

Chapter 8. Monitoring

Relevant Required Elements:

#5 – Proposed plans for monitoring species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions.

Focus of Chapter 8:

In this chapter we present examples of ongoing monitoring in South Dakota for species, species groups, habitats, and relevant land uses. Most are programs conducted by SDGFP or other efforts relevant to the agency's work. Monitoring may include discrete, time-limited projects, such as those accomplished with SWG or Section 6 endangered species match dollars as well as programs supported by more extensive and longer-term funding sources.

Without significant additional funding, a comprehensive monitoring program is not feasible for all species and habitats. We encourage partnerships with other agencies, Native American tribes, and NGOs to identify potential duplication, evaluate current shortfalls in monitoring, and address those deficits as funding and personnel allow. We have described 4 potential monitoring prioritization methods, based on threatened or endangered species designations, NatureServe global ranks, Natural Heritage Program state ranks, and primary habitat types.

When considering ways to have the most impact for a broad range of wildlife and native habitats, partnerships and programs that improve habitat availability and conditions on private lands and waters are most critical in a state like South Dakota, where most of the land is in private ownership. Close behind on the list of critical partnership impacts is the design and implementation of effective monitoring programs for species, species groups, and habitats. SDGFP conducts and benefits from a variety of species- and habitat-focused monitoring projects. A compiled list of these monitoring efforts is available (Appendix U). The list is not comprehensive for all agencies, Native American tribes, and NGOs, but an overview of such efforts. Simplified versions of the compiled list are shown in Table 8.1 for species monitoring and Table 8.2 for habitat monitoring. SDGFP intend to continue its participation in and support for these ongoing efforts.

In this discussion, we use the term monitoring in a broad sense rather than making a distinction between inventories, which may be one-time assessments of a species or habitat type, and monitoring, which implies a longer-term and more regular effort to track status and assess trends. Because so many of South Dakota's SGCNs need both inventories and monitoring, we have chosen to use the term monitoring in a broader way to cover both needs.

Without significant new funding, it is not possible for SDGFP and partners to design and carry out monitoring to satisfy what is needed. In addition to what is described on the compiled lists, SDGFP has conducted monitoring efforts using SWG funding and other sources. Although these funding sources result in relatively short duration projects, SDGFP and its partners have gained experience in various monitoring efforts that could be repeated or expanded with additional, stable funding.

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Examples include funding and completion of the South Dakota Breeding Bird Atlas II (SDBBA II), various raptor nesting studies and surveys, interest in expanding the use of frog and toad call surveys, completion of acoustic monitoring of migratory bat species, upcoming plans to participate in NABat, funding terrestrial gastropod surveys, nongame fish identification during various lake and river surveys, and establishment of vegetation monitoring sites on state GPAs.

8.1. Monitoring Plan Prioritization

Revisiting this plan's coarse-fine filter approach, the more general survey methods mentioned above could be considered components of a coarse filter, with more attention needed to fine-tune rare species monitoring priorities. When additional funds are available, we suggest SDGFP and partners discuss various ways to prioritize monitoring needs for SGCNs. What follows is a set of potential ways to prioritize monitoring needs based on legal designation, NatureServe's global ranks, South Dakota Natural Heritage Program's state ranks, and consideration of priority habitats for the current SGCN list (Table 8.3).

State and/or federal threatened or endangered species designation

South Dakota's endangered species law requires that the SDGFP Secretary take actions to recover those species listed as state threatened or endangered. As of 2025, the state list included 10 endangered species and 11 threatened species.



The USFWS and other federal agencies are charged with recovering those species listed under the authority of the ESA. SDGFP partners with these agencies through Cooperative Agreements with the USFWS for rare plants and animals. As of 2025, 6 species occurring in South Dakota were federal threatened, 9 species were federal endangered, one species was proposed as federal endangered, and two species were proposed as federal threatened. The Eskimo Curlew is both state and federal endangered, but many ornithologists believe this species is extinct.

The advantage of gathering better monitoring data on these species is that such information could support delistings or provide data to avoid future listings. These results would satisfy state and federal trust responsibilities and potentially lessen any burden on landowners and businesses due to fewer listings. A disadvantage of focusing only on these groups of species is that listings are typically done for species with sufficient data to justify such action. For many of South Dakota's plant and animal groups, extensive information is not available on species' abundance, distribution, or limiting factors.

NatureServe global ranks

As previously explained for the SGCN list, introduced in Chapter 2, we relied on [NatureServe's ranking system](#) at both the global and state levels. Global ranks assess a species' rarity on a scale of 1 to 5, with G1 applied to the rarest species and G5 to those with the most secure status. Detailed information about these ranks is found at the link above, with pertinent categories summarized below:

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- G1 – Critically imperiled on a global basis (at very high risk of extinction);
- G2 – Imperiled on a global basis (at high risk of extinction);
- G3 – Vulnerable on a global basis (at moderate risk of extinction or collapse);
- G4 – Apparently secure on a global basis (at fairly low risk of extinction or collapse);
- G5 – Secure on a global basis (at very low risk of extinction or collapse); and
- T# – Trinomial rank (subspecies or variety rank; the same number values apply as for global ranks).

We examined the SGCN list for those ranked G1 - G3 or T1 - T3 and found:

- 5 of 10 aquatic insect SGCNs were ranked G1-G3;
- 5 bird SGCNs were ranked G1-G3, including one species (Whooping Crane) ranked G1;
- 6 fish SGCNs were ranked G1-G3;
- 2 freshwater mussel SGCNs were ranked G1 (Higgins Eye and Scaleshell);
- 1 terrestrial gastropod was ranked G1 (Frigid Ambersnail) and an additional species ranked G3;
- 9 mammal SGCNs were ranked G1 – G3 or T1 – T3, including the Black-footed Ferret (G1) and Northern Myotis (G2);
- 1 plant subspecies (Leedy's Roseroot) is ranked T1, with 6 additional species or plant communities ranked G2 or G3; and
- 21 terrestrial insects are ranked G1-G3; including the Poweshiek Skipperling, ranked G1 and one subspecies (Indian Creek Tiger Beetle) ranked T1.

