SOUTH DAKOTA DEPARTMENT OF
GAME, FISH AND PARKS
523 EAST CAPITOL AVENUE | PIERRE, SD 57501

May 22, 2023

Elizabeth Shelton
Acting Regional Manager
Wildlife and Sport Fish Restoration Program
U.S. Fish and Wildlife Service
Denver, CO 80225-0486

Dear Ms. Shelton,

We are pleased to share with you that our agency has embarked on a comprehensive review and revision of the South Dakota Wildlife Action Plan. We have submitted a planning grant proposal and are scheduled to commence work on July 1, 2023, with a completion target of June 30, 2025.

Our team is well-versed in the 2017 document titled "Guidance for Wildlife Action Plan Review and Revision" prepared by the U.S. Fish and Wildlife Service and the Association of Fish and Wildlife Agencies. Additionally, we have closely followed other guidance and reference materials related to tribal engagement, climate change adaptation, best practices for plan review and revision, and incorporating full annual cycle needs for birds. We have also leveraged various tools to enhance coordination across state boundaries, as recommended by regional fish and wildlife associations.

We are confident in our ability to make significant contributions to this crucial conservation planning endeavor and are eagerly anticipating the opportunity to work collaboratively with the U.S. Fish and Wildlife Service.

Sincerely,

Kevin Robling, *Department Secretary*
South Dakota Game, Fish & Parks

cc: Amanda Horvath; USFWS Amity Bass; USFWS Tanna Zabel; SDGFP
Tom Kirschenmann; SDGFP
Chad Switzer; SDGFP
John Kanta; SDGFP
John Lott; SDGFP
Andrew Norton; SDGFP

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mountain-Prairie Region

IN REPLY REFER TO:

FWS/R6/WSFR

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P.O. Box 25486, Attn: WSFR
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134 Union Boulevard, Suite 460B
Lakewood, Colorado 80228-1807

June 2, 2023

Kevin Robling, Department Secretary
South Dakota Department of Game, Fish and Parks
523 East Capitol Avenue
Pierre, South Dakota 57501

Dear Mr. Robling:

We are writing to inform you that we received your letter dated May 22, 2023 which states that your agency is planning on completing your Comprehensive Revision of the South Dakota Wildlife Action Plan (SWAP) by June 30, 2025.

We appreciate this opportunity to be of service and thank you for your commitment to the conservation of Species of Greatest Conservation Need in South Dakota. Please do not hesitate to contact Amanda Horvath at (303) 236-4414 or me at (303) 236-7394 if you have any questions or need further assistance with the comprehensive review of the SWAP.

Sincerely,

Elizabeth Shelton

Elizabeth Shelton
Acting Regional Manager
Wildlife and Sport Fish Restoration Program

South Dakota Game, Fish and Parks

cc: Tanna Zabel, Federal Aid Coordinator, South Dakota Department of Game, Fish and Parks
Eileen Dowd Stukel, Senior Wildlife Diversity Biologist, South Dakota Department of Game, Fish and Parks

Appendix B. South Dakota Wildlife Action Plan implementation accomplishments from 2015 - 2024; completed or approved State Wildlife Grant and Competitive-State Wildlife Grant projects.

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
STATE WILDLIFE GRANTS – PROJECTS COMPLETED FROM 2015 - 2024				
Breeding ecology of ferruginous hawks and golden eagles in north-central and western South Dakota (T-58)	• Document nest locations, evaluate reproductive parameters and food habits, document mammalian prey species abundance, and identify landscape characteristics associated with nesting areas	PhD dissertation, related data, and associated publications; Shubham Datta	South Dakota State University	Golden Eagle, Ferruginous Hawk
Evaluation of the James River Conservation Reserve Enhancement Program in SD (T-59)	• Assess effects of James River CREP on water quality, aquatic habitats, and avifauna	Two PhD dissertations (David Schumann and Jarrett Pfrimmer), related data, and a variety of publications in technical journals	South Dakota State University; USGS - SD Cooperative Wildlife and Fisheries Research Unit at SDSU	Terrestrial and aquatic SGCNs found in eastern SD
Preliminary investigation of the role of small mammals in the maintenance of plague on Lower Brule black-tailed prairie dog colonies (T-60)	• Assess a variety of parameters related to prevalence of sylvatic plague on prairie dog colonies and effects of deltamethrin use on small rodents	PhD dissertation, related data, and associated publications; Lauren Maestas	University of South Dakota, Lower Brule Santee Sioux Tribe	Mammal species associated with black-tailed prairie dog colonies, such as black-footed ferret and swift fox
A population survey of mussels in South Dakota rivers (T-61)	• Assess mussel populations, distribution, abundance, and habitat affinities; provide monitoring recommendations	Master of Science thesis, related data, and associated publications; Kaylee Faltys	South Dakota State University	2025 SD SGCN list includes 11 freshwater mussel species

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
Status of salamander species in South Dakota (T-62)	• Sample tiger salamander populations for presence of ranavirus to assess threat to other herptile species	Final report, associated data, and relevant publications	University of South Dakota	False Map Turtle, Smooth Softshell, Cope's Gray Treefrog, Blanchard's Cricket Frog
Updating and evaluating distribution, density, and movement patterns of Mountain Sucker in SD (T-63)	• Update information on Mountain Sucker and Longnose Sucker in Black Hills of SD	PhD dissertation, related data, and publications; Seth Fopma	South Dakota State University	Mountain Sucker, Longnose Sucker
Continued analysis of migratory bat data from SD (T-64)	• Assess nightly bat activity at selected migration sites during spring and fall migration; assess environmental variable correlations with activity; provide monitoring recommendations	Final report	BatWorks, LLC	2025 SD SGCN list includes several migratory bat species, including eastern red bat, northern hoary bat, and silver-haired bat
Population estimate for Black-backed Woodpecker in the Black Hills (T-65)	• Determine relationships between species density and environmental and habitat variables; estimate species density for Black Hills and Bear Lodge Mountains	M.S. Thesis, related data, and relevant publications; Elizabeth Matseur	U.S. Forest Service, University of Missouri – Columbia	Black-backed Woodpecker
Pilot study of use of otolith microchemistry to identify Blue Sucker distribution and habitat use (T-66)	• Determine natal habitats of blue suckers in Missouri River, SD, using this technique	Final report, associated data, and relevant publications	South Dakota State University	Blue Sucker

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
Small-stream fish ladders for steel culverts (T-67)	• Test techniques to improve passability of culverts in natural streams of eastern and western SD	M.S. Thesis, related data, and relevant publications; John Lorensen	South Dakota State University	Topeka Shiner, Carmine Shiner, Central Stoneroller
Examining impacts of agricultural tile drainage on wetland fauna in eastern SD (T-68)	• Assess water quality in wetlands affected by tile drainage; examine relationship between water quality and 5 end point variables	Final report, associated data, and relevant publications	University of South Dakota, USFWS	American White Pelican, Black Tern, Willet, Marbled Godwit, Wilson's Phalarope
Upgrading South Dakota Ornithologists' Union's (SDOU) bird reporting system to improve knowledge of rare bird species in SD (T-69)	• Improve functionality of SDOU bird reporting system through a variety of ways made possible with this funding assistance	Final report, enhanced bird reporting system on website hosted by Dakota State University	Dakota State University, SD Ornithologists' Union	Potentially all 52 bird SGCNs on the current list
Reproductive ecology and habitat selection of Greater Sage-Grouse in Harding County, SD (T-70)	• Investigate a variety of variables affecting reproductive success of this species in northwestern SD	PhD dissertation, related data, and relevant publications; Lindsey Bischoff	South Dakota State University, Bowling Green State University	Greater Sage-Grouse and other SGCNs associated with sage-steppe ecosystems (Big Sagebrush, Sand Sagebrush, Common Sagebrush Lizard, Sagebrush Buck Moth)
Wildlife species of greatest conservation need habitat survey and inventory of plant communities on twelve SD game production areas within the Black Hills, SD (T-71)	• Survey selected GPAs for all SGCNs, provide site-specific habitat data, survey plant species, provide GIS maps and veg. data	Final report, including individual GPA reports	Ecological Delineations, Inc.	SGCNs found in the Black Hills
Population characteristics, movement, and habitat use of Shovelnose Sturgeon in Lake Sharpe, SD (T-72)	• Determine recruitment, growth and mortality of this species; determine seasonal movements and habitat use	Final report, associated data, and relevant publications		Shovelnose Sturgeon

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
Evaluating impacts of prescribed fire on Dakota skipper populations and habitats (T-73)	• Evaluate impacts of prescribed fire on adult and larval habitat quality and populations of Dakota skippers	Final report, associated data, and relevant publications	TNC	Dakota skipper and other invertebrate SGCNs with similar habitat needs
Design and assessment of dreissenid veliger filtration system for field use (T-74)	• Design portable filtration system for filtering raw water; test efficacy of system and identify potential limiting factors, and develop standard protocol to incorporate into standard fish culture, management, and research	Final report, associated data, protocols, and relevant publications		Aquatic species subject to impacts of invasive dreissenid mollusks
Public opinions of native nongame fishes in the Black Hills (T-75)	• Identify attitudes of Black Hills residents about values of native nongame fishes and native nongame fish management in the Black Hills	Final report, associated data, and relevant publications	South Dakota State University	Lake Chub, Mountain Sucker, Longnose Sucker
Identification and monitoring of American Dipper populations and inhabited areas in SD (T-76)	• Conduct annual surveys for 2 years in breeding habitats, monitor reproductive variables, and band adult and nestling dippers	Final report, associated data, and relevant publications	Bird Conservancy of the Rockies	American Dipper
Surveys for false map turtles and identification of key nesting sites in the upper Missouri River of SD (T-77)	• Quantify false map turtles in Lake Oahe and associated tributaries, estimate population size and collect demographic	PhD dissertation, associated data, and relevant publications; Anna Kase	University of South Dakota	False Map Turtle, Smooth Softshell, Spiny Softshell

