

## **Appendix 8: Tier I At-risk species.**

Tier I 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 I 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 I list was reviewed and revised with input from taxon experts in workshops held in 2010.

Species were selected for the Tier I when 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 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) species 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.

Following the list of Tier I species is information on each one. Fields that are not self-explanatory are described below.

**G-Rank, S-Rank:** Explanation of ranks is found in Appendix 4.

**Goal:** The minimum number of populations to be conserved in Nebraska (see Chapter 3).

**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).

- Endemic: species occurs only within NE or generally have more than 90% of their 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 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. For estimates based on publications, the publications are cited here and listed in the references section. 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 I 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 those attending the taxon experts workshops in 2010.

**Threats:** Climate Change Vulnerability Index: Climate change vulnerability assessments were conducted for all Tier I 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 for which there were known occurrences of populations (or migratory stopover sites) for the species.

**Tier I At-risk Species**

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

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Married Underwing	289	Saltwort	311
Mottled Duskywing	290	Sandhill Goosefoot	312
Nine-spotted Ladybird Beetle	290	Short's Milkvetch	312
Ottoo Skipper	291	Small White Lady's-slipper	313
Platte River Caddisfly	291	Snow Trillium	313
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Salt Creek Tiger Beetle	292	Western Prairie Fringed Orchid	314
Tawny Crescent	293	Wolf's Spikerush	315
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## Tier I At-risk Species in each Ecoregion

		ECOREGIONS				
		Tallgrass Prairie	Mixedgrass Prairie	Shortgrass Prairie	Sandhills	
<u>TIER I SPECIES</u>						
BIRDS	Baird's Sparrow		x	x	x	
	Bell's Vireo	x	x	x	x	
	Brewer's Sparrow			x		
	Buff-breasted Sandpiper	x	x			
	Burrowing Owl	x	x	x	x	
	Cerulean Warbler	x				
	Chestnut-collared Longspur			x		
	Ferruginous Hawk		x	x	x	
	Greater Prairie-Chicken	x	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	
	Trumpeter Swan	x	x	x	x	
	Whooping Crane	x	x	x	x	
	FISH	Blacknose Shiner		x	x	x
		Blue Sucker	x			
		Finescale Dace		x		x
		Lake Sturgeon	x	x		
		Northern Redbelly Dace		x	x	x
Pallid Sturgeon		x				
Plains Topminnow		x	x	x	x	
Sicklefin Chub		x				
Sturgeon Chub		x				
Topeka Shiner		x			x	
INSECTS	American Burying Beetle		x		x	
	Bucholz Black Dash	x				
	Colorado Rita Dotted-blue			x		
	Ghost Tiger Beetle		x		x	
	Iowa Skipper	x	x	x	x	
	Married Underwing	x	x			
	Mottled Duskywing	x	x	x		

		ECOREGIONS				
		Tallgrass Prairie	Mixedgrass Prairie	Shortgrass Prairie	Sandhills	
<u>TIER I SPECIES</u>						
INSECTS (cont.)	Nine-spotted Ladybird Beetle			x		
	Ottoo Skipper	x	x	x	x	
	Platte River Caddisfly		x			
	Regal Fritillary	x	x	x	x	
	Salt Creek Tiger Beetle	x				
	Tawny Crescent			x		
MAMMALS	Whitney Underwing	x	x			
	Bailey's Eastern Woodrat		x		x	
	Cheyenne Northern Pocket Gopher			x		
	Fringe-tailed Myotis			x		
	Northern River Otter	x	x	x	x	
	Pierre Northern Pocket Gopher			x		
	Plains Harvest Mouse	x				
	Plains Pocket Mouse	x	x			
	Rocky Mountain Bighorn Sheep			x		
	Southern Flying Squirrel	x				
	Swift Fox		x	x		
	MOLLUSKS	Flat Floater	x			
		Higgins Eye	x			
Pimpleback		x				
Pistolgrip		x				
Plain Pocketbook		x			x	
Scaleshell		x				
REPTILES	Blanding's Turtle	x	x		x	
	Massasauga	x				
	Sagebrush Lizard			x		
	Timber Rattlesnake	x				
PLANTS	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				

		<u>ECOREGIONS</u>			
		Tallgrass Prairie	Mixedgrass Prairie	Shortgrass Prairie	Sandhills
<u>TIER I SPECIES</u>					
PLANTS (cont.)	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	
	Western Prairie Fringed Orchid	x			x
	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 I** 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** Bell's Vireo