The highest percentage of SGCNs with low global ranks are aquatic and terrestrial insects, reflecting a lack of extensive expertise within the state and the lack of funding for which these species are eligible. Monitoring to improve knowledge of these globally rare species would be useful within the state and at a broader scale, particularly for those ranked G1.

South Dakota Natural Heritage Program state ranks

Like global ranks, state ranks can range from S1 – S5, but a review of Table 8.3 shows additional ranks used at the state level, which are described:

- SH – Possibly extirpated in the state;
- SNR – Unranked (conservation status in the state not yet assessed);
- SU – Unrankable (currently unrankable due to lack of information or substantially conflicting information about status or trend); or
- SX – Presumed extirpated in the state.



American Bumble Bee (G3) Owen McElroy

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We examined the SGCN list for those ranked S1 - S3 and found:

- 3 of 5 amphibian SGCNs are ranked S1 – S3;
- 26 bird species are included in this category, including one species (Whooping Crane) ranked S1, and one species (Thick-billed Longspur) ranked SH;
- 21 of 28 fish SGCNs are ranked S1 – S3;
- 11 freshwater mussel SGCNs (all) are ranked S1 or S2;
- 12 mammal SGCNs are ranked S1 – S3;
- 27 plant SGCNs are ranked S1 – S3; and
- 14 (of 17) reptile SGCNs are ranked S2 or S3.

The highest percentage of SGCN groups with state ranks of S1 – S3 are amphibians, reptiles, fish, freshwater mussels, and plants. The SGCN list includes 45 terrestrial insects. Of these, 33 species are listed as SU or SNR, 10 are ranked S1 – S3, and 1 species is ranked SX (Poweshiek Skipperling). Additional species groups with many undermined state ranks are aquatic insects (all 10 SGCNs ranked SNR), crayfish (all 4 SGCNs ranked SNR), and gastropods (all 5 SGCNs ranked SU).

As with the analysis of the global ranks, state rank assignments of SNR and SU are primarily associated with invertebrate species, which would clearly benefit from a greater monitoring emphasis. Unless species are federal listed, available match funding is extremely limited for these groups, making partnerships that much more critical. A recent emphasis on the importance of pollinators has resulted in significant funding to partner with landowners and land managers for pollinator plantings, but species monitoring continues to be very limited.

Primary habitats

The final column of Table 8.3 is the SGCN's primary habitat type or habitat(s) most critical for the species' survival and ability to reproduce. Habitat descriptors generally followed the 8 categories described earlier in this plan (grassland, forest, shrubland, badlands, riparian areas, wetland, lakes/reservoirs, and riversstreams). A few additional, more specific habitats were also used. In some cases, woodland habitat was considered a better fit than shrubland or forest.

Monitoring may focus on the health of these ecosystems and associated plant communities and/or include species-specific surveys to learn more about the associated SGCNs and related habitat needs.

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Table 8.1. A Sample of Species-based Monitoring with Relevance to South Dakota as of 2025 (Abbreviated Version).

Monitoring effort	Primary Sponsor(s)	Purpose	Taxonomic emphasis
North American Breeding Bird Survey	USGS.; Environment Canada; Conabio	monitor status and trends of North American bird populations	Breeding birds
Great Plains Bumble Bee Atlas	Xerces Society; USFWS	track and conserve native bumble bees of these states	Bumble bees
Midwest Bumble Bee Atlas	Xerces Society; USFWS	track and conserve native bumble bees of these states	Bumble bees
Project FeederWatch	Cornell Lab of Ornithology; Birds Canada; Wild Birds Unlimited	using standardized procedures, contribute to continental data set of bird distribution and abundance	Birds present during winter in habitats conducive to observation at bird feeders
Audubon Christmas Bird Count	National Audubon Society	census to assess long-term health and status of bird populations; historical origin: count birds during holidays rather than hunt them	Birds present during winter; sampling conducted in established 15-mile diameter circle
Great Backyard Bird Count	Cornell Lab of Ornithology; National Audubon Society; Birds Canada	four-day period in February to watch, count and report birds at sites chosen by participants; began entering data into eBird in 2013	Birds
Global Big Day	Cornell Lab of Ornithology; eBird	associated with World Migratory Bird Day; opportunity to submit bird sightings to eBird during 24 hours of a single selected day	Birds
Monarch Watch Tagging Program	Monarch Watch	improve understanding of dynamics of monarch fall migration through mark and recapture	Monarch butterfly
Aransas/Wood Buffalo	USFWS	monitor spring and fall migrations to assess	Whooping Crane

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Whooping Crane population migration monitoring	Service and cooperators	migration progress, monitor status of banded or radioed individuals and identify and address potential safety issues	
Integrated Monitoring in Bird Conservation Regions	Bird Conservancy of the Rockies	monitor status and trends of North American bird populations	Birds
Four-Square-Mile-Survey (also listed in Habitat Emphasis section)	USFWS HAPET	Monitor wetland habitat and assess waterfowl breeding densities	Waterfowl
Waterfowl Breeding Population and Habitat Survey (also listed in Habitat Emphasis section)	USFWS, Flyways	Monitor wetland habitat and waterfowl populations	Waterfowl
Midwinter Waterfowl Survey	USFWS, states, flyways	assess winter distribution of waterfowl; determine population trends for some species that breed in remote Arctic locations	Waterfowl
Midcontinent Sandhill Crane Survey	USFWS, states, flyways	assess spring abundance for Midcontinent Sandhill Cranes	Sandhill Crane
Federal Parts Collection	USFWS, Flyways, States	Harvest estimation and age ratios of ducks, geese, doves, woodcock, and geese	Migratory Game Birds
Operational Migratory Bird Banding	USFWS, Canadian Wildlife Service, flyways, states	Movements, harvest, and vital rates	Migratory Game Birds
Integrated Monarch Monitoring Program	Monarch Joint Venture and USGS	To estimate the survival rates of monarchs at different life stages for an Integrated Population Model (IPM)	Monarch butterfly
Monarch Larval Monitoring Program	Monarch Joint Venture and USGS	to better understand the distribution and abundance of breeding monarchs	Monarch butterfly