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
	data, determine high quality nesting sites, and record presence of other turtle species			
Associating swift fox presence with the distribution of other carnivores in western SD (T-78)	• Assess distribution in northwestern SD and southwestern ND, assess red fox relative abundance in areas with lethal control	M.S. thesis, associated data, and relevant publications; Emily Mitchell	South Dakota State University, Oregon State University	Swift Fox
Native pollinator inventory in northeastern SD (T-79) See also T-97	• Inventory diversity of primary pollinator groups in northeastern SD, assess presence and populations of butterfly species, document seasonal changes in flower availability and relate to pollinator communities	M.S. Thesis, associated data, and relevant publications; Kendal Davis	South Dakota State University	Dakota Skipper, Poweshiek Skipperling, Iowa Skipper, Ottoe Skipper, Regal Fritillary; additional bee species added during 2025 SGCN list revision
Conservation genetics and management of the Black Hills redbelly snake (T-80)	• Determine amount of genetic variation in these populations to assess genetic isolation, study prey remains of dead snakes and through nonlethal sample collection	M.S. Theses, associated data, and relevant publications; Jessica Clark and Kailey DeVries	Black Hills State University	Black Hills Red-bellied Snake
Surveys for nesting peregrine falcons in western SD (T-81)	• Monitor nest occupancy and productivity of nests, surveys new potential locations to identify suitable cliff nesting	Final report, associated data, and relevant publications	Land management agencies in Black Hills, various private landowners	Peregrine Falcon

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
	sites; survey suitable cliff nesting sites			
Distribution, habitat selection and survival of plains spotted skunks in South Dakota, USA (T-82)	• Delineate distribution, quantify ecological and biological correlates with habitat selection, estimate survival rates of this species	PhD dissertation, related data, and relevant publications; Kara White	South Dakota State University, USGS - Oklahoma Cooperative Wildlife and Fisheries Research Unit at Oklahoma State University, USGS - SD Cooperative Wildlife and Fisheries Research Unit at SDSU	Plains Spotted Skunk
Western South Dakota game production area breeding bird inventory and monitoring (T-83)	• Conduct 2 seasons of bird surveys on selected Region 1 GPAs to generate bird species lists, estimate densities, population sizes, and occupancy rates of Black Hills GPAs	Final report, associated data, and relevant publications	Bird Conservancy of the Rockies	Ruffed Grouse, American Goshawk, White-winged Junco, American Three-toed Woodpecker, Black-backed Woodpecker, Lewis's Woodpecker
Evaluation of northern goshawk population viability on Black Hills National Forest (T-84)	• Compile existing nesting data, assess relationship between existing population, nest site presence and habitat data, identify monitoring and research data needed for future monitoring of population viability of this species in the Black Hills	Final report, associated data, and relevant publications	BHNF, Beartooth Wildlife Research, LLC	American Goshawk
Customization and adoption of NatureServe's environmental review tool (ERT) for SD (T-85)	• Contract with NatureServe to create this customized tool to meet environmental	Final report, ERT tool that functions to GFP's satisfaction	NatureServe	Affects all SGCNs included in the ERT because they are monitored by South Dakota Natural Heritage Program or have datasets that

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
	review and conservation planning needs, test the tool to assure that all state-specific needs have been met			have been included as ERT data layers
Biological characteristics and seasonal use of Blue Sucker in the James River, SD (T-86)	• Collect information on population characteristics for comparison to historical information, collect information on movements and habitat use patterns in lower James River using PIT tags	M.S. Thesis, associated data, and relevant publications; Tanner Carlson	University of South Dakota	Blue Sucker
Surveys for selected aquatic insects in northeast SD lakes, streams and wetlands (T-87)	• Collect and identify aquatic families from five families on selected lakes, wetlands and wadable streams	Final report and associated data	Sisseton-Wahpeton Oyate Tribe, East Dakota Water Development District, James River Development District, Day County Conservation District, Waubay National Wildlife Refuge	extraordinary bow-legged minnow mayfly, Dakota stone, elusive clubtail
Cottonwood regeneration project on LaFramboise Island Nature Area (T-88)	• Plant 10-15 acres of cottonwoods on LaFramboise Island in Pierre	Final report and improved habitat for native and migratory wildlife		Bald Eagle, American Kestrel, Black-billed Cuckoo, Yellow-billed Cuckoo
Population structure and habitat use of benthic fishes of Missouri River and its major tributaries, with emphasis on Sturgeon and Sicklefin chubs in SD (T-89)	• Update status and distribution of benthic fishes with emphasis on these chub species, describe habitat use and dominant macrohabitats of these species in SD	M.S. Thesis, associated data, and relevant publications; Mitchell Magruder	University of Nebraska – Lincoln	Sicklefin Chub, Sturgeon Chub

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
Initial assessment of regal fritillary and other butterfly species of greatest conservation need on central and western South Dakota public lands (T-90)	• Conduct pilot survey of this and other butterfly SGCN occupancy in central and western SD, assess adult nectaring resources where species are actively feeding, opportunistically conduct roadside surveys en route to proposed field sites	Final report and associated data	Ecdysis Foundation	Regal Fritillary is one of 14 butterfly SGCNs
Estimating raptor density at two wind energy facilities in northeastern SD (T-92)	• Evaluate raptor density at various distances from wind energy infrastructure before and after project construction, create spatial model to predict raptor density based on habitat covariates and distance to wind project infrastructure	Final report, associated data, and relevant publications	Western EcoSystems Technology, Inc.	Bald Eagle, Ferruginous Hawk, Peregrine Falcon
Occurrence patterns, current distribution, and population interrelatedness of at risk species in the Black Hills ecoregion (T-93)	• Describe current distribution and estimate population densities of at-risk species, with emphasis on Lake Chub and Longnose Sucker, estimate probabilistic population densities and cooccurrence patterns of native and nonnative fishes, describe population structure and	M.S. Thesis, associated data, and relevant publications; Kristina Morben	University of Wisconsin-La Crosse	Lake Chub, Longnose Sucker

	interrelatedness of these species throughout Black Hills			
Prairie grouse ecology in relation to the Sweetland Wind Energy Facility (T-94)	• Determine influence of wind energy development on habitat selection, movements population fitness and population growth of prairie grouse	Final report, associated data, and relevant publications	Western EcoSystems Technology, Inc.	Greater Prairie-Chicken
Analysis of samples collected during native pollinator inventory in northeastern SD (T-97) Completion of T-79	• Process native bee samples acquired during previous pollinator inventory project, quantify the diversity of native bees and develop standard biodiversity metrics for comparison of regional biota to other regions	Final report and associated data	South Dakota State University	SD SGCN list of 2025 includes 7 species of bumble bees and 7 species of solitary bees

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
STATE WILDLIFE GRANTS PROJECT APPROVED PRIOR TO 2025 AND IN PROGRESS				
Private lands high diversity grassland reconstruction (T-91)	• Provide private landowners with cost-share incentive to reconstruct high diversity grasslands	Final report, 2,400 acres of high diversity grasslands	Private landowners	Baird's Sparrow, Lark Bunting, LeConte's Sparrow, Sprague's Pipit, Chestnut-collared Longspur, Greater Prairie-Chicken, Marbled Godwit, Monarch
Influence of flooding on Blue Sucker in eastern SD rivers (T-95)	• Assess natal origins of this species in eastern SD tributaries and lower Missouri River, evaluate movement and habitat use of juveniles, assess impact of flooding on life history traits using isotopic signatures	PhD dissertation, related data, and relevant publications; B.J. Schall	USGS - SD Cooperative Wildlife and Fisheries Research Unit at SDSU	Blue Sucker
Invasive woody species control from grasslands in the lower Missouri River basins (T-98)	• Provide private landowners a cost share incentive for removing woody species to enhance existing grasslands	Final report, 5,870 acres of improved grassland habitat	Private landowners	Chestnut-collared Longspur, Greater Prairie-Chicken, Marbled Godwit
Reducing stream fragmentation in eastern SD: Identifying high priority barriers and evaluating low-cost techniques to improve fish passage (T-99)	• Assess and prioritize barriers to fish movement and habitat connectivity in small streams of eastern SD, construct and install fish ladders, evaluate fish passage and movement through renovated culverts, determine feasibility and recommend improvements	M.S. Thesis, associated data, and relevant publications; Colton Curtis	South Dakota State University	Topeka Shiner, Northern Redbelly Dace, Banded Killifish, Blacknose Shiner, Blackside Darter, Carmine Shiner, Central Mudminnow, Hornyhead Chub, Logperch, Southern Redbelly Dace, Trout-perch

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
Implementation and continued customization of NatureServe's Environmental Review Tool for SD (T-100)	• Continue to test and improve this tool for environmental review and conservation planning	Functional on-line tool, automated environmental review for routine projects	NatureServe	Affects all SGCNs included in the ERT because they are monitored by South Dakota Natural Heritage Program or have datasets that have been included as ERT data layers
Quantifying fish responses to in-stream habitat restoration in Gary Creek, SD (T-101)	• Implement monitoring and evaluation of effectiveness of habitat restoration; compare a series of habitat and fish abundance variables between restored and control reaches of Gary Creek	M.S. Thesis, associated data, and relevant publications	USGS - SD Cooperative Wildlife and Fisheries Research Unit at SDSU	Northern Redbelly Dace, Blackside Darter
Revision of South Dakota Wildlife Action Plan (T-102)	• Revise SD Wildlife Action Plan by reviewing and updating 8 required elements and including consideration of cross-boundary collaborative opportunities to increase conservation effectiveness, revise South Dakota Bat Management Plan	Completed and approved Wildlife Action Plan for 2025, related resources for the public and partners related to rare species and native habitats, continued eligibility for certain federal match funding; updated state bat management plan to guide research, monitoring, and educational activities for the next 10 years	USFWS, South Dakota State University, MAFWA, WAFWA	All SGCNs
Monitoring land snails in the Black Hills: revisiting sites to detect trends (T-103)	• Resurvey sites visited during 3 previous surveys to assess status, habitat associations and population trends for 5 land snail SGCNs	Final report, associated data, and relevant publications	University of Wyoming, Wyoming Natural Diversity Database	*Oreohelix cooperi*, *Discus shimeki, Catinella gelida, Vertigo arthuri*, *Vertigo paradoxa*