**Scientific Name** *Vireo bellii*

**G-Rank** G5

**S-Rank** S4

**Goal** 4

**Distribution** Widespread

**Criteria for selection as Tier I** Declining; PIF watch list

**Estimated population in NE** > 50,000

**Estimate based on** Expert opinion

**Trends since 2005 in NE** Increasing

**Range in NE** Statewide

**Habitat** All shrub land types except buck brush; grasslands with shrubs; dependent on shrubs

**Threats** Encroachment of trees, habitat conversion, fire suppression, cowbirds, shrub spraying

Climate Change Vulnerability Index: Not Vulnerable, Increase likely

**Research/Inventory** Determine minimum patch size and ratio of shrub to grassland; determine habitat requirements; determine how to manage with fire control - killing cedars but not shrubs; conduct genetics study - understand contribution of NE population to species as a whole

**Landscapes** Central Loess Hills, Cherry County Wetlands, Elkhorn Confluence, Elkhorn River Headwaters, Keya Paha, Loess Canyons, Lower Loup Rivers, Lower Niobrara River, Lower Platte River, Middle Niobrara, Missouri River, North Platte River, Oglala Grasslands, Pine Ridge, Platte Confluence, Ponca Bluffs, Saline Wetlands, Sandhills

Alkaline Lakes, Sandsage Prairie, Upper Loup Rivers and Tributaries, Upper Niobrara River, Verdigris-Bazile, Wildcat Hills, Willow Creek Prairies

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

**G-Rank** G5                      **S-Rank** S4                      **Goal** 1                      **Distribution** Peripheral

**Criteria for selection as Tier I** 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 I** 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** Rainwater Basin in 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** Chestnut-collared Longspur      **Scientific Name** *Calcarius ornatus*

**G-Rank** G5                      **S-Rank** S3                      **Goal** 7                      **Distribution** Limited

**Criteria for selection as Tier I** 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.

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

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

**Criteria for selection as Tier I** 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

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**Common Name** Greater Prairie-Chicken      **Scientific Name** *Tympanuchus cupido*

**G-Rank** G4      **S-Rank** S3S4      **Goal** 4      **Distribution** Limited

**Criteria for selection as Tier I** Declining; PIF watch list

**Estimated population in NE** 800,000 – 2,500,000      **Estimate based on** Annual lek surveys

**Trends since 2005 in NE** Increasing

**Range in NE** Primarily north-central sandhills, scattered eastern three-quarters of state

**Habitat** Sandsage prairie, tall-grass prairie, Sandhills dry valley prairie, loess mixed-grass prairie

**Threats** Habitat conversion and fragmentation, grassland management (loss of forbs), loss of some shrubs, wind energy development, woody species encroachment, loss of CRP in eastern NE

Climate Change Vulnerability Index: Not Vulnerable, Increase likely

**Research/Inventory** Continue surveys to assess distribution and abundance; study effects of wind turbines, habitat use and demographics; understand contribution of NE population to species as a whole

**Landscapes** Central Loess Hills, Cherry County Wetlands, Dismal River Headwaters, Elkhorn Confluence, Elkhorn River Headwaters, Keya Paha, Loess Canyons, Platte Confluence, Ponca Bluffs, Sandsage Prairie, Sandstone Prairies, Southeast Prairies, Verdigris-Bazile, Willow Creek Prairies

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

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

**Criteria for selection as Tier I** 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

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**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 I** 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

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

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

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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**Common Name** Mountain Plover                      **Scientific Name** *Charadrius montanus*

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

**Criteria for selection as Tier I** 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

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**Common Name** Pinyon Jay                      **Scientific Name** *Gymnorhinus cyanocephalus*

**G-Rank** G5                      **S-Rank** S3                      **Goal** 7                      **Distribution** Limited

**Criteria for selection as Tier I** 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

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<b><u>Common Name</u></b>	Piping Plover	<b><u>Scientific Name</u></b>	<i>Charadrius melodus</i>
<b><u>G-Rank</u></b>	G3	<b><u>S-Rank</u></b>	S2
		<b><u>Goal</u></b>	10
		<b><u>Distribution</u></b>	Limited
<b><u>Criteria for selection as Tier I</u></b>	State and federally listed, G3		
<b><u>Estimated population in NE</u></b>	500 - 1,000	<b><u>Estimate based on</u></b>	Five year census, IPPC report
<b><u>Trends since 2005 in NE</u></b>	Unknown		
<b><u>Range in NE</u></b>	Platte River east of Lake McConaughy, lower reaches of major rivers north of Platte River		
<b><u>Habitat</u></b>	Bare sand bars and sandy shorelines of large rivers, lakes and sand pits		
<b><u>Threats</u></b>	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		
<b><u>Research/Inventory</u></b>	Conduct nesting surveys throughout breeding range in state; evaluate meta-population issues		
<b><u>Landscapes</u></b>	Central Platte River, Lower Loup Rivers, Lower Platte River, Lower Niobrara River, Missouri River, Middle Niobrara, Upper Loup Rivers and Tributaries, Verdigris-Bazile		

