare and imperiled species at both a global and state scale. NatureServe has the primary responsibility for developing global ranks and each NHP has responsibility for developing state ranks for their state. A rank calculator tool developed by NatureServe automatically calculates a species rank when information on rank factors is entered.

During our re-evaluation of state ranks (S-ranks) for the SGCN list revision, the ranking factors listed below were considered. Ranking factors were evaluated with regard to the species' populations within Nebraska. It is not necessary to include information on all factors in order to develop an S-Rank. For many species, there was not adequate information for some factors.

1. Range Extent

The area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred, or projected sites of present occurrence of the species within Nebraska, excluding cases of vagrancy. This is used to determine the degree to which risks from threats are spread out over a geographic area.

2. Population Size

The number of mature individuals in the state.

3. Number of Occurrences

Occurrence: The geographic location within which a species is known to occur and reproduce, separated from other occurrences by less suitable or unoccupied habitat. Examples include populations, sub-populations, stands, colonies, etc.

4. Number of Occurrences with Good Viability

An occurrence with good viability exhibits favorable characteristics with regard to population size/structure and quality/quantity of habitat. If current conditions prevail, the occurrence is likely to persist for the next 20-30 years in its current condition or better.

5. Trends

The observed, estimated, inferred, or suspected degree of change in population size, range extent, number of occurrences, and/or number of occurrences with good viability - whichever most significantly affects the trend value in the state. Trends were evaluated for both long-term (~ last 200 years) and short term (last 10 years or 3 generations, whichever is longer up to 100 years).

6. Threats

Evaluation of direct threats that are presently occurring or likely to occur in the near future. The threat score is a combination of scope of the threat and the threat severity.

Definitions of the State Conservation Status Ranks

Rank	Definition
SX	Presumed Extirpated —Species is believed to be extirpated from the state. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH	Possibly Extirpated – Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the state, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the state.
S1	Critically Imperiled — At very high risk of extirpation in the state due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
S2	Imperiled — At high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3	Vulnerable — At moderate risk of extirpation in the state due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4	Apparently Secure — At a fairly low risk of extirpation in the state due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5	Secure — At very low or no risk of extirpation in the state due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

Variant State Conservation Status Ranks

Rank	Definition
S#S#	Range Rank —A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).
SU	Unrankable —Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNR	Unranked —State conservation status not yet assessed
SNA	Not Applicable —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

Note: the global status rank (G-rank) definitions are similar but use the world rather than the state as a geographic reference and refer to the risk of extinction rather than extirpation.

For a species with a G-rank of G3G4, indicating uncertainty about the precise rank, the rank was rounded to G3 and the species qualified for Tier 1 Natural Legacy status. Similarly, species ranked S3S4 qualified for the Tier 2 list.

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