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
Using spatially explicit models to prioritize and enhance working grasslands in the Prairie Pothole Region of SD (T-104)	• Provide private landowners financial incentive for installing water development practices on 25 rangeland sites of existing grasslands	Final report, 6,250 acres of enhanced grassland	Private landowners	Greater Prairie-Chicken, Chestnut-collared Longspur, Bobolink, Lark Bunting, LeConte's Sparrow, Marbled Godwit
Effects of prescribed fire on mammals in central SD (T-105)	• Examine prescribed fire effects on species richness, community composition, abundance and habitat use of selected GPAs, increase public understanding of fire as a natural disturbance regime	PhD dissertation, related data, and relevant publications; Victor Piñeiro	South Dakota State University	Little Brown Myotis, Northern Hoary Bat, Northern Myotis, Silver-haired Bat, Eastern Red Bat, Franklin's Ground Squirrel, Plains Spotted Skunk, Swift Fox
Gary Gulch Game Production Area stream restoration and access project (T-106)	• Enhance habitat to create pools and washouts and stabilize bank locations	Final report, 2 miles (10,560 feet) of restored stream		Northern Redbelly Dace, Blackside Darter
Maintenance of Wildlife Action Plan website	• Continue to use this site to host descriptions of and products resulting from SWG and CSWG projects	Place to provide accessible information to the public, partners, and agencies within and outside of SD on specific accomplishments from project completions		Potentially all animal SGCNs; plant SGCNs if part of a broader habitat inventory or analysis project

Effort	Purpose	Products or benefits	Cooperators	SGCNs affected
MULTISTATE COMPETITIVE STATE WILDLIFE GRANT FUNDING				
Assessing and recovering native freshwater mussels to the Great Plains- eDNA and Habitat Suitability	• To test water samples in Nebraska and eastern South Dakota for the eDNA of SGCN mussel species • To develop models that determine habitat suitability for target freshwater mussels in Nebraska, South Dakota, and eastern Wyoming	PhD dissertation, MS thesis, final report	SDGFP, Nebraska Game and Parks Commission, Wyoming Game and Fish, South Dakota State University, University of South Dakota, University of Nebraska-Lincoln	2025 SD SGCN list includes 11 freshwater mussel species
Climate Change Adaptation Tool for Wildlife Action Plan Revision	• Implement adaptive capacity assessment of 538 SGCN from 6 states within the MAFWA, develop user-friendly interface for assessing adaptive capacity, provide training for MAFWA states on use of this assessment tool	Final report, individual adaptive capacity species assessments	USFWS; Michigan Dept. of Natural Resources; U.S. Geological Survey; Michigan Natural Features Inventory; Michigan State University Extension; Wildlife Diversity Programs in Nebraska, Indiana, Minnesota and Missouri	Potentially all SD SGCNs, including those assessed during the project and additional species when this assessment tool is applied at the state level
South Dakota Occurrence and Population Assessment of American Burying Beetle (U-5)	• Sample at identified hot spots within Tripp County during 2018-20 and in 4 additional counties, analyze capture frequency per night per trap site, report on species frequency and dominance among burying beetle species, compare captures between June and August	Final report, associated data, and relevant publications	Nebraska Game and Parks Commission, USFWS, Oklahoma State University, Little Wound High School	American Burying Beetle

Appendix C. South Dakota Wildlife Action Plan Implementation Accomplishments from 2015 – 2024, in addition to State Wildlife Grant or Competitive-State Wildlife Grant projects described in Appendix B.

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
WILDLIFE ACTION PLAN 2025 REVISION PREPARATION				
Completion and approval of minor Plan revision in 2022	• Develop a list of plant SGCN to be eligible for potential expanded funding	Approved revised SGCN list that added plant species and included an internal, revised list of animal SGCNs	USFWS, AFWA	All SGCNs were reviewed
Review of South Dakota state ranks for plant and animal species monitored by South Dakota Natural Heritage Program	• Update state ranks in preparation for major revision of SDWAP	Updated state ranks for monitored species; identification of knowledge gaps		Many SGCNs listed because of rarity or reliance on unique habitats, criteria that are consistent with Natural Heritage Program species listings
FEDERAL ENDANGERED SPECIES PROJECTS FUNDED THROUGH USFWS SECTION 6 FUNDING				
Conservation and management of Topeka Shiner and associated rare fish species in eastern SD (E-3-R-3 & E-3-R-4)	• Survey sites for presence of Topeka Shiner and other rare species.	Data for entry into SD Natural Heritage Database. Long-term dataset to document species resiliency overtime.	USFWS, landowners who allow survey access	Topeka Shiner; Plains Topminnow, Northern Redbelly Dace, Blackside Darter
Conservation and management of Dakota skipper and associated rare butterfly species in SD (E-14)	• Survey sites for presence of rare species, with emphasis on federal listed species; provide technical assistance to GFP land managers on ways to enhance areas for these species	Data for entry into SD Natural Heritage Database, enhanced technical knowledge of state and federal land managers that host these species	USFWS, Sisseton-Wahpeton Oyate Tribe, Minnesota Zoo, private landowners	Dakota skipper, Poweshiek skipperling, Ottoe skipper, Iowa skipper
PITTMAN-ROBERTSON FUNDED PROJECTS				
Banding of migratory nongame birds (9509D)	• Document nongame bird species using 2 banding sites during spring and fall migration with use of mist netting	Cumulative database and website information, educational and interpretive opportunities on public lands,	USGS Bird Banding Lab	A variety of occurrences of bird SGCNs have been documented over the years of this project

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
		contributions to data maintained by USGS Bird Banding Lab and used extensively for bird population study and analyses		
Missouri River endangered species surveys (9509B)	• Annually survey for presence of nesting Least Terns and Piping Plovers along Missouri River to determine nesting colony locations, abundance, and productivity	Annual data contributed to U.S. Army Corps of Engineers' larger Missouri River monitoring effort, data for SD Natural Heritage Database, interagency partnership to benefit rare species	U.S. Army Corps of Engineers	Least Tern, Piping Plover
Inventory and banding of nesting raptors (9509A)	• Annually inventory selected raptor species to determine nesting phenology, success, preferred nest site selection, nesting success threats, and population status; opportunistically band migratory and wintering raptor species; conduct annual wintering raptor surveys on Fort Pierre National Grassland	Variety of data for entering into SD Natural Heritage Database or to support management goals of land management agencies	Fort Pierre National Grassland	Bald Eagle, Golden Eagle, Osprey, Ferruginous Hawk, Peregrine Falcon
ADDITIONAL OPPORTUNISTIC OR COMPETITIVE FUNDING OPPORTUNITIES OR SURVEYS				
Golden Eagle nesting surveys in western SD (NFWF ID 8006.23.079249)	• Survey known and potential Golden Eagle nesting sites, survey known and potential significant Bald Eagle winter roosts, provide one-time funding to assist raptor rehabilitators who handle and treat eagles in SD	Updated nest records for several rare raptor species, enhanced ability of federal-permitted raptor rehabilitators in SD to provide quality care for injured birds of prey,	National Fish and Wildlife Foundation (NFWF), USFWS, USFWS- permitted migratory bird rehabilitators	Golden Eagle, Bald Eagle, Ferruginous Hawk

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
		particularly Bald and Golden eagles		
Addressing information needs and implementing conservation actions for bats in SD following the arrival of White-nose Syndrome (F24AP00693) In progress as of 2025	• Survey bat populations across SD using NABat protocols for stationary automatic acoustic detectors, reduce disturbance at an abandoned mine used as a hibernaculum by stabilizing entry points and installing bat-friendly gates, receive training and gain experience in mist-netting and acoustic monitoring, build partnerships with colleagues by attending relevant regional and national meetings	Second data set from repeating previous acoustic detection survey, new data for entry into NABat and SD Natural Heritage Database, Wildlife Diversity staff that are more knowledgeable on these species and associated survey methods	USFWS, South Dakota State University, BHNF, and various additional field cooperators and contractors	2025 SD SGCN list includes 10 bat species
Great Plains Bumble Bee Atlas	• Community science effort to track and conserve native bumble bees of Kansas, North Dakota, and South Dakota	New and updated data on bumble bee species, community science opportunity, enhanced knowledge of these species among participating staff from wildlife and land management agencies and community scientists	Xerces Society, USFWS, states of Kansas and North Dakota	2025 SD SGCN list includes 7 bumble bee species
Survey to update information on colony acreage and distribution of black-tailed prairie dog in SD	• As part of long-term monitoring of the black-tailed prairie dog across its range and to assess compliance with SD prairie dog management plan goals,	Updated data on species distribution and occurrence overall within SD and analyzed by tribal vs. nontribal landownership		Black-footed ferret, Burrowing Owl, Swift Fox