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<b><u>Common Name</u></b>	Short-eared Owl	<b><u>Scientific Name</u></b>	<i>Asio flammeus</i>
<b><u>G-Rank</u></b>	G5	<b><u>S-Rank</u></b>	S2
		<b><u>Goal</u></b>	4
		<b><u>Distribution</u></b>	Widespread
<b><u>Criteria for selection as Tier I</u></b>	Declining; PIF watch list		
<b><u>Estimated population in NE</u></b>	< 200	<b><u>Estimate based on</u></b>	BBA field surveys
<b><u>Trends since 2005 in NE</u></b>	Unknown		
<b><u>Range in NE</u></b>	Scattered statewide		
<b><u>Habitat</u></b>	Open grasslands with standing cover and little disturbance		
<b><u>Threats</u></b>	Habitat loss and fragmentation, disturbance of nesting habitat, barbed wire fences present collision danger		
	Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable		
<b><u>Research/Inventory</u></b>	Survey to identify location and extent of breeding activity; determine specific nesting habitat requirements		
<b><u>Landscapes</u></b>	Central Loess Hills, Cherry County Wetlands, Dismal River Headwaters, Sandhills Alkaline Lakes, Sandsage Prairie		

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

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

**Criteria for selection as Tier I** 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

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**Common Name** Trumpeter Swan                      **Scientific Name** *Cygnus buccinator*

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

**Criteria for selection as Tier I** Ranked as imperiled or vulnerable in all states in its range

**Estimated population in NE** 200 - 600                      **Estimate based on** USFWS and BBA field surveys

**Trends since 2005 in NE** Increasing

**Range in NE** Primarily Cherry, Sheridan and Garden counties

**Habitat** Deep water wetlands and marsh lakes with dense, emergent vegetation; spring-fed streams

**Threats** Wetland drainage/loss, disturbance, pollution, wind energy development

Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable

**Research/Inventory** Continue surveys to assess distribution and abundance

**Landscapes** Central Loess Hills, Cherry County Wetlands, Dismal River Headwaters, Elkhorn River Headwaters, North Platte River, Sandhills Alkaline Lakes, Upper Loup Rivers and Tributaries, Upper Niobrara River

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<b><u>Common Name</u></b>	Whooping Crane	<b><u>Scientific Name</u></b>	<i>Grus americana</i>				
<b><u>G-Rank</u></b>	G1	<b><u>S-Rank</u></b>	S1	<b><u>Goal</u></b>	10	<b><u>Distribution</u></b>	Limited
<b><u>Criteria for selection as Tier I</u></b>	State and federally listed, G1						
<b><u>Estimated population in NE</u></b>	~ 300	<b><u>Estimate based on</u></b>	2011 field survey, Stehn 2011				
<b><u>Trends since 2005 in NE</u></b>	Slowly Increasing						
<b><u>Range in NE</u></b>	Platte River from Scottsbluff to Chapman; wetlands and major rivers in central flyway						
<b><u>Habitat</u></b>	Wetlands, wet meadows, sandbars and shallow water in rivers; spring and fall migrant, does not nest in Nebraska						
<b><u>Threats</u></b>	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						
<b><u>Research/Inventory</u></b>	Continue migration surveys; increase surveys of Sandhills wetlands, southwest playas, Middle Loup River headwaters, and Custer County playas						
<b><u>Landscapes</u></b>	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						

<b><u>Common Name</u></b>	Wood Thrush	<b><u>Scientific Name</u></b>	<i>Hylocichla mustelina</i>				
<b><u>G-Rank</u></b>	G5	<b><u>S-Rank</u></b>	S3	<b><u>Goal</u></b>	4	<b><u>Distribution</u></b>	Widespread
<b><u>Criteria for selection as Tier I</u></b>	Declining; PIF watch list						
<b><u>Estimated population in NE</u></b>	1,000 - 4,000	<b><u>Estimate based on</u></b>	Expert opinion				
<b><u>Trends since 2005 in NE</u></b>	Declining						
<b><u>Range in NE</u></b>	Along major river valleys in eastern Nebraska						
<b><u>Habitat</u></b>	Mature eastern deciduous forests; needs shrubby understory component						
<b><u>Threats</u></b>	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						
<b><u>Research/Inventory</u></b>	Determine impacts of deer, invasive species, forest fragmentation, and cowbird parasitism						
<b><u>Landscapes</u></b>	Indian Cave Bluffs, Lower Niobrara River, Lower Platte River, Middle Niobrara, Ponca Bluffs, Thurston-Dakota Bluffs, Rulo Bluffs, Southeast Prairies, Verdigris-Bazile						