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Plowprint (also listed in Habitat Emphasis section)	WWF	Track annual grassland conversion to cropland in Great Plains and beyond	Grassland-dependent wildlife
North American Bat Monitoring Program (NABat)	USGS and USDA Forest Service	Summer bat occupancy	Bats
Missouri River Endangered Species Survey; upper Lake Oahe	US Army Corps of Engineers and SDGFP	Survey for nesting Least Terns and Piping Plovers on Mo. River to determine nesting colony locations, abundance and productivity	Birds
Banding of migratory nongame birds during spring and fall migration	SDGFP	Document nongame bird species during spring and fall migrations	Birds
Sharp-tailed Grouse and Greater Prairie-Chicken harvest age structure	SDGFP, USFWS	Annually determine sharp-tailed grouse and prairie-chicken reproductive success, species composition of harvest, and distribution of harvest	Birds
Greater Sage-Grouse spring survey and lek inventory	SDGFP	Annually determine status of sage grouse populations on known and historical leks and conduct periodic aerial observations to detect previously unidentified leks	Birds
Bobcat population dynamics and age structure	SDGFP	Annually determine age, gender, and population structure for use in statistical population reconstruction and management	Furbearers
River otter distribution and demographics	SDGFP	Annually estimate distribution and demographics	Furbearers
Wildlife mortality investigations	SDGFP	Determine presence and extent of new and recurring wildlife diseases in the state	Birds, mammals, and fishes (Pittman-Robertson funded)
Big game surveys	SDGFP	Investigate population demographics for management decisions, including hunting regulations	Game birds and mammals
Black-tailed prairie dog acreage surveys	SDGFP	Periodically reestimate prairie dog acreage as part of commitment to multistate management of this species and in compliance with state prairie dog management plan	black-tailed prairie dog

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Survey for rare butterfly species of tallgrass prairie habitats	SDGFP, USFWS, Sisseton-Wahpeton Oyate tribe, SDGFP	Survey known and historical sites for presence of rare butterfly species, with an emphasis on Dakota Skipper and Poweshiek Skipperling; provide technical assistance to habitat managers for enhancements for these and related species	Lepidoptera
Black-footed ferret surveys and associated sylvatic plague monitoring	USFWS, USFS, NPS, participating Native American tribes, and contractors, such as Prairie Wildlife Research	Survey populations at various sites supporting reintroduced ferret populations; monitor status and spread of sylvatic plague at ferret sites	Mammals (black-footed ferret)
Fish population surveys	SDGFP	Assessments of fish communities in lakes, streams and rivers	Fish
Topeka shiner	SDGFP	determine distribution of Topeka Shiner in SD	Fish
Aquatic Invasive Species (also included in Habitat Emphasis section)	SDGFP	Document current distribution of AIS in SD	AIS
Water Quality Program (also included in Habitat Emphasis section)	DANR	Presence/absence surveys for fish and mussels to determine water quality standards	Fish Freshwater Mussels
Watershed Protection Program (also included in Habitat Emphasis section)	DANR	Index of Biotic Integrity at reference sites to develop water quality standards	Fish Aquatic Invertebrates
National Rivers and Streams Assessment (also included in Habitat Emphasis section)	DANR/EPA	Assess the water quality of our rivers and streams by surveying biological, chemical, physical, and human health characteristics of sites.	Fish Benthic invertebrates
Endangered Species Assessment Compliance reports	SD Dept. of Transportation (SD DOT)	Prepares environmental impact statements, Environmental Assessments, and Endangered Species Assessment Compliance reports for Topeka Shiner and American Burying Beetle at construction projects	Fish Invertebrates
North American Breeding Bird Survey	U.S.G.S.; Environment Canada; Conabio	monitor status and trends of North American bird populations	breeding birds

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Great Plains Bumble Bee Atlas	Xerces Society; USFWS	track and conserve native bumble bees of these states	bumble bees
Midwest Bumble Bee Atlas	Xerces Society; USFWS	track and conserve native bumble bees of these states	bumble bees
Project FeederWatch	Cornell Lab of Ornithology; Birds Canada; Wild Birds Unlimited	using standardized procedures, contribute to continental data set of bird distribution and abundance	birds present during winter in habitats conducive to observation at bird feeders
Audubon Christmas Bird Count	National Audubon Society	census to assess long-term health and status of bird populations; historical origin: count birds during holidays rather than hunt them	birds present during winter; sampling conducted in established 15-mile diameter circle
Great Backyard Bird Count	Cornell Lab of Ornithology; National Audubon Society; Birds Canada	four-day period in February to watch, count and report birds at sites chosen by participants; began entering data into eBird in 2013	birds

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Table 8.2. A Sample of Habitat-based Monitoring with Relevance to South Dakota as of 2025 (Abbreviated Version).