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
Report completed in 2022 and available on SDGFP website	SDGFP completed another analysis of colony acreage and distribution by visually interpreting aerial images using 2020 National Agriculture Imagery Program (NAIP) products			
Wildlife Diversity Small Grants	• SDGFP provided a small amount of funding for competitive small grants for education, research, and monitoring efforts to benefit native species and habitats; program was last funded in 2023	A low-cost, high-quality option for using expertise and talents of academic staff and interested community scientists and naturalists; results from the program available on SDGFP website (Wildlife Diversity Small Grants Program section or Wildlife Report and Surveys searchable page)	Many cooperators since this opportunity was first offered by SDGFP in 2009	A variety of SGCNs and native habitats benefitted from these projects
NATURAL HERITAGE DATABASE MAINTENANCE				
Maintenance of Biotics database, maintenance of supportive SD Environmental Review Tool	• Source of information on rare species, plant communities, and unique natural features monitored by the South Dakota Natural Heritage Program • ERT is an automated tool for review of routine projects unlikely to cause environmental harm	The Natural Heritage Database provides records of rare species to both the State and public upon review and payment of a small fee. ERT streamlines and simplifies the environmental review process.	NatureServe	Many plant and animal SGCNs are monitored by the South Dakota Natural Heritage Program
Maintenance of Natural Heritage Program website	• Continued to provide information on current list of plant and animal species monitored by SD Natural Heritage Program, provide	Informed public and partners, opportunity to directly contribute to rare species database		Many plant and animal SGCNs are monitored by the South Dakota Natural Heritage Program

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
	opportunity to report rare plant or animal species records, provide opportunity to submit a Natural Heritage data request			
FEDERAL ENDANGERED SPECIES TECHNICAL ASSISTANCE				
Topeka shiner recovery-	Work with lead federal agency to provide the best science and data to meet recovery goals	Species Status Assessment Recovery Plan Recovery Implementation Strategy Annual permit reports	USFWS, Other state agencies in Topeka Shiner range	Topeka Shiner
Sicklefin and Sturgeon Chub Species Status Review	Work with lead federal agency to provide the best science and data to determine listing status of Sicklefin and Sturgeon Chub	Species Status Assessment M.S. Thesis on Benthic fish community of Missouri River Tributaries. (Mitch Magruder)	USFWS, University of Nebraska- Lincoln, other state agencies in the Sicklefin and Sturgeon Chub range	Sturgeon Chub, Sicklefin Chub
Lake Sturgeon Species status review	Work with lead federal agency to provide the best science and data to determine listing status of Lake Sturgeon	Species Status Assessment	USFWS, other state agencies in Lake Sturgeon range	Lake Sturgeon
Missouri River Recovery Implementation Committee	Coordination of multiple agencies on Missouri River Recovery	Cross state coordination	Army CORP of Engineers, USFWS, other states along the Missouri River	Pallid Sturgeon, Shovelnose Sturgeon, Sicklefin Chub, Sturgeon Chub, Blue Sucker, Sauger
Western Prairie Fringed Orchid surveys	2024 GFP's Grassland Ecologist attempted looking on private land sites with outcropping near Pipestone, MN. The species has not been found for over 100 years.	Low-cost option and a chance to visit with landowners about habitat management. Most sites were overgrazed and sprayed with chemicals. Many sites were not accessible.	USFWS	Western prairie fringed orchid

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
PERMITTING PRODUCTS				
Scientific Collector's Permits	• Permit certain research, monitoring, or conservation activities for plant or animal species	SDGFP familiarity with these activities and opportunity to provide input; permit reports may include rare species information useful for environmental review and conservation planning	Various permittees associated with government agencies at all levels, researchers, environmental consultants, naturalists	Varies depending on specific activities
State Endangered Species Authorizations	• Permit research, monitoring, or conservation activities for state listed animal species for purposes authorized in state law	SDGFP familiarity with these activities and opportunity to provide input; permit reports may include rare species information useful for environmental review and conservation planning	Various permittees associated with government agencies at all levels, researchers, environmental consultants, naturalists	2025 SD SGCN list includes 20 state listed species
Mining Permit and License Review	• SDGFP is notified of all new mine permit and license applications, including extensions. • All new mining permits or licenses undergo review through the SDGFP Environmental Review Tool to assess potential conflicts with SD SGCN and critical habitats. • SDGFP approves preliminary surveys of wildlife, aquatic resources, and vegetation to assess critical resources that could be impacted by mining operations	SDGFP's involvement in mineral and mining exploration implements preventive measures to minimize adverse impacts on wildlife and habitats.	South Dakota Department of Agriculture & Natural Resources and mine permit and license applicants.	A variety of SD SGCNs and native habitats

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
EDUCATIONAL TOOLS TO ENHANCE KNOWLEDGE OF RARE SPECIES				
"Field Guide to Butterflies of South Dakota" Second Edition; published 2023	• Provides updated information on butterfly species distribution, habitat needs, identification, and life history characteristics	Better informed public, including landowners and land managers; identification information to encourage the public to report butterfly sightings, especially of rare species		2025 SD SGCN list includes 15 butterfly species
"Field Guide to Amphibians and Reptiles of South Dakota" Second Edition; published 2020	• Provides updated information on amphibian and reptile species distribution, habitat needs, identification, and life history characteristics	Better informed public, including landowners and land managers; identification information to encourage the public to report sightings, especially of rare species, and discourage unnecessary killing of these species		2025 SD SGCN list includes 5 amphibian and 17 reptile species
"Fishes of the Dakotas" 2024 Edition	• Provides reference for fish species of North and South Dakota	Reference for the public and fisheries professionals; better informed public and aquatic habitat managers; identification tools to encourage reporting of rare species	South Dakota State University, Matt Wagner, Katie Schlafke	2025 SD SGCN list includes 28 fish species
SD Volunteer Naturalists	• Empowers volunteers to provide services that contribute to the natural world and foster connection with nature	Trained corps of volunteers to assist with education, outreach, and service	Black Hills Parks & Forests Association, South Dakota Discovery Center, SDSU Extension, SDGFP	Various SGCNs may benefit from these volunteers, depending on project needs and availability of Volunteer Naturalists
INTERAGENCY AND INTERSTATE COORDINATION, TEAMS, AND COOPERATIVE AGREEMENTS				
Cooperative Agreements for the Conservation of Endangered Animals and Plants	• Annual agreement between SDGFP and USFWS to work together for the benefit of federal listed species and to establish SDGFP eligibility	Cooperative efforts to monitor, manage, or recover species to decrease the impact of federal listings in South Dakota	USFWS	2025 SD SGCN list includes 14 animal or plant species listed as federal threatened or endangered species, two species listed as proposed

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
	for certain federal match funding opportunities			threatened, and one species listed as proposed endangered
Master Challenge Cost Share Agreement between SDGFP and USDA, Forest Service, Nebraska Natl. Forests and Grasslands	• Renewed in 2025; agreement purpose is to document cooperation between these parties to collaboratively develop recreation, watershed, wildlife, fish, and/or rare plant related projects	Mutual benefits of this collaborative opportunity, establishes SDGFP eligibility for funds available through the Forest Service's Challenge Cost Share Program	USDA, Forest Service, Nebraska National Forests and Grasslands	Many plant and animal SGCNs may occur on Forest Service lands and have benefited from previous grants through this program and have the potential for future benefits
Central Flyway Technical Committee (TC) participation, including Waterfowl, Webless Migratory Game Bird, and Nongame Migratory Bird Technical Committees	• Continued to provide technical expertise through agency representation to the Central Flyway Council, which represents 10 states and 3 provinces and works with the USFWS to cooperatively manage migratory birds, both game and nongame	Opportunity to represent SD in discussions affecting migratory birds throughout their annual life cycle; input into regulations related to hunting and falconry limits for Peregrine Falcon, opportunity to develop shared monitoring protocols for species and habitats to improve data quality and useability	USFWS, Canadian Wildlife Service, USGS, Central Flyway state and provincial wildlife agencies and cooperators	Various bird SGCNs, depending on current Flyway Council and TC priorities and most pressing issues
Association of Fish and Wildlife Agencies' Threatened/Endangered Species Policy participation	• Participated in this effort to review issues affecting threatened and endangered species listings and related actions, monitor legislative proposals and hearings for potential Association involvement, maintain active communications with appropriate partners, serve as subject matter expert	Improved understanding of national issues that may affect South Dakota through endangered species listings and opportunity to bring state-based issues to national discussions	AFWA	2025 SD SGCN list includes 14 animal or plant species listed as federal threatened or endangered species, two species listed as proposed threatened, and one species listed as proposed endangered
Swift Fox Coordination: Conservation Team participation;	• Continued participation in international collaboration to monitor status of this	"Conservation Assessment and Conservation Strategy for	Multiple federal, state, tribal, academic,	Swift fox and other grassland-dependent species

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
coauthorship of swift fox chapter in revised reference on North American furbearers	species, a former candidate for federal listing; assistance in writing swift fox chapter for new furbearer reference	Swift Fox in the United States – 2023 Update"; Peek, M.S., E. Dowd Stukel, and D.L. Schwalm. 2024 Swift fox. Pages 34.1-34.30 *in* T.L. Hiller, R.D. Applegate, R.D. Bluett, S.N. Frey, E.M. Gese, and J.F. Organ, editors. Wild furbearer management and conservation in North America. Wildlife Ecology Institute, Helena, MT, USA.	research, and nongovernmental entities	
Prairie Pothole Joint Venture participation	• Participated in effort to implement conservation programs that sustain populations of waterfowl, shorebirds, and prairie landbirds through targeted conservation, restoration, and enhancement programs; contribute to implementation to a variety of plans, such as North American (NA) Waterfowl Management Plan, U.S. Shorebird Conservation Plan, NA Waterbird Conservation Plan, NA Landbird Conservation Plan, and Northern Prairie and Parkland Waterbird Conservation Plan	Annual highlights are compiled and available for viewing on the PPJV website	USFWS, state and federal agency and partner organization representatives serve on the Management Board and Technical Committee, participating landowners	A variety of terrestrial and aquatic SGCNs reside in or migrate through the PPR.
Northern Great Plains Joint Venture participation	• Participated in effort to retain, enhance, restore, and protect grassland, sagebrush steppe, wetland, and riparian ecosystems;	Annual highlights are compiled and available for viewing on the NGPJV website	USFWS, state and federal agency and partner organization representatives serve on the Management Board	A variety of terrestrial and aquatic SGCNs reside in or migrate through this region.