## FISH

<b><u>Common Name</u></b>	Blacknose Shiner	<b><u>Scientific Name</u></b>	<i>Notropis heterolepis</i>
<b><u>G-Rank</u></b>	G4	<b><u>S-Rank</u></b>	S1
		<b><u>Goal</u></b>	10
		<b><u>Distribution</u></b>	Disjunct
<b><u>Criteria for selection as Tier I</u></b>	State listed, disjunct		
<b><u>Estimated population in NE</u></b>	< 100	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Stable		
<b><u>Range in NE</u></b>	North-central portion of state		
<b><u>Habitat</u></b>	Headwater streams, spring fed, clear water, pools, quiet waters		
<b><u>Threats</u></b>	De-watering, siltation, dams, channelization, exotic species, culverts, water control structures, introduced predator fish		
	Climate Change Vulnerability Index: Extremely Vulnerable		
<b><u>Research/Inventory</u></b>	Determine age structure; study recruitment, population dynamics, seasonal movement and habitat use; conduct population monitoring		
<b><u>Landscapes</u></b>	Cherry County Wetlands, Keya Paha, Upper Loup Rivers and Tributaries, Upper Niobrara River		

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<b><u>Common Name</u></b>	Blue Sucker	<b><u>Scientific Name</u></b>	<i>Cycoreptus elongatus</i>
<b><u>G-Rank</u></b>	G3G4	<b><u>S-Rank</u></b>	S1
		<b><u>Goal</u></b>	7
		<b><u>Distribution</u></b>	Limited
<b><u>Criteria for selection as Tier I</u></b>	G3		
<b><u>Estimated population in NE</u></b>	5,000 – 15,000	<b><u>Estimate based on</u></b>	Field surveys
<b><u>Trends since 2005 in NE</u></b>	Stable		
<b><u>Range in NE</u></b>	Lower Platte and Missouri rivers - Boyd through Richardson counties		
<b><u>Habitat</u></b>	Large turbid rivers		
<b><u>Threats</u></b>	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		
<b><u>Research/Inventory</u></b>	Determine specific habitat requirements; study population dynamics and seasonal movement; compile information from research range-wide; conduct population monitoring		
<b><u>Landscapes</u></b>	Lower Platte River, Missouri River		

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

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

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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**Common Name** Northern Redbelly Dace      **Scientific Name** *Chrosomus eos*  
**G-Rank** G5      **S-Rank** S2      **Goal** 10      **Distribution** Disjunct

**Criteria for selection as Tier I** 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 I** 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

<b><u>Common Name</u></b>	Plains Topminnow	<b><u>Scientific Name</u></b>	<i>Fundulus sciadicus</i>
<b><u>G-Rank</u></b>	G4	<b><u>S-Rank</u></b>	S4
		<b><u>Goal</u></b>	10
		<b><u>Distribution</u></b>	Endemic
<b><u>Criteria for selection as Tier I</u></b>	Endemic, declining		
<b><u>Estimated population in NE</u></b>	100,000 – 250,000	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Declining		
<b><u>Range in NE</u></b>	Northwest two-thirds of state		
<b><u>Habitat</u></b>	Vegetative backwaters and headwaters, shallow parts of rivers and streams		
<b><u>Threats</u></b>	Predation, competition from mosquito fish and other exotics, de-watering, habitat loss		
	Climate Change Vulnerability Index: Extremely Vulnerable		
<b><u>Research/Inventory</u></b>	Conduct surveys to assess distribution and abundance; identify secure occurrence locations; determine competition dynamic with mosquito fish; conduct genetics study		
<b><u>Landscapes</u></b>	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		