Monitoring effort	Targeted habitat	Geographical area	Purpose
Aquatic Connectivity Program (Southeast Aquatic Resources Partnership - SARP)	Streams and Rivers	9+ states (MT, WY, UT, CO, KS, NE, SD, ND)	Surveying aquatic barriers to identify and prioritize aquatic barriers in need of attention
319 Nonpoint Source Pollution Program	Waters and Watersheds	US EPA Region 8	Watershed assessment and planning, implementation, monitoring, ground water, and information and education
South Dakota Statewide Lake Assessment	Lakes	South Dakota	To determine if lakes are meeting their water quality standards and supporting their beneficial uses, identify lakes for protection and restoration and to identify long-term trends in lake water quality and habitat conditions.
Four-Square-Mile-Survey	Wetlands	Prairie Potholes region	Monitor wetland habitat and assess waterfowl breeding densities
Waterfowl Breeding Population and Habitat Survey	Wetlands/waterfowl nesting habitat	traditional survey areas	Monitor wetland habitat and waterfowl populations
Aquatic Invasive Species (AIS)	Aquatic habitats	Statewide	Document current distribution of AIS in SD
SD Water Quality Program	Fish and Freshwater Mussels as indicators of water quality	Statewide	Presence/absence surveys for fish and mussels to determine water quality standards
SD Watershed Protection Program	Fish and Aquatic Invertebrates as indicators of water quality	Statewide	Index of Biotic Integrity at reference sites to develop water quality standards
National Rivers and Streams Assessment	Fish and Benthic invertebrates as indicators of water quality	Statewide	Assess the water quality of our rivers and streams by surveying biological, chemical, physical, and human health characteristics of sites.
South Dakota Forest Inventory and Analysis (FIA)	Forests	Statewide	Inventory forest land area, species, size, health, tree growth, mortality and removals; assess wood product production and utilization rates; and determine forest land ownership

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Nationwide Forest Inventory	Forests	U.S. States and territories	The FIA Program collects, analyzes, and reports information on the status, trends, and condition of America's forests: how much forest exists, where it exists, who owns it, and how it is changing, as well as how the trees and other forest vegetation are growing and how much has died or has been removed in recent years.
SD Forest Health Monitoring	Forests	Statewide	Monitor and publicize threats to forest health, including emerald ash borer, mountain pine beetle, and various additional invasives, insects, and diseases; publish Tree Pest Alerts in cooperation with SDSU Extension.
Plowprint	Grasslands	prairie dominated regions of the U.S. and Canada	Track annual grassland conversion to cropland
Black Hills National Forest inventory assessments for Forest Plan Revision	Timber; forested ecosystems; non-forested ecosystems; aquatic, riparian and groundwater dependent ecosystems; wild and scenic rivers	BHNF	BHNF is in the process of updating various assessments required for Forest Plan Revision
National Wetlands Inventory	American wetlands and deepwater habitats	coterminous U.S., Hawaii, Puerto Rico, Virgin Islands, Guan, major Northern Mariana Islands and portions of Alaska	monitor wetland habitat changes through time; produce and distribute data on wetlands and deepwater habitats through the Wetlands Mapper tool to support research and land management and policy decisions
Aquatic Connectivity Program (Southeast Aquatic Resources Partnership - SARP)	Streams and Rivers	9+ states (MT, WY, UT, CO, KS, NE, SD, ND)	Surveying aquatic barriers to identify and prioritize aquatic barriers in need of attention
319 Nonpoint Source Pollution Program	Waters and Watersheds	US EPA Region 8	Watershed assessment and planning, implementation, monitoring, ground water, and information and education

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South Dakota Statewide Lake Assessment	Lakes	South Dakota	To determine if lakes are meeting their water quality standards and supporting their beneficial uses, identify lakes for protection and restoration and to identify long-term trends in lake water quality and habitat conditions.
Four-Square-Mile-Survey	Wetlands	Prairie Potholes region	Monitor wetland habitat and assess waterfowl breeding densities
Waterfowl Breeding Population and Habitat Survey	Wetlands/waterfowl nesting habitat	Traditional survey Areas	Monitor wetland habitat and waterfowl populations
Rangeland Analysis Platform	Rangelands	nationwide	Visualize and analyze vegetation data for U.S.; examine trends at pasture, ranch, watershed, or broader scales
Native Habitats Study	Grasslands	South Dakota	Continue to monitor and quantify extent of remaining grasslands

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Table 8.3. South Dakota Species of Greatest Conservation Need List with Primary Habitat Indicated.

Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^c	State Rank ^d	Primary Habitate
AMPHIBIANS (5 species)						
Blanchard's Cricket Frog	<i>Acris blanchardi</i>			G5	S2	Wetland
Cope's Gray Treefrog	<i>Hyla chrysoscelis</i>			G5	S2	Wetland
Great Plains Toad	<i>Anaxyrus cognatus</i>			G5	S5	Multiple (grassland, wetland)
Plains Spadefoot	<i>Spea bombifrons</i>			G5	S5	Grassland
Wood Frog	<i>Lithobates sylvaticus</i>			G5	S1	Multiple (wetland, grassland, forest)
Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitate
AQUATIC INSECTS (10 species)						
A Small Square-gilled Mayfly	<i>Sparbarus nasutus</i>			G3	SNR	Wetland
Dakota Stone	<i>Perlesta dakota</i>			G3	SNR	Wetland
Dot-winged Baskettail	<i>Epitheca petechialis</i>			G4	SNR	Wetland
Elusive Clubtail	<i>Stylurus notatus</i>			G3	SNR	Wetland
Extraordinary Bow-legged Minnow Mayfly	<i>Analetris eximia</i>			G3	SNR	Wetland
Fox Small Square-gilled Mayfly	<i>Cercobrachys fox</i>			G3	SNR	Wetland
Plains Emerald Dragonfly	<i>Somatochlora ensigera</i>			G4	SNR	Wetland
Riverine Clubtail	<i>Stylurus amnicola</i>			G4	SNR	Wetland
White Sand-river Mayfly	<i>Pseudiron centralis</i>			G5	SNR	Wetland
White Small Minnow Mayfly	<i>Centroptilum album</i>			G5	SNR	Wetland