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
	facilitate conservation actions that result in healthy ecosystems and bird populations and benefit people living in the Northern Great Plains		and Technical Committee, participating landowners	
Midwest Association of Fish and Wildlife Agencies (MAFWA) Monarch Team participation	• Develop coordinated approach to Monarch conservation and recovery, including setting habitat goals and other conservation targets and programs; provide a blueprint from which states can work to tie in state plans and increase their effectiveness	"Mid-America Monarch Conservation Strategy"; created in 2018 and updated in 2023	MAFWA, 13 state agencies within MAFWA, USFWS, Monarch Joint Venture, NRCS	Monarch
Two state Monarch Summits; held in 2017 and 2023	• To assemble existing and future partners to discuss listing status and encourage collaborative efforts to benefit monarch and other butterfly species, to gather input needed for drafting of SD Monarch Plan	Better informed public and partners on issues facing this species throughout its annual life cycle, completion of "South Dakota Monarch Conservation and Management Strategic Plan"	Pheasants Forever; USFWS; NRCS; many agencies, tribes, and organizations representing wildlife, agriculture, transportation, education, and extension sectors	Monarch
MAFWA Pollinator Team participation	• To expand MAFWA coordination beyond Monarch and Regal Fritillary federal listing activities and impacts to include a broader group of native invertebrate pollinators	Collaboration opportunity to work across state boundaries for the benefit of native pollinators	MAFWA, USFWS, U.S. Forest Service, National Wildlife Federation, Monarch Joint Venture, participating states	2025 SD SGCN list includes a variety of native pollinators, including butterflies and a moth, bumble bees, and solitary bees
MAFWA Wildlife Diversity Committee participation	• Support Committee functions, which include providing forum for improving collaboration	Improved communications and collaboration among 13 MAFWA states and 3	MAFWA agencies from North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa,	All SD SGCNs have potentially benefitted from Committee activities

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
	across state boundaries, improving effectiveness of state Wildlife Action Plans, improving wildlife diversity conservation, improving status of SGCN, and providing input and expertise to MAFWA directors on federal Endangered Species Act listings activities	provinces to benefit rare species, wildlife diversity issues, and state Wildlife Action Plan effectiveness	Missouri, Wisconsin, Illinois, Indiana, Ohio, Kentucky, Michigan, Saskatchewan, Manitoba, and Ontario	
MAFWA Midwest Landscape Initiative participation	• MLI had a series of webinars to discuss how states are using their data platforms. GFP staff participated in these webinars to learn if we could incorporate anything into our 2025 Wildlife Action Plan.	MLI has some nice tools and it was beneficial to learn how other states are using MLI in their SWAP revisions.	MAFWA and the midwestern states	Habitat affecting most SGCN
MAFWA – MLI Regional Species of Greatest Conservation Need List development	• Contributed staff time and expertise to a collaborative project that examined SGCNs from MAFWA states for certain taxonomic groups to generate a list of 1,817 RSGCNs for consideration by states for future collaboration and wildlife action plan revisions	RSGCN list purpose is to encourage collaborative work, assist in identifying landscape conservation opportunities, and provide conservation focus for MLI and partners	USFWS, MAFWA Wildlife Diversity Committee, MAFWA state agencies, Terwilliger Consulting Inc.	All SD animal SGCNs considered during the list development process; this designation was among those considered during the 2025 SD SGCN list revision
Various interagency teams for black-footed ferrets and prairie dogs	• Participated as time and staff availability allowed in several interagency teams at the state, regional, and national levels to foster coordination and communication to benefit these species	Better-informed staff on current status of black-footed ferret recovery and prairie dog populations, opportunity to share state perspectives	Many state, federal, tribal, academic, research, and nongovernmental entities	Black-footed Ferret, Burrowing Owl, Swift Fox

Effort	Purpose	Products or benefits	Cooperators	SGCNs or habitats affected
STATE-LEVEL ENDANGERED SPECIES ACTIVITIES				
Biennial review of state T&E species list by SDGFP Commission	• Compliance with state endangered species law; familiarize Commission with this legal responsibility; allow the public an opportunity to comment on updated species status reviews	A better-informed Commission and public regarding which species are state threatened or endangered and delisting and downlisting goals for those with sufficient information		2025 SD SGCN list includes 20 state threatened or state endangered animal species
Development and use of monitoring protocols for specific state listed species	• Developed standardized monitoring protocols for state threatened Osprey and American Dipper	Collection of required data needed to meet delisting criteria developed by staff and approved by GFP Commission during previous biennial review of state T&E list	BHNF and volunteers (implementation)	Osprey, American Dipper

Appendix D. Species Profiles for Species of Greatest Conservation Need.

This list is organized alphabetically by taxonomic groups. Within each group, species are organized alphabetically by common name.

Taxonomic groups:

- Amphibians
- Aquatic insects*
- Birds
- Crayfish*
- Fishes
- Freshwater mussels
- Gastropods*
- Mammals
- Plants
- Reptiles
- Terrestrial insects*

*Information for these taxonomic groups can be found in the following appendices:

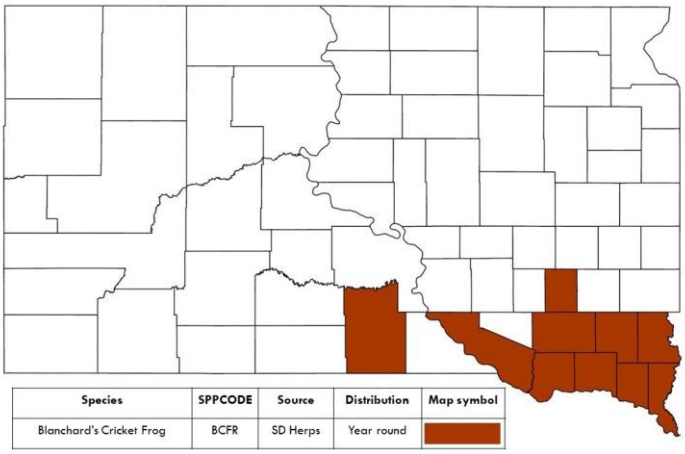
- Aquatic insects – Appendix E
- Crayfish – Appendix F
- Gastropods – Appendix G
- Terrestrial insects – Appendix H, with the exception of butterflies and tiger beetles, which have individual species accounts in Appendix D.

BLANCHARD'S CRICKET FROG - BCFR

(Acris blanchardi)

Conservation Profile

TSN #	774220
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	Yes



Description:

Blanchard's cricket frogs are a small frog, typically about an inch long. Cricket frogs get their name from their chirping calls, which can sound a bit like crickets.

Distribution & Habitat:

Blanchard's cricket frogs are found in the southeast corner of the state, almost always in or close to water. They are typically found along shorelines and can be active during the day. They seem to prefer slow-moving or still waters with shallow banks.

Blanchard's cricket frogs are a freeze-intolerant species, which likely limits their range in South Dakota.

Threats:

Blanchard's cricket frogs are threatened by the loss of wetlands and pesticide and fertilizer use. Like other amphibians, they are known to be susceptible to chytrid fungus and ranaviruses.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Blanchard's cricket frogs seem to be experiencing declines which are not well understood. In South Dakota, they have not been detected recently from Tripp, Gregory, or Charles Mix counties, where they were once common. They may also be extirpated from the Vermillion River. More study is needed to confirm areas where they have been extirpated and the reasons behind it.

Many South Dakota bodies of water are of poor water quality, largely due to agricultural practices. Amphibians are highly susceptible to poor water quality due to their permeable skins. Blanchard's cricket frogs (and other amphibians) would benefit from better agricultural practices and regulations that limited water pollution.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

Blanchard's cricket frogs and northern cricket frogs (*Acris crepitans*) were once considered the same species. A study of cricket frog genetics in 2008 found them to be distinct species.

COPE'S GRAY TREEFROG - CGTR

(Hyla chrysoscelis)

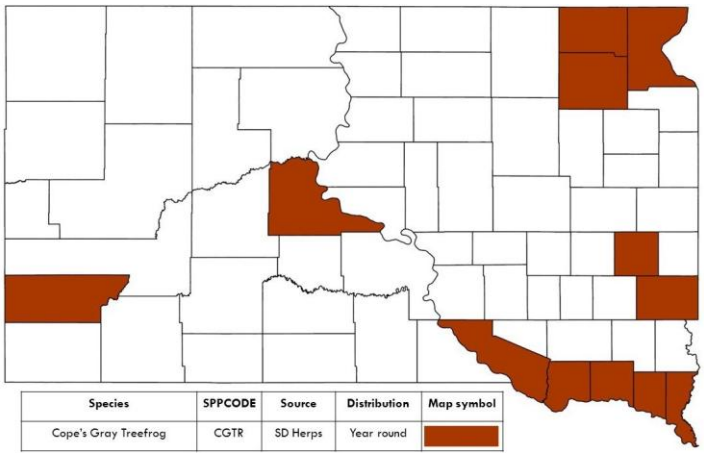
Conservation Profile

TSN #	173502
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	No

Description:

Cope's gray treefrog are a small gray or green frog typically reaching about 1-2 inches in length. Unlike most frogs and toads, Cope's gray treefrogs spend much of their time in trees. They have suction-cup-like toe pads that make them excellent climbers.

Distribution & Habitat:



Cope's gray treefrogs are primarily found in the southeast and northeast corners of the state, with a few disjunct occurrences around Pierre and Custer. They breed in ponds and wetlands and then once the breeding season is over they move to more forested habitats.

It is unknown how Cope's gray treefrogs ended up around Pierre and Custer, but they were likely introduced by accident. It is possible they climbed onto campers or trailers and became unsuspecting hitchhikers.