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<b><u>Common Name</u></b>	Sicklefin Chub	<b><u>Scientific Name</u></b>	<i>Macrhybopsis meeki</i>
<b><u>G-Rank</u></b>	G3	<b><u>S-Rank</u></b>	S1
		<b><u>Goal</u></b>	7
		<b><u>Distribution</u></b>	Limited
<b><u>Criteria for selection as Tier I</u></b>	G3		
<b><u>Estimated population in NE</u></b>	500 - 1,000	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Unknown		
<b><u>Range in NE</u></b>	Missouri River - Boyd through Richardson counties		
<b><u>Habitat</u></b>	Large turbid rivers - Missouri River		
<b><u>Threats</u></b>	Reduction of turbidity, channelization, modified water flows		
	Climate Change Vulnerability Index: Not Vulnerable, Presumed Stable		
<b><u>Research/Inventory</u></b>	Determine specific habitat requirements, population dynamics, seasonal movement, and sensitivity to turbidity		
<b><u>Landscapes</u></b>	Missouri River		

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**Common Name** Sturgeon Chub                      **Scientific Name** *Macrhybopsis gelida*

**G-Rank** G3                      **S-Rank** S1                      **Goal** 10                      **Distribution** Limited

**Criteria for selection as Tier I** 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

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**Common Name** Topeka Shiner                      **Scientific Name** *Notropis topeka*

**G-Rank** G3                      **S-Rank** S1                      **Goal** 10                      **Distribution** Limited

**Criteria for selection as Tier I** 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

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## INSECTS

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

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

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**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 I** 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

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**Common Name** Ghost Tiger Beetle      **Scientific Name** *Cicindela lepida*

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

**Criteria for selection as Tier I** 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

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**Common Name** Iowa Skipper                      **Scientific Name** *Atrytone arogos iowa*

**G-Rank** G3T3                      **S-Rank** S1                      **Goal** 7                      **Distribution** Limited

**Criteria for selection as Tier I** 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-Brazile

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

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

**Criteria for selection as Tier I** 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

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**Common Name** Mottled Duskywing      **Scientific Name** *Erynnis martialis*  
**G-Rank** G3      **S-Rank** S2      **Goal** 4      **Distribution** Widespread  
**Criteria for selection as Tier I** 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

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**Common Name** Nine-spotted Ladybird Beetle      **Scientific Name** *Coccinella novemnotata*  
**G-Rank** GNR      **S-Rank** S1      **Goal** 4      **Distribution** Widespread  
**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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**Common Name** Platte River Caddisfly                      **Scientific Name** *Isonychia plattensis*

**G-Rank** G1G2                      **S-Rank** S1S2                      **Goal** 10                      **Distribution** Endemic

**Criteria for selection as Tier I** 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

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<b><u>Common Name</u></b>	Regal Fritillary	<b><u>Scientific Name</u></b>	<i>Speyeria idalia</i>
<b><u>G-Rank</u></b>	G3	<b><u>S-Rank</u></b>	S3
		<b><u>Goal</u></b>	4
		<b><u>Distribution</u></b>	Widespread
<b><u>Criteria for selection as Tier I</u></b>	G3		
<b><u>Estimated population in NE</u></b>	50,000 – 150,000	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Stable		
<b><u>Range in NE</u></b>	Statewide, primarily in the eastern half of the state		
<b><u>Habitat</u></b>	Tall-grass and mixed-grass prairie with violets, wet meadows		
<b><u>Threats</u></b>	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		
<b><u>Research/Inventory</u></b>	Conduct surveys to assess distribution and abundance; monitor population trends		
<b><u>Landscapes</u></b>	Found in all BULs		

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<b><u>Common Name</u></b>	Salt Creek Tiger Beetle	<b><u>Scientific Name</u></b>	<i>Cicindela nevadica lincolniana</i>
<b><u>G-Rank</u></b>	G5T1	<b><u>S-Rank</u></b>	S1
		<b><u>Goal</u></b>	10
		<b><u>Distribution</u></b>	Endemic
<b><u>Criteria for selection as Tier I</u></b>	State and federally listed, endemic		
<b><u>Estimated population in NE</u></b>	~ 300	<b><u>Estimate based on</u></b>	Annual census
<b><u>Trends since 2005 in NE</u></b>	Declining		
<b><u>Range in NE</u></b>	Lancaster County		
<b><u>Habitat</u></b>	Eastern Nebraska saline wetlands and their associated streams		
<b><u>Threats</u></b>	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		
<b><u>Research/Inventory</u></b>	Identify specific reproductive habitat parameters; determine best habitat restoration methods; develop captive-rearing techniques		
<b><u>Landscapes</u></b>	Saline Wetlands		

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**Common Name** Tawny Crescent                      **Scientific Name** *Phyciodes batesii*

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

**Criteria for selection as Tier I** 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

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**Common Name** Whitney Underwing                      **Scientific Name** *Catocala whitneyi*

**G-Rank** G3G4                      **S-Rank** S1                      **Goal** 4                      **Distribution** Widespread