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Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e
BIRDS (52 species)						
American Dipper	<i>Cinclus mexicanus</i>		T	G5	S2	Rivers/streams
American Kestrel	<i>Falco sparverius</i>			G5	S4	Multiple
American Goshawk	<i>Accipiter atricapillus</i>			G5	S2	Forest
American Three-toed Woodpecker	<i>Picoides dorsalis</i>			G5	S2	Forest
Baird's Sparrow	<i>Centronyx bairdii</i>			G4	S2	Grassland
Bald Eagle	<i>Haliaeetus leucocephalus</i>			G5	S4	Multiple
Black Tern	<i>Chlidonias niger</i>			G4	S3	Wetland
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>			G5	S4	Forest
Black-billed Magpie	<i>Pica hudsonia</i>			G5	S4	Woodland
Black-backed Woodpecker	<i>Picoides arcticus</i>			G5	S2	Forest
Bobolink	<i>Dolichonyx oryzivorus</i>			G5	S4	Grassland
Buff-breasted Sandpiper	<i>Calidris subruficollis</i>			G4	SNR	Multiple (grassland, wetland)
Burrowing Owl	<i>Athene cunicularia</i>			G4	S3	Grassland
Chestnut-collared Longspur	<i>Calcarius ornatus</i>			G5	S4	Grassland
Chimney Swift	<i>Chaetura pelagica</i>			G4	S4	Other (residential)
Clark's Grebe	<i>Aechmophorus clarkii</i>			G5	S2	Wetland
Ferruginous Hawk	<i>Buteo regalis</i>			G4	S3	Grassland
Franklin's Gull	<i>Leucophaeus pipixcan</i>			G5	S5	Wetland
Golden Eagle	<i>Aquila chrysaetos</i>			G5	S3	Cliffs or canyons
Grasshopper Sparrow	<i>Ammodramus savannarum</i>			G5	S4	Grassland
Greater Prairie-Chicken	<i>Tympanuchus cupido</i>			G4	S4	Grassland

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Greater Sage-Grouse	<i>Centrocercus urophasianus</i>			G3	S2	Shrubland
Horned Lark	<i>Eremophila alpestris</i>			G5	S5	Grassland
Hudsonian Godwit	<i>Limosa haemastica</i>			G4	SNR	Wetland
Lark Bunting	<i>Calamospiza melanocorys</i>			G5	S5	Grassland
Le Conte's Sparrow	<i>Ammospiza leconteii</i>			G5	S2	Multiple (grassland, wetland)
Least Tern	<i>Sternula antillarum</i>	E	G4	S3		Wetland, lakes/reservoirs
Lewis's Woodpecker	<i>Melanerpes lewis</i>		G4	S2		Forest
Loggerhead Shrike	<i>Lanius ludovicianus</i>		G4	S3		Woodland
Long-billed Curlew	<i>Numenius americanus</i>		G5	S3		Grassland
Marbled Godwit	<i>Limosa fedoa</i>		G5	S5		Grassland
Merlin	<i>Falco columbarius</i>		G5	S2		Woodland
Osprey	<i>Pandion haliaetus</i>	T	G5	S3		Multiple (wetland, forest)
Peregrine Falcon	<i>Falco peregrinus</i>	T	G4	S1		Cliffs or canyons
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>		G3	S3		Pinyon-juniper woodlands
Piping Plover	<i>Charadrius melanodus</i>	T	T	G3	S3	Wetland, lakes-reservoirs
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>			G5	S5	Forest
Rock Wren	<i>Salpinctes obsoletus</i>			G5	S4	Cliffs or canyons (or other rocky habitats)
Ruffed Grouse	<i>Bonasa umbellus</i>			G5	S4	Forest
Semipalmated Sandpiper	<i>Caladris pusilla</i>			G5	SNR	Wetland, lakes/reservoirs
Short-eared Owl	<i>Asio flammeus</i>			G5	S3	Grassland
Sprague's Pipit	<i>Anthus spragueii</i>			G3	S2	Grassland
Thick-billed Longspur	<i>Rhynchophanes mccownii</i>			G4	SH	Grassland

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Trumpeter Swan	<i>Cygnus buccinator</i>			G4	S3	Wetland
Upland Sandpiper	<i>Bartramia longicauda</i>			G5	S5	Grassland
Virginia's Warbler	<i>Leiothlypis virginiae</i>			G5	S2	Shrubland
Western Grebe	<i>Aechmophorus occidentalis</i>			G5	S4	Wetland
White-winged Junco	<i>Junco hyemalis aikeni</i>			G5T4	S4	Forest
Whooping Crane	<i>Grus americana</i>	E	E	G1	S1	Multiple (wetland, fallow agricultural fields)
Willet	<i>Tringa semipalmata</i>			G5	S5	Multiple (grassland, wetland)
Wilson's Phalarope	<i>Phalaropus tricolor</i>			G5	S4	Multiple (grassland, wetland)
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>			G5	S3	Multiple (forest, woodland)
Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e

CRAYFISH (4 species)

Calico Crayfish	<i>Orconectes immunis</i>			G5	SNR	Wetland
Devil Crayfish	<i>Cambarus diogenes</i>			G5	SNR	Wetland
Ringed Crayfish	<i>Faxonius neglectus</i>			G5	SNR	Wetland
Virile Crayfish	<i>Orconectes virilis</i>			G5	SNR	Wetland
Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e

FISHES (28 species)