Threats:

Cope's gray treefrogs are threatened by the loss of wetlands and pesticide and fertilizer use. Like other amphibians, they are known to be susceptible to chytrid fungus and ranaviruses.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Many South Dakota bodies of water are of poor water quality, largely due to agricultural practices. Amphibians are highly susceptible to poor water quality due to their permeable skins. Cope's gray treefrogs (and other amphibians) would benefit from better agricultural practices and regulations that limited water pollution.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

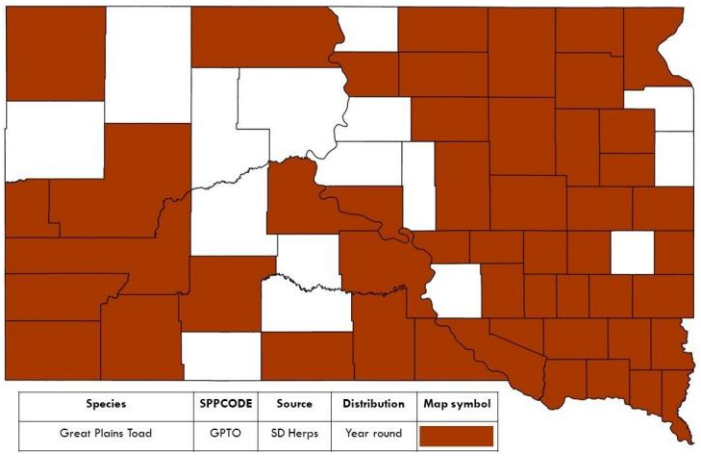
Cope's gray treefrogs look virtually identical to gray treefrogs (*Hyla versicolor*). Although it is possible to differentiate them by their calls, the most reliable method is to test their DNA. Gray treefrogs are tetraploid while Cope's gray treefrogs are diploid. This means gray treefrogs have essentially the same DNA as Cope's gray treefrogs, only doubled. All DNA tests of treefrogs in South Dakota have come back as Cope's gray treefrogs, leaving many to doubt that gray treefrogs actually occur here.

GREAT PLAINS TOAD - GPTO

(Anaxyrus cognatus)

Conservation Profile

TSN #	773516
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
Regional SGCN	No



Description:

Great plains toads are typically around 3-4 inches in length. They have white undersides and backs with a light brown background with 6-8 dark green blotches.

Distribution & Habitat:

Great plains toads are found throughout South Dakota, mainly in fields and grasslands. They spend much of their time underground and emerge after heavy rains to breed in temporary wetlands.

Threats:

Although great plains toads remain relatively common, there are several threats that have or could negatively impact them. They are threatened by the loss of wetlands and pesticide and fertilizer use. Like other amphibians, they are known to be susceptible to chytrid fungus and ranaviruses. A warmer, drier climate in the future could lead to fewer wetlands and fewer toads.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Many South Dakota bodies of water are of poor water quality, largely due to agricultural practices. Amphibians are highly susceptible to poor water quality due to their permeable skins. Great plains toads (and other amphibians) would benefit from better agricultural practices and regulations that limited water pollution.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

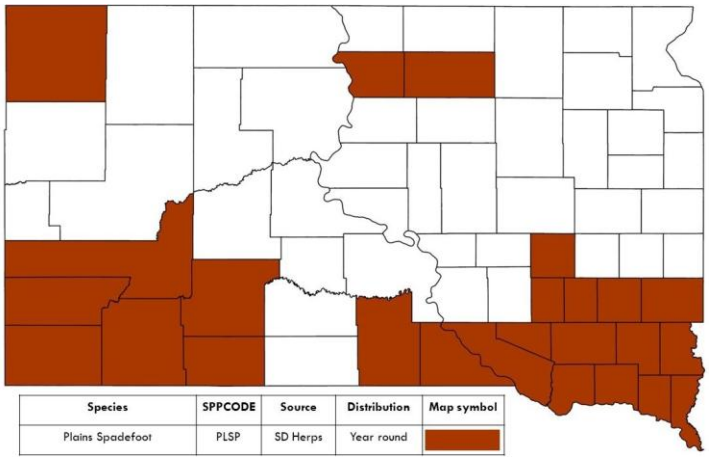
Great plains toads look very similar to three other South Dakota toads (American toads, Canadian toads, and Woodhouse's toads). A white underbelly sets them apart from American and Canadian toads. To distinguish great plains from Woodhouse's, look at the spots on their backs. Woodhouse's toads tend to have smaller and more numerous spots.

PLAINS SPADEFOOT - PLSP

(Spea bombifrons)

Conservation Profile

TSN #	206989
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
Regional SGCN	No



Description:

Plains spadefoots are usually brownish with some darker mottling. They often have red or orange spots on their backs. These frogs typically reach about 2-4 inches in length.

Distribution & Habitat:

Plains spadefoots are commonly found in grassland habitat with looser soil to allow for burrowing. They spend much of their time underground and emerge after heavy rains to breed in temporary wetlands. They seem to be more common in the southern half of the state, but there are some records further north.

Threats:

Plains spadefoots are threatened by habitat loss and pesticide and fertilizer use. Like other amphibians, they are likely susceptible to chytrid fungus and ranaviruses.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

The secretive nature of this frog makes conservation and monitoring challenging. Since it is usually only seen after heavy rainfall events its exact distribution in the state is unclear. Better monitoring and surveying efforts could illuminate its distribution and abundance in the state.

Many South Dakota bodies of water are of poor water quality, largely due to agricultural practices. Amphibians are highly susceptible to poor water quality due to their permeable skins. Plains spadefoots (and other amphibians) would benefit from better agricultural practices and regulations that limited water pollution.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

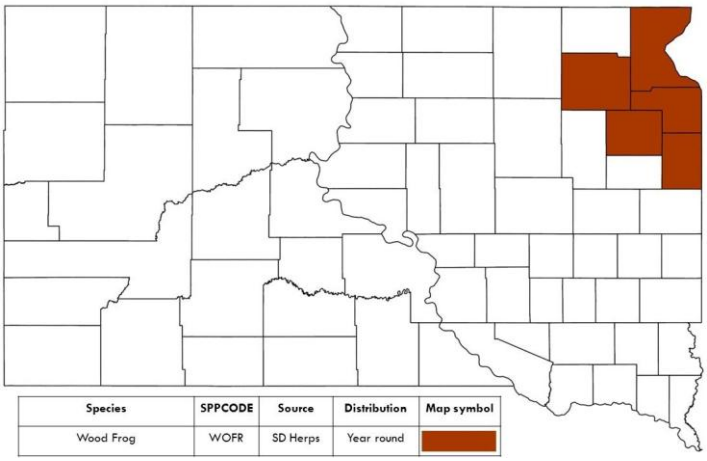
Plains spadefoots are not seen very often because they spend most of their lives buried in the ground. The best time to see them is after a heavy rain. During the breeding season after a big rain, they will come out and breed in temporary ponds and wetlands.

WOOD FROG - WOFR

(Lithobates sylvaticus)

Conservation Profile

TSN #	775117
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)
Regional SGCN	No



Description:

Wood frogs are a smaller frog, reaching about 2-3 inches in length. They are usually brown or tan with a prominent dark stripe or mask across the side of their face.

Distribution & Habitat:

Wood frogs can be found in prairie and wooded areas and typically breed in ponds with no fish. They are only found in the northeast corner of the state.

Threats:

Wood frogs have a very small range in South Dakota, which makes them vulnerable to habitat loss and extirpation. They are threatened by the loss of wetlands and pesticide and fertilizer use. Like other amphibians, they are known to be susceptible to chytrid fungus and ranaviruses. A warmer, drier climate in the future could lead to fewer wetlands and fewer frogs.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

More information is needed on the distribution and abundance of this species. Many South Dakota bodies of water are of poor water quality, largely due to agricultural practices. Amphibians are highly susceptible to poor water quality due to their permeable skins. Wood frogs (and other amphibians) would benefit from better agricultural practices and regulations that limited water pollution.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

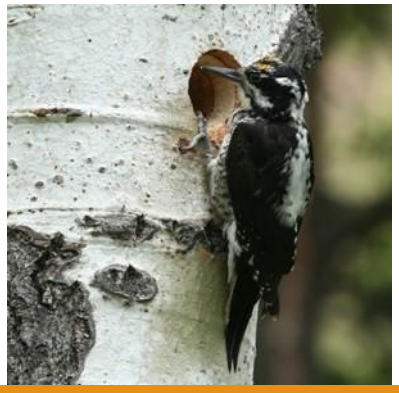
Highlights:

Wood frogs are a freeze-tolerant species with a range extending far north into Canada. They can start breeding as early as March when there is still ice on the water. Previously, they were only known from the far northeast corner of the state in Roberts county. In recent years, they have been documented in a few more counties.

AMERICAN THREE-TOED WOODPECKER

ATTW

(Picoides tridactylus)



Conservation Profile

TSN	685725
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Medium-sized woodpecker with a mostly black back and white throat, breast and belly. Most woodpeckers have 4 toes, 2 pointing forward and 2 backward. This species has 3 toes, 2 pointing forward and 1 backward. Wingspan 15" (38 cm).

Distribution & Habitat:

The northernmost ranging woodpecker, it is most secure in boreal forests of Canada and Alaska. Some populations make mass movements, possibly due to food shortages.

Prefers spruce forests, particularly where dead timber remains after fires. Nests in cavities of large dead trees. Closely tied to white spruce habitats in the Black Hills, often nesting within or near aspen groves.