**Criteria for selection as Tier I** 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

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## MAMMALS

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

**G-Rank** G5T3      **S-Rank** S2      **Goal** 10      **Distribution** Endemic

**Criteria for selection as Tier I** 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

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

**G-Rank** G5T3T4      **S-Rank** S1      **Goal** 7      **Distribution** Limited

**Criteria for selection as Tier I** 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

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**Common Name** Fringe-Tailed Myotis      **Scientific Name** *Myotis thysanodes pahasapensis*

**G-Rank** G4G5T2      **S-Rank** S1      **Goal** 7      **Distribution** Limited

**Criteria for selection as Tier I** G2

**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

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**Common Name** Northern River Otter      **Scientific Name** *Lontra canadensis*

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

**Criteria for selection as Tier I** State listed

**Estimated population in NE** 800 – 5,000      **Estimate based on** Field surveys

**Trends since 2005 in NE** Increasing

**Range in NE** Statewide

**Habitat** Along rivers and streams with sloughs and backwater areas, marshes; will frequent lakes and ponds

**Threats** Accidental trapping, habitat loss, pesticides and pollution, vehicle mortality

Climate Change Vulnerability Index: Not Vulnerable, Increase likely

**Research/Inventory** Conduct inventory and monitoring surveys of Republican River population

**Landscapes** Central Loess Hills, Central Platte River, Elkhorn River Headwaters, Loess Canyons, Lower Loup Rivers, Lower Niobrara River, Lower Platte River, Middle Niobrara, Missouri River, North Platte River, Platte Confluence, Upper Loup Rivers and Tributaries, Upper Niobrara River

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**Common Name** Pierre Northern Pocket Gopher **Scientific Name** *Thomomys talpoides pierreicolus*

**G-Rank** G? **S-Rank** S? **Goal** 7 **Distribution** Limited

**Criteria for selection as Tier I** 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

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**Common Name** Plains Harvest Mouse **Scientific Name** *Reithrodontomys montanus griseus*

**G-Rank** G5TNR **S-Rank** S1 **Goal** 7 **Distribution** Limited

**Criteria for selection as Tier I** Regional endemic; declining?

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

**Trends since 2005 in NE** Unknown

**Range in NE** Eastern portion of state

**Habitat** Tall-grass prairie - heavily grazed, open prairies, salt marshes

**Threats** Loss of tall-grass prairie habitat, lack of heavy grazing/management issues

Climate Change Vulnerability Index: Not Vulnerable, Increase likely

**Research/Inventory** Conduct surveys to assess distribution and abundance (particularly in saline wetlands); determine specific habitat requirements;

**Landscapes** Elkhorn Confluence, Sandstone Prairies, Southeast Prairies, Saline Wetlands, Willow Creek Prairies

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**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 I** 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-Brazile, Willow Creek Prairies

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**Common Name** Rocky Mountain Bighorn Sheep      **Scientific Name** *Ovis canadensis canadensis*

**G-Rank** G4T4      **S-Rank** S2      **Goal** 1      **Distribution** Disjunct

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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## MOLLUSKS

<b><u>Common Name</u></b>	Flat Floater	<b><u>Scientific Name</u></b>	<i>Anodonta suborbiculata</i>
<b><u>G-Rank</u></b>	G5	<b><u>S-Rank</u></b>	S1
		<b><u>Goal</u></b>	4
		<b><u>Distribution</u></b>	Widespread
<b><u>Criteria for selection as Tier I</u></b>	Declining; ranked as imperiled or vulnerable in nearly all states in its range		
<b><u>Estimated population in NE</u></b>	< 100	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Unknown		
<b><u>Range in NE</u></b>	Missouri River - Boyd through Richardson counties		
<b><u>Habitat</u></b>	Quiet water of sloughs, oxbows, and backwaters of Missouri River		
<b><u>Threats</u></b>	Drainage, filling and siltation of sloughs, oxbows, and backwaters; stream channelization, degradation of water quality		
	Climate Change Vulnerability Index: Highly Vulnerable		
<b><u>Research/Inventory</u></b>	Conduct surveys in river above Lewis and Clark Lake; determine specific habitat requirements		
<b><u>Landscapes</u></b>	Missouri River		