Banded Killifish	<i>Fundulus diaphanus</i>		E	G5	S1	Multiple (lake/reservoir, river/stream)
Blacknose Shiner	<i>Notropis heterolepis</i>		E	G5	S1	River/stream
Blackside Darter	<i>Percina maculata</i>			G5	S3	River/stream
Blue Catfish	<i>Ictalurus furcatus</i>			G5	S5	River/stream
Blue Sucker	<i>Cyclopterus elongatus</i>			G3	S3	River/stream
Burbot	<i>Lota lota</i>			G5	S5	River/stream
Carmine Shiner	<i>Notropis percobromus</i>			G5	S2	River/stream

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Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e
FRESHWATER MUSSELS (11 species)						
Black Sandshell	<i>Ligumia recta</i>			G4	S2	River/stream
Creek Heelsplitter	<i>Lasmigona compressa</i>			G5	S2	River/stream
Elktoe	<i>Alasmidonta marginata</i>			G4	S1	River/stream
Flat Floater	<i>Utterbackiana suborbiculata</i>			G5	S1	Multiple (wetland, river/stream)

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Hickorynut	<i>Obovaria olivaria</i>			G4	S1	River/stream
Higgins Eye	<i>Lampsilis higginsii</i>	E		G1	S1	River/stream
Mapleleaf	<i>Quadrula quadrula</i>			G5	S2	Multiple (river-stream, lake/reservoir)
Pimpleback	<i>Cyclonaias pustulosa</i>			G5	S2	Multiple (river-stream, lake/reservoir)
Rock Pocketbook	<i>Arcidens confragosus</i>			G4	S1	River/stream
Scaleshell	<i>Potamilus leptodon</i>	E		G1	S1	River/stream
Yellow Sandshell	<i>Lampsilis teres</i>			G5	S2	River/stream
Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e
GASTROPODS (5 species)						
Callused Vertigo Snail	<i>Vertigo arthuri</i>			G5	SU	Forest
Cooper's Rocky Mountainsnail	<i>Oreohelix cooperi</i>			G3	SU	Forest
Frigid Ambersnail	<i>Catinella gelida</i>			G1	SU	Forest
Mystery Vertigo	<i>Vertigo paradoxa</i>			G4	SU	Forest
Striate Disc	<i>Discus shimekii</i>			G5	SU	Forest
Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e
MAMMALS (28 species)						
Black-footed Ferret	<i>Mustela nigripes</i>	E	E	G1	S1	Grassland
Black Hills Red Squirrel	<i>Tamiasciurus hudsonicus dakotensis</i>			G5TNR	SNR	Forest
Eastern Red Bat	<i>Lasiurus borealis</i>			G3	S3	Forest
Franklin's Ground Squirrel	<i>Poliocitellus franklinii</i>			G5	S5	Grassland
Fringed Myotis (Fringe-tailed Myotis)	<i>Myotis thysanodes pahasapensis</i>			G4T3	S2	Forest
Little Brown Bat (Little Brown Myotis)	<i>Myotis lucifugus</i>			G3	S3	Forest
Long-eared Myotis	<i>Myotis evotis</i>			G5	S1	Forest
Long-legged Myotis	<i>Myotis volans</i>			G4	S4	Forest
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>			G5	S3	Forest
Northern Hoary Bat	<i>Lasiurus cinereus</i>			G3	S3	Forest
Northern Myotis	<i>Myotis septentrionalis</i>	E		G2	S2	Forest
Plains Spotted	<i>Spilogale interrupta</i>			G3	S3	Multiple (grassland,

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Skunk						agricultural settings)
Richardson's Ground Squirrel	<i>Urocitellus richardsonii</i>			G5	S5	Grassland
Silver-haired Bat	<i>Lasionycteris noctivagans</i>			G3	S3	Forest
Swift Fox	<i>Vulpes velox</i>		T	G3	S3	Grassland
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>			G4	S2	Forest
Tricolored Bat	<i>Perimyotis subflavus</i>	PE		G3	SNR	Forest
White-tailed Jackrabbit	<i>Lepus townsendii</i>			G5	S4	Grassland
Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e
PLANTS (40 species)						
Autumn Willow	<i>Salix serissima</i>			G5	S1	Wetland
Barr's Milkvetch	<i>Astragalus barrii</i>			G3	S3	Badlands
Big Sagebrush	<i>Artemisia tridentata</i>			G5	SNR	Shrubland
Bloodroot	<i>Sanguinaria canadensis</i>			G5	S4?	Forest
Blue Cohosh	<i>Caulophyllum thalictroides</i>			G5	S3	Forest
Colorado Birchleaf Mountain-mahogany	<i>Cercocarpus montanus</i>			G5	S3	Woodland
Compass Plant	<i>Silphium laciniatum</i>			G5	S3	Grassland
Dakota Buckwheat	<i>Eriogonum visheri</i>			G3	S3	Grassland
Downy Gentian	<i>Gentiana puberulenta</i>			G4	S4	Grassland
Elegant Sedge	<i>Carex bella</i>			G5	S1	Wetland
Fendler's Whitethorn	<i>Ceanothus fendleri</i>			G5	S2	Multiple (forest, woodland)
Giant Helleborine (Stream Orchid)	<i>Epipactis gigantea</i>			G4	S1	Wetland
Kalm's Lobelia	<i>Lobelia kalmii</i>			G5	S2	Wetland
Leedy's Roseroot	<i>Rhodiola integrifolia</i> ssp. <i>leedyi</i>	T		G5T1	S1	Cliffs or canyons
Loesel's Twayblade	<i>Liparis loeselii</i>			G5	S1	Wetland
Long-leaved Lousewort	<i>Pedicularis procera</i>			G4	S2	Forest
Marsh Marigold	<i>Caltha palustris</i>			G5	SNR	Wetland
Mountain Huckleberry	<i>Vaccinium membranaceum</i>			G5	S2	Forest
Nodding	<i>Trillium cernuum</i>			G5	S2	Forest