Conservation Threats:

- Listed as an SGCN because of its dependence on fire-generated habitats, disturbance regimes that no longer operate as they did historically. Specific conservation challenges include fire suppression and incompatible forestry practices.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Develop programs and educational materials about the role of natural disturbance regimes in maintaining habitat for this species
- Encourage maintenance of a diverse forest, including presence of dead timber for nesting sites

Monitoring

- Habitat surveys of Black Hills meadows, aspen and conifers
- Develop and implement appropriate monitoring techniques

Research

- Investigate relationship between and response to mountain pine beetle infestations

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

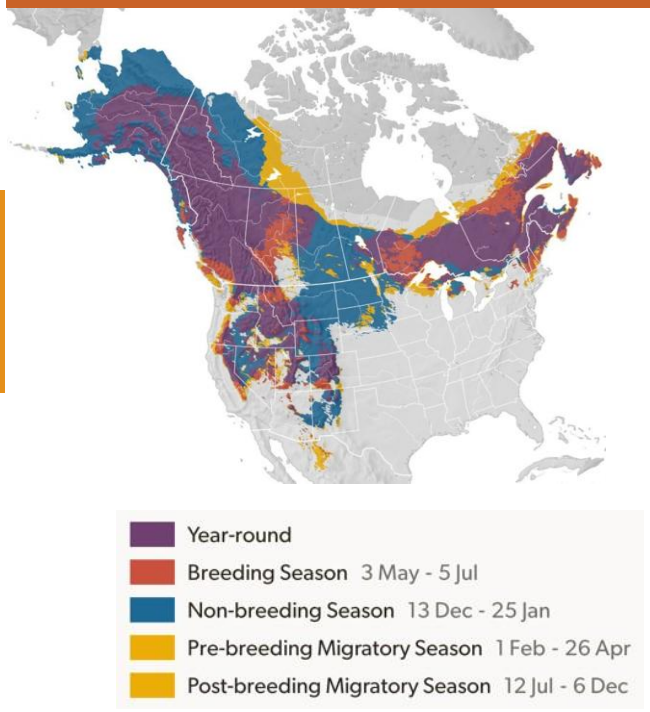
Image © Amanda Irvin

Conservation Highlights: SWG project T-18 funded Amanda Ervin's PhD research at the University of South Dakota on this species in the Black Hills. Important findings:

- Relative abundance was 0.20 birds per census point in white spruce forests of the Black Hills.
- Birds preferred large living and dead spruce and large ponderosa pine trees compared to small living spruce. Aspen was an important nest site selection characteristic. Most nest failures were due to predation.
- Results indicated limited recent gene flow between the Black Hills population and others.

AMERICAN GOSHAWK

(Accipiter atricapillus) **AMGO**



Conservation Profile

TSN	175300
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Medium large bird of prey with short, broad wings and a long tail; blue-gray above and barred gray or white below. Wingspan 41" (104 cm). The common name for this species was previously the Northern Goshawk.

Distribution & Habitat:

Widely distributed in portions of Canada, western states, and a variety of sites elsewhere in North America. Prefers a wide variety of forest types, age classes, and structural conditions within a relatively intact large forest matrix; nest sites are usually associated with older growth trees.

Within SD, resides largely in ponderosa pine forests of the Black Hills, where birds select mature stands with a closed canopy, tall trees, and open understory.

Conservation Threats:

- Forestry practices that remove older growth habitats
- Disturbance near nest sites

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Create open foraging areas near nest sites

Monitoring

- Implement suggested monitoring protocols resulting from SWG T-84 project or a variation that produces valid, defensible data.

Research

- Continue coordination with land management agencies to identify and fund research needs, such as monitoring nest site selection, success, and causes of nest failures, feeding habits, and population trends.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Photo © U.S. Forest Service

Conservation Highlights:

SWG project T-84 evaluated the population viability of this species on BHNF using a variety of monitoring efforts and other data sources. The study validated what BHNF nest-site moni- toring data and related studies have previously concluded regarding forest changes within the past 30-40 years. Habitats, and specifically nesting habitat, for Northern Goshawk have been and are declining in availability. This study confirmed that the most significant Goshawk habitat losses have occurred in the past 15 years. The project also provided a suggested future sampling system for future monitoring of this species.

AMERICAN DIPPER AMDI

(Cinclus mexicanus)

Conservation Profile

TSN	178536
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Legal Status	ST (State Threatened)

Description:

Small, stocky, dark gray bird that bobs as it moves along and within streams while foraging for aquatic prey. Wingspan 11" (28 cm).

Distribution & Habitat:

Widely distributed in mountain streams of western states and provinces. Need suitable nesting sites over or near water and sources of aquatic prey, such as aquatic insects and sometimes small fish. Will use human-made nestboxes.

In the Black Hills, Dippers prefer clean, cold, fast-moving mountain streams with abundant aquatic prey.

Conservation Threats:

- Water quality impacts from road building, logging steep slopes adjacent to streams, and impacts from mining, septic tanks, and other sources; reduced release of water from large dams causing streams to freeze over in winter, reduced stream flows; and nest site disturbance due to trail development and other recreational activities adjacent to streams.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Work with agencies and landowners to protect riparian areas from erratic water levels, erosion, chemical pollution; develop programs and materials to protect nest sites from disturbance; and periodically evaluate need to replace nestboxes at strategic locations.

Monitoring

- Continue monitoring Black Hills streams for occupancy and nest success.
- Periodically color-mark and monitor individual birds.
- Continue implementing standardized monitoring.

Research

- Investigate characteristics of drainages that remain unused by dippers, particularly those previously occupied.
- Identify critical wintering areas.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

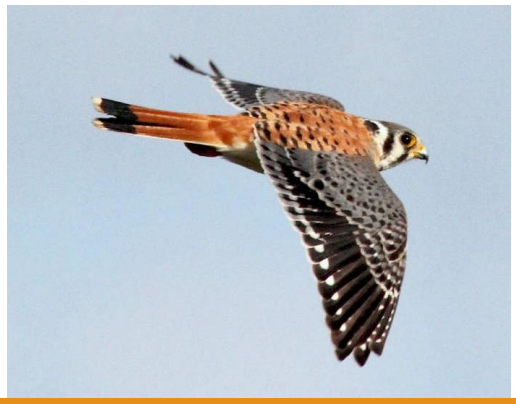
Image © Jake Bone

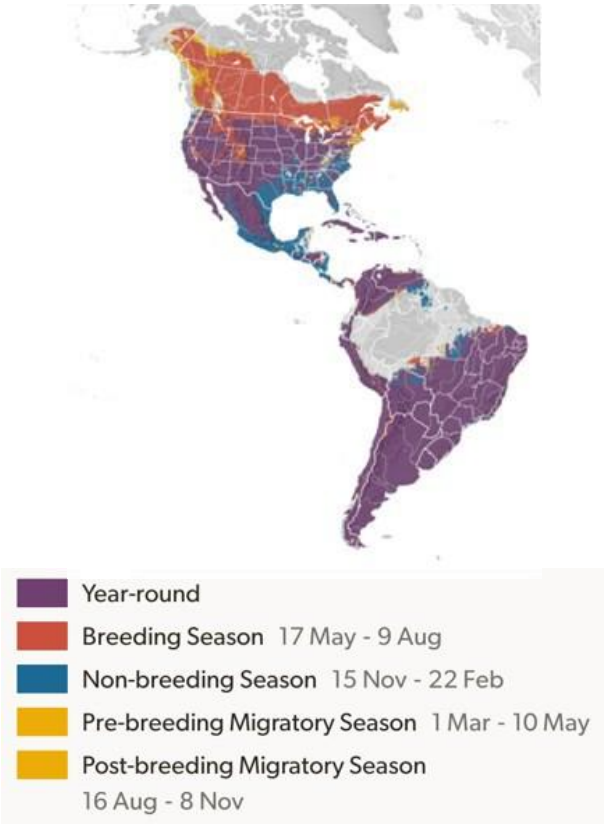
Conservation Highlights: South Dakota Endangered Species Law

The majority of state laws governing SDGFP's activities are found in Title 41. Title 34A, named Environmental Protection, contains the state endangered species law (Chapter 8). This chapter includes important definitions, responsibilities of the SDGFP Secretary and Commission, allowable activities under this title, and activities for which a person may apply for a permit to possess or take a state threatened or endangered species. The title also describes conditions for reintroduction of species that have been extirpated from the state (https://sdlegislature.gov/Statutes/34A-8)

AMERICAN KESTREL AMKE

(Falco sparverius)





Conservation Profile:

TSN	175622
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)

Description:

Smallest North American falcon (wingspan 22"; 56 cm). Both sexes have boldly marked head and barred, rufous back. Male has blue-gray wings and rufous tail with black terminal band. Often hovers while hunting; bobs tail while perched.

Distribution & Habitat:

Widely distributed throughout North America in open or semi-open areas. Most often nests in natural or human-made cavities, such as nestboxes.

Uses a wide variety of habitat types in South Dakota. Based on Breeding Bird Survey results, has experienced a steady decline over time. A secondary cavity nester, meaning it doesn't excavate its own cavity, as a woodpecker does.

Conservation Threats:

- Declines may be due to a combination of factors that may operate differently in various parts of the range. More intensive study is likely needed to better understand threats and to formulate actions.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Maintain natural nesting habitat, including dead or dying trees that provide cavities for woodpeckers
- Provide nestboxes in suitable areas
- Minimize unnecessary pesticide use

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image of adult male © Robert Pos, USFWS

Conservation Highlights: Values of snags

Snags are standing dead or dying trees. These habitat features provide critical wildlife habitat for nesting, roosting, perching, and winter protection. Even a live tree with a dead branch can provide an opportunity for a primary cavity excavator like a woodpecker to create a space for its own use. The Kestrel does not excavate its own nesting cavity, making it a secondary cavity user, similar to bats, chickadees, nuthatches, wrens, wood ducks, squirrels, and owls. Snags are important in natural and landscaped settings, but be sure to evaluate potential hazards of snags that may impact buildings or powerlines.

BAIRD'S SPARROW BASP

(Centronyx bairdii)

Conservation Profile

TSN	1189780
Global Rank	G4 (Apparently Secure)
State Rank	S2 (Imperiled)

Description:

Small, brown sparrow with a tan face and prominent dark spot on the upper rear of the ear coverts. Wingspan 8.75" (22 cm).

Distribution & Habitat:

Primary range extends from Canadian prairie provinces, where more than half of the breeding population occurs, south through Great Plains states. Range and abundance reduced across range.