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<b><u>Common Name</u></b>	Higgins Eye	<b><u>Scientific Name</u></b>	<i>Lampsilis higginsii</i>
<b><u>G-Rank</u></b>	G1G2	<b><u>S-Rank</u></b>	S1
		<b><u>Goal</u></b>	7
		<b><u>Distribution</u></b>	Limited
<b><u>Criteria for selection as Tier I</u></b>	G1		
<b><u>Estimated population in NE</u></b>	< 10	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Unknown		
<b><u>Range in NE</u></b>	Upper reaches of Missouri River		
<b><u>Habitat</u></b>	Large to medium rivers in mud and sand		
<b><u>Threats</u></b>	Stream channelization, siltation, degradation of water quality, agriculture and urban effluent		
	Climate Change Vulnerability Index: Extremely Vulnerable		
<b><u>Research/Inventory</u></b>	Conduct surveys to assess distribution and abundance; determine specific habitat requirements; evaluate potential for reintroduction		
<b><u>Landscapes</u></b>	Missouri River		

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**Common Name** Pimpleback                      **Scientific Name** *Quadrula pustulosa*

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

**Criteria for selection as Tier I** 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 culture techniques; identify reintroduction streams/sites

**Landscapes** Southeast Prairies, Elkhorn River Headwaters, Lower Platte River, Saline Wetlands, Sandstone Prairies, Rainwater Basin

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**Common Name** Pistolgrip                      **Scientific Name** *Tritogonia verrucosa*

**G-Rank** G4G5                      **S-Rank** S1                      **Goal** 4                      **Distribution** Widespread

**Criteria for selection as Tier I** 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

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<b><u>Common Name</u></b>	Plain Pocketbook	<b><u>Scientific Name</u></b>	<i>Lampsilis cardium</i>
<b><u>G-Rank</u></b>	G5	<b><u>S-Rank</u></b>	S2
		<b><u>Goal</u></b>	4
		<b><u>Distribution</u></b>	Widespread
<b><u>Criteria for selection as Tier I</u></b>	Declining		
<b><u>Estimated population in NE</u></b>	100 - 500	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Unknown		
<b><u>Range in NE</u></b>	Streams in eastern third of state		
<b><u>Habitat</u></b>	Small creeks to medium rivers in mud, sand, or gravel		
<b><u>Threats</u></b>	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		
<b><u>Research/Inventory</u></b>	Conduct surveys to assess distribution and abundance; determine specific habitat requirements; develop culture techniques; identify reintroduction streams/sites		
<b><u>Landscapes</u></b>	Elkhorn River Headwaters, Elkhorn Confluence, Southeast Prairies		

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<b><u>Common Name</u></b>	Scaleshell	<b><u>Scientific Name</u></b>	<i>Leptodea leptodon</i>
<b><u>G-Rank</u></b>	G1G2	<b><u>S-Rank</u></b>	S1
		<b><u>Goal</u></b>	7
		<b><u>Distribution</u></b>	Limited
<b><u>Criteria for selection as Tier I</u></b>	State and federally listed, G1		
<b><u>Estimated population in NE</u></b>	< 10	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Unknown		
<b><u>Range in NE</u></b>	Upper reaches of Missouri River		
<b><u>Habitat</u></b>	Large rivers in mud and sand		
<b><u>Threats</u></b>	Stream channelization, degradation of water quality		
	Climate Change Vulnerability Index: Highly Vulnerable		
<b><u>Research/Inventory</u></b>	Conduct surveys to assess distribution and abundance; determine specific habitat requirements		
<b><u>Landscapes</u></b>	Missouri River		

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## REPTILES

<b><u>Common Name</u></b>	Blanding's Turtle	<b><u>Scientific Name</u></b>	<i>Emydoidea blandingii</i>
<b><u>G-Rank</u></b>	G4	<b><u>S-Rank</u></b>	S4
		<b><u>Goal</u></b>	4
		<b><u>Distribution</u></b>	Limited
<b><u>Criteria for selection as Tier I</u></b>	Ranked as imperiled or vulnerable in all but one state in its range		
<b><u>Estimated population in NE</u></b>	> 150,000	<b><u>Estimate based on</u></b>	Expert opinion
<b><u>Trends since 2005 in NE</u></b>	Stable		
<b><u>Range in NE</u></b>	Primarily Sandhills marshes, very locally in eastern portion of state		
<b><u>Habitat</u></b>	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		
<b><u>Threats</u></b>	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		
<b><u>Research/Inventory</u></b>	Conduct surveys along eastern edge of range, population monitoring		
<b><u>Landscapes</u></b>	Cherry County Wetlands, Dismal River Headwaters, Elkhorn Confluence, Elkhorn River Headwaters, Lower Loup Rivers, Lower Platte River, Middle Niobrara, Upper Loup Rivers and Tributaries		