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Trillium						
Paper Birch/ Hazel Forest	Beaked Hazel (<i>Corylus cornuta</i>) as representative species		G2	SNR		Forest
Prairie Dunewort	<i>Botrychium campestre</i>		G3	S2		Grassland
Prairie Violet	<i>Viola pedatifida</i>		G5	SNR		Grassland
Quaking Aspen	<i>Populus tremuloides</i>		G5	SNR		Forest
Rydberg's Twinpod	<i>Physaria brassicoides</i>		G5	S3		Badlands (and other rocky habitats)
Sage Willow	<i>Salix candida</i>		G5	S1		Wetland
Sand Lovegrass	<i>Eragrostis trichodes</i>		G5	S4		Sandhills
Sand Sagebrush	<i>Artemisia filifolia</i>		G5	SNR		Shrubland
Silver-mounded Candleflower	<i>Cryptantha cana</i>		G5	S2		Shrubland
Small-flower Sand-verbena (Sand Puffs)	<i>Tripterocalyx micranthus</i>		G5	S1		Grassland
Small Fringed Gentian	<i>Gentianopsis procera</i>		G5	S2		Wetland
Small White Lady's-slipper	<i>Cypripedium candidum</i>		G4	S1		Grassland
Smooth Goosefoot	<i>Chenopodium subglabrum</i>		G3	S2		Other (sandy or sand dune habitats outside Sandhills)
Snow Trillium	<i>Trillium nivale</i>		G4	S2		Woodland
Trailing Clubmoss (also known as groundcedar)	<i>Lycopodium complanatum</i>		G5	S2		Forest
Two-form Pussytoes (also known as Low Pussytoes)	<i>Antennaria dimorpha</i>		G5	S1		Multiple (shrubland, mountain foothills)
Western Porcupinegrass (formerly Canadian Needlegrass)	<i>Heterostipa curtipetala</i> (formerly <i>Stipa curtipetala</i>)		G5	SNR		Grassland
Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	T	G3	SH		Grassland
White Spruce/Grouseberry Forest (<i>Pinus glauca</i> , <i>Vaccinium scoparium</i>)	Grouseberry (<i>Vaccinium scoparium</i>) as representative species		G5	SNR		Forest
White Spruce/Twinflower Forest (<i>Pinus</i>)	Twinflower (<i>Linnaea borealis</i>) as representative species		G5	SNR		Forest

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<i>glaucha, Linnaea borealis)</i>						
Woolly Milkweed	<i>Asclepias lanuginosa</i>			G4	S2	Grassland
Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e
REPTILES (17 species)						
Black Hills Red-bellied Snake	<i>Storeria occipitomaculata pahasapae</i>			G5T4Q	S3	Forest
Common Lesser Earless Lizard	<i>Holbrookia maculata</i>			G5	S2	Grassland
Common Sagebrush Lizard	<i>Sceloporus graciosus</i>			G5	S2	Shrubland
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>		T	G5	S2	Multiple (sandy habitats along rivers)
False Map Turtle	<i>Graptemys pseudogeographica</i>		T	G5	S3	Wetland
Greater Short-horned Lizard	<i>Phrynosoma hernandesi</i>			G5	S3	Grassland
Lined Snake	<i>Tropidoclonion lineatum</i>		E	G5	S2	Multiple (grassland, woodland, residential)
Many-lined Skink	<i>Plestiodon multivirgatus</i>			G5	S2	Sandhills
Milksnake	<i>Lampropeltis triangulum</i>			G5	S4	Multiple
Ornate Box Turtle	<i>Terrapene ornata</i>			G4	S3	Grassland
Plains Hog-nosed Snake	<i>Heterodon nasicus</i>			G5	S5	Grassland
Prairie Skink	<i>Plestiodon septentrionalis</i>			G5	S5	Grassland
Six-lined Racerunner	<i>Aspidoscelis sexlineata</i>			G5	S2	Grassland
Smooth Greensnake	<i>Opheodrys vernalis</i>			G5	S3	Multiple (grassland, residential)
Smooth Softshell	<i>Apalone mutica</i>			G5	S3	Wetland
Spiny Softshell	<i>Apalone spinifera</i>			G5	S3	Wetland
Western Foxsnake	<i>Pantherophis ramspotti</i>			G5	S2	Multiple
Common Name	Scientific Name	Federal Status ^a	State Status ^b	Global Rank ^d	State Rank ^e	Primary Habitat ^e
TERRESTRIAL INSECTS (45 species)						
A Dieunomia Bee				G3	SNR	Multiple (grassland, sand dunes, agricultural areas)
A Leafcutter Bee	<i>Megachile dakotensis</i>			G2	SNR	Grassland
A Nomia Bee	<i>Nomia universitatis</i>			G3	SNR	Grassland