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<b><u>Common Name</u></b>	Massasauga	<b><u>Scientific Name</u></b>	<i>Sistrurus catenatus</i>
<b><u>G-Rank</u></b>	G3G4	<b><u>S-Rank</u></b>	S1
		<b><u>Goal</u></b>	10
		<b><u>Distribution</u></b>	Widespread
<b><u>Criteria for selection as Tier I</u></b>	State listed, G3		
<b><u>Estimated population in NE</u></b>	1,000 - 2,500	<b><u>Estimate based on</u></b>	Field surveys
<b><u>Trends since 2005 in NE</u></b>	Stable		
<b><u>Range in NE</u></b>	Very southeast portion of state		
<b><u>Habitat</u></b>	Wet mesic tall-grass prairie, wet meadow/marsh/wet prairie, lower-middle tall-grass prairie, cordgrass wet prairie, crayfish burrows		
<b><u>Threats</u></b>	Loss/degradation of tall-grass prairie habitat, woody invasion, tilling for agriculture, ehicle mortality		
	Climate Change Vulnerability Index: Highly Vulnerable		
<b><u>Research/Inventory</u></b>	Determine size/extent of Colfax County population; conduct surveys to assess distribution and abundance; conduct population monitoring		
<b><u>Landscapes</u></b>	Lower Platte River, Sandstone Prairies, Southeast Prairies		

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**Common Name** Sagebrush Lizard                      **Scientific Name** *Sceloporus graciosus*  
**G-Rank** G5                      **S-Rank** S1                      **Goal** 1                      **Distribution** Peripheral  
**Criteria for selection as Tier I** 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

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**Common Name** Timber Rattlesnake                      **Scientific Name** *Crotalus horridus*  
**G-Rank** G4                      **S-Rank** S1                      **Goal** 4                      **Distribution** Widespread  
**Criteria for selection as Tier I** 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

## PLANTS

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

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

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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**Common Name** Blowout Penstemon                      **Scientific Name** *Penstemon haydenii*

**G-Rank** G1                      **S-Rank** S1                      **Goal** 10                      **Distribution** Endemic

**Criteria for selection as Tier I** State and federally listed, G1

**Estimated population in NE** 15,000-20,000                      **Estimate based on** Annual monitoring, Dr. Stubbendieck, UNL

**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

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**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 I** 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 in 2012 to evaluate effect of 2010 flooding; determine best management practices

**Landscapes** Kimball Grasslands

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

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

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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**Common Name** Hall's Bulrush                      **Scientific Name** *Schoenoplectus hallii*

**G-Rank** G2G3                      **S-Rank** S3                      **Goal** 7                      **Distribution** Limited

**Criteria for selection as Tier I** 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

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**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 I** 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

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**Common Name** Matted Prickly-phlox      **Scientific Name** *Linanthus caespitosus*

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

**Criteria for selection as Tier I** 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

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**Common Name** Meadow Lousewort      **Scientific Name** *Pedicularis crenulata*

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

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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**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 I** 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

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**Common Name** Platte River Dodder      **Scientific Name** *Cuscuta plattensis*

**G-Rank** G1Q      **S-Rank** SNR      **Goal** 7      **Distribution** Limited

**Criteria for selection as Tier I** 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

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**Common Name** Prairie Moonwort      **Scientific Name** *Botrychium campestre*

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

**Criteria for selection as Tier I** 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

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**Common Name** Rocky Mountain Bulrush      **Scientific Name** *Schoenoplectus saximontanus*

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

**Criteria for selection as Tier I** 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

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**Common Name** Saltwort      **Scientific Name** *Salicornia rubra*

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

**Criteria for selection as Tier I** 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

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**Common Name** Sandhill Goosefoot                      **Scientific Name** *Chenopodium cycloides*

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

**Criteria for selection as Tier I** 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

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**Common Name** Short's Milkvetch                      **Scientific Name** *Astragalus shortianus*

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

**Criteria for selection as Tier I** 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

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**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 I** 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

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**Common Name** Snow Trillium      **Scientific Name** *Trillium nivale*

**G-Rank** G4      **S-Rank** S1      **Goal** 1      **Distribution** Peripheral

**Criteria for selection as Tier I** 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

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

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

**Criteria for selection as Tier I** 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

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

**G-Rank** G3      **S-Rank** S3      **Goal** 10      **Distribution** Limited

**Criteria for selection as Tier I** 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, inappropriate grazing

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

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**Common Name** Wolf's Spikerush

**Scientific Name** *Eleocharis wolfii*

**G-Rank** G3G4

**S-Rank** S2?

**Goal** 7

**Distribution** Widespread

**Criteria for selection as Tier I** G3

**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

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