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American Bumble Bee	<i>Bombus pensylvanicus</i>			G3	SNR	Grassland
American Burying Beetle	<i>Nicrophorus americanus</i>	T		G3	S2	Grassland
Beautiful Tiger Beetle	<i>Cicindela pulchra pulchra</i>			G4T4	SU	Grassland
Blue Shining Mason Bee	<i>Osmia cyaneonitens</i>			G3	SU	Forest
Carlinian Snapper Grasshopper	<i>Circotettix carlinianus</i>			G5	SU	Grassland
Contrasting Spur-throat Grasshopper	<i>Melanoplus discolor</i>			G4	SU	Grassland
Dakota Skipper	<i>Hesperia dacotae</i>	T		G2	S2	Grassland
Eastern Veined White	<i>Pieris oleracea</i>			G5	SNR	Wetland
Garita Skipperling	<i>Oarisma garita</i>			G4	SNR	Multiple (grassland, woodland)
Ghost Tiger Beetle (Little White Tiger Beetle)	<i>Cicindela lepida</i>			G3	S1	Other (sandy habitats outside Sandhills)
Great Plains Giant Tiger Beetle	<i>Amblycheila cylindriformis</i>			G4	S1	Grassland
Indian Creek Tiger Beetle	<i>Cicindela nevadica makosika</i>			G5T1	S1	Badlands
Iowa Skipper	<i>Atrytone arogos iowa</i>			G2T2	S3	Grassland
Krauth's Sulphur	<i>Colias christina krauthii</i>			G5TNR	SNR	Multiple (forest meadows, roadsides)
Large Marble	<i>Euchloe ausonides</i>			G4	SNR	Multiple
Long's Ruddy Copper	<i>Tharsalea rubidus longi; aka Lycaena rubidus longi</i>			G4TNR	SNR	Other (sandy habitats outside Sandhills)
Marsh Firefly	<i>Photinus aquilonius</i>			GU	SNR	Multiple (wetland, open fields)
Monarch	<i>Danaus plexippus</i>	PT		G4	SNR	Multiple (grassland, agricultural areas, residential)
Morrison's Bumble Bee	<i>Bombus morrisoni</i>			G3	SNR	Shrubland
Mottled Duskywing	<i>Erynnis martialis</i>			G3	SNR	Woodland
Nine-spotted Lady Beetle	<i>Coccinella novemnotata</i>			G5	SNR	Multiple
Northern Sedge Locust	<i>Stethophyma gracile</i>			G5	SNR	Wetland
Occidental Digger Bee	<i>Anthophora occidentalis</i>			G4	SNR	Grassland
Ottoe Skipper	<i>Hesperia ottoe</i>			G3	S2	Grassland
Pahasapa Fritillary	<i>Speyeria atlantis pahasapa</i>			G5T3	S2	Forest
Pahaska Skipper	<i>Hesperia pahaska</i>			G5	SNR	Grassland

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Poweshiek Skipperling	<i>Oarisma poweshiek</i>	E		G1	SX	Grassland
Regal Fritillary	<i>Argynnis idalia</i>	PT		G3	S3	Grassland
Robust Sunflower Leafcutter Bee	<i>Megachile fortis</i>			G2	SNR	Grassland
Rocky Mountain Sprinkled Locust	<i>Chloealtis abdominalis</i>			G5	SNR	Multiple (forest, grassland)
Sagebrush Buck Moth; aka hera sheepmoth	<i>Hemileuca hera</i>			G5	SNR	Shrubland
Sandy Tiger Beetle	<i>Cicindela limbata nympha</i>			G5T4	S4	Other (sandy habitats outside Sandhills)
Southern Plains Bumble Bee	<i>Bombus fraternus</i>			G3	SNR	Grassland
Southwestern Dusky Grasshopper	<i>Encoptolophus subgracilis</i>			G5	SNR	Grassland
Spiny-legged Leafcutter Bee	<i>Megachile dentitarsus</i>			G3	SNR	Grassland
Suckley's Cuckoo Bumble Bee	<i>Bombus suckleyi</i>			G2	SNR	Other (parasitic on bumble bees)
Tamarack Lady Beetle; aka mountain lady beetle	<i>Coccinella monticola</i>			GNR	SNR	Multiple
Tawny Crescent	<i>Phyciodes batesii</i>			G3	S1	Woodland
Variable Tiger Beetle	<i>Cicindela terricola</i>			G5	SNR	Grassland
Western Bumble Bee	<i>Bombus occidentalis</i>			G3	SNR	Multiple (residential, shrubland, grassland)
Yellow-banded Bumble Bee	<i>Bombus terricola</i>			G3	SNR	Multiple (woodland, residential, farmland, wetlands)
Yellow Bumble Bee	<i>Bombus fervidus</i>			G3	SNR	Multiple (forest, shrubland, residential)

^a**Federal Status** - E= Endangered, a species in danger of extinction throughout all or a significant portion of its range; T = Threatened, a species likely to become endangered in the foreseeable future; C = Candidate for federal listing; PT = proposed threatened; PE = proposed endangered

^b**State Status** - E= Endangered, a species in danger of extinction throughout all or a significant portion of its range in South Dakota; T = Threatened, a species likely to become endangered in the foreseeable future in South Dakota

^{c, d}**Global/State Rank Definition** (applied rangewide for global rank and statewide for state rank; these may change with new information)

G1 S1 = Critically imperiled because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 S2 = Imperiled because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 S3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors; in the range of 21 of 100 occurrences.

G4 S4 = Apparently secure, though it may be quite rare in parts of its range, especially at the periphery. Cause for long term concern.

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G5 S5 = Demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery.

GU SU = Possibly in peril, but status uncertain, more information needed.

GH SH = Historically known, may be rediscovered.

GX SX = Believed extinct, historical records only.

GNR SNR = Not yet ranked or not ranked at the state level because species is not monitored by SD Natural Heritage Program

_T = Rank of subspecies or variety

_Q = Taxonomic status is questionable; rank may change with taxonomy

^ePrimary Habitats:

- Grassland
- Forest
- Shrubland
- Badlands
- Riparian areas
- Wetlands
- Lakes/reservoirs
- Riversstreams
- Multiple (more than one habitat type)

Additional Habitat Types:

- Cliffs or canyons
- Woodlands
- Pinyon-juniper



Owen McElroy



Mandy Pearson

WILSON'S PHALAROPE (FEMALE SHOWN ABOVE) NEEDS MORE THAN ONE PRIMARY HABITAT. GRASSLANDS ARE THE MOST IMPORTANT HABITAT TYPE FOR THE UPLAND SANDPIPER (ABOVE RIGHT).