Prefers lightly grazed native grass ecosystems and wetland meadows with low shrub cover and little woody vegetation. SD is on southeastern edge of species' range, with most breeding concentrated in northwestern SD.

Conservation Threats:

- Heavy grazing and habitat conversion to cultivated crops and similar threats on wintering grounds
- Wetland drainage

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Promote diverse prairie habitats
- Map and assess native prairie habitat quality on a recurring basis

Monitoring

- Regular population monitoring, potentially in addition to Breeding Bird Survey data collection

Research

- Investigate whether important migration stopover habitat exists in state

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

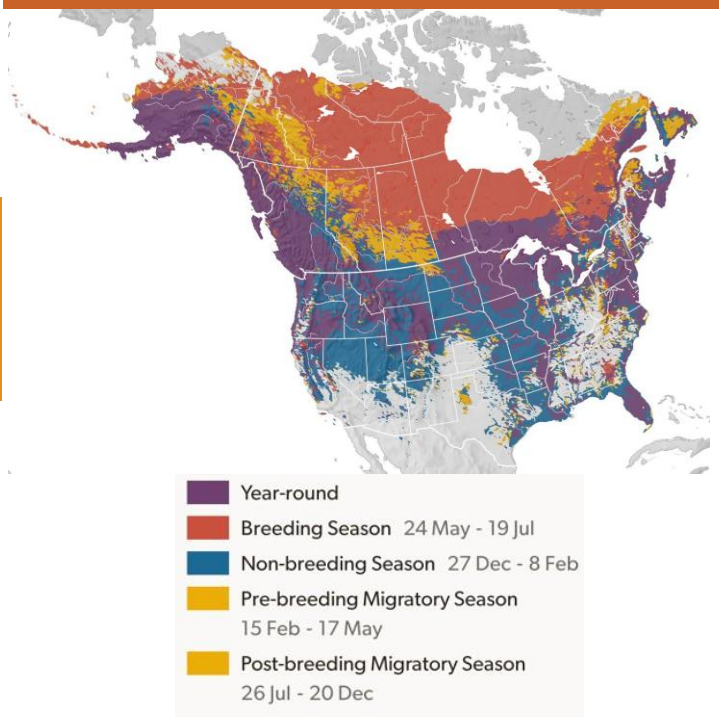
Photo © Rick Bohn, USFWS

Conservation Highlights:

- During the SDBBA II project, all Baird's Sparrow observations were in grasslands, with 86% in pastures and 8% in undisturbed grasslands.
- Can rear 2 broods per breeding season. Not as vulnerable to Cowbird nest parasitism as are some other species.
- Can tolerate presence of some non-native grass species as long as nesting habitat provides a diverse array of vegetation heights and densities.

BALD EAGLE BAEA

(Haliaeetus leucocephalus)



Conservation Profile

TSN	175420
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)

Description:

Very large bird of prey with a dark back and undersides. Immature birds transition through several plumages before attaining the adult's characteristic white head and tail, typically at 4-6 years of age. Wingspan 80" (203 cm).

Distribution & Habitat:

Widely distributed in North America. Recovery due to legal protections, improved water quality, and banning of DDT use in the U.S. Closely tied to aquatic habitats for food supply, which includes fish, waterfowl, and seabirds.

Also widely distributed within SD. Most often associated with large rivers and reservoirs, although pairs may also nest away from water bodies.

Conservation Threats:

- Disturbance to and removal of winter roost sites, which provide critical protection during severe weather
- Disturbance of nesting pairs, although many will tolerate some disturbance
- Degradation of water quality in aquatic foraging habitats
- Lead poisoning from feeding on game species carcasses

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Protect nest trees and winter roost sites
- Share information on impacts of lead poisoning to eagles and other wildlife species

Monitoring

- Continue to monitor populations at some level to detect regional pesticide or pollution issues that need attention. These same waterbodies provide drinking water, fishing waters, and other functions valued by people.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Photo © Sam Stukel

Conservation Highlights:

- Bald Eagles have a prolonged breeding season. During the SDBBA II project, Bald Eagle nests were active from mid-February through mid-July. Nest building begins 1-3 months before 1-3 eggs are laid. A pair may build a new nest or add onto an existing nest. A long-term nest can weigh 1/2 to 2 tons.
- Incubation begins with the first egg, explaining why nestlings may vary in size. Both parents feed the hungry eaglets, which leave the nest at 10-12 weeks of age. Parents may continue to feed them for several more weeks in the nest vicinity.

BLACK TERN BLTE

(Chlidonias niger)

Conservation Profile

TSN	176959
Global Rank	G4 (Apparently Secure)
State Rank	S3 (Vulnerable)
RSGCN	

Description:

Small tern with a dark, sooty gray body. Wingspan of 22-23 inches (56-58 cm).

Distribution & Habitat:

Widely distributed in North America. Populations have experienced long-term declines, although the species may be locally common.

Prefers marshes, sloughs, rivers, lakeshores, wet meadows with a mixture of emergent vegetation and open water; nests on floating plant matter. Listed as an SGCN because South Dakota represents an important portion of this species' overall range.

Conservation Threats:

- Water level manipulations that flood nests or make them vulnerable to predation
- Wetland drainage and degradation

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Maintain stable water levels in nesting colonies during the nesting season
- Work with agencies and landowners to maintain water quality by reducing soil erosion and reducing chemical use near nesting habitat

Monitoring

- Periodically repeat standardized inventories of colonial and semi-colonial waterbird colonies

Research

- Investigate impact of narrowleaf cattail, hybrid species, and other potentially invasive species in wetland habitats

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

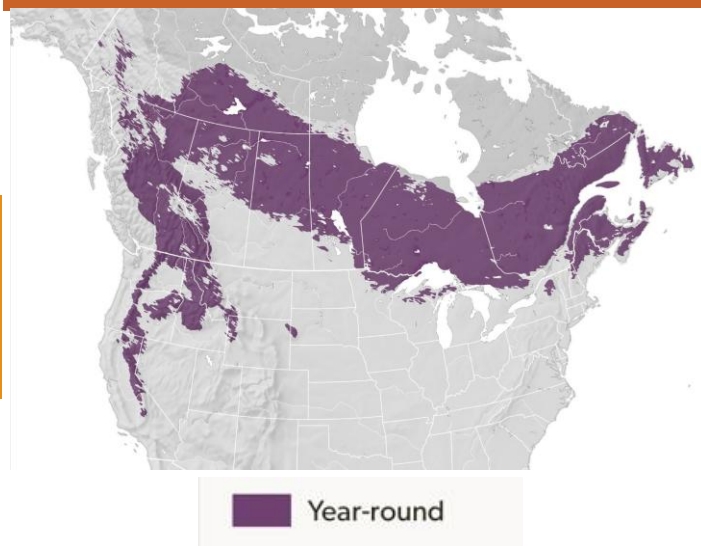
Photo © Keith Anderson; molting adult in foreground

Conservation Highlights: Market hunting of shorebirds and the Migratory Bird Treaty Act

North America's fish and wildlife resources appeared to be limitless following settlement by Europeans. Populations of bison, waterfowl, and furbearers were exploited without limit for many years. Lack of protection or concern for the future caused the extinction of the Passenger Pigeon and near extinction of the bison. Perhaps you've seen old or modern replicate shorebird decoys. Such decoys were used as shorebird populations were also decimated for food, sport, and fancy feathers for women's hats. The Migratory Bird Treaty Act of 1918 protects the majority of native bird species, their nests, and eggs from take without a permit. This tool protects nongame species that are not state or federal listed as threatened or endangered. Despite policy changes associated with this important tool, it remains a model of conservation and cooperation across international boundaries.

BLACK-BACKED WOODPECKER

(Picoides arcticus) **BBWO**



Conservation Profile

TSN	178250
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Medium-sized woodpecker with a solid black back and barred sides. Males have yellow cap. Wingspan 16" (41 cm).

Distribution & Habitat:

Widely distributed across northern North America in suitable habitats.

Prefers post-burn forests with high densities of small trees for feeding; nests in excavated cavity of dead, medium to large-sized tree, or live tree with dead heartwood. Black Hills population was evaluated for listing under the federal ESA. Listing was not warrant- ed.

Conservation Threats:

- Forestry practices that do not promote suitable habitats, including timber harvest, removal of fire – or insect-affected trees, fire suppressions, and conversion of mature and older growth forests to young stands.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Develop programs and educational materials about the role of natural disturbance, including historical fire regimes, in maintaining habitat for this species. The species' unpredictable occurrence makes it difficult to survey with traditional methods, such as the USGS Breeding Bird Survey.

Monitoring

- Continue to monitor this species in response to historical disturbance regimes of fire and mountain pine beetle infestations.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © USFWS

Conservation Highlights:

SWG Project T-65 estimated the population size of this species in the Black Hills. Study highlights:

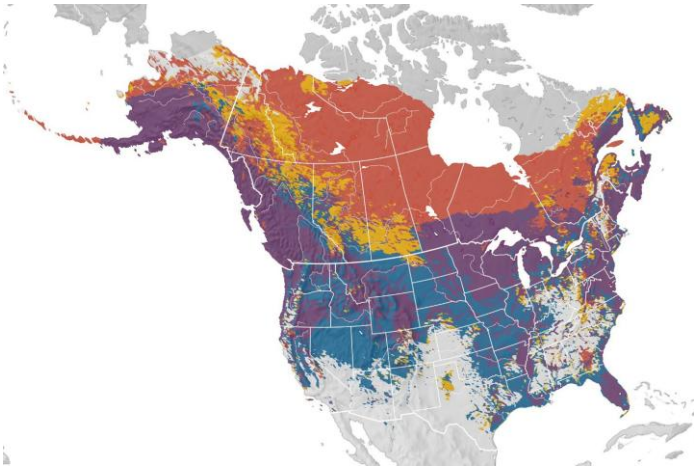
- Abundance was positively related to % cover of beetle-killed trees and wild fires in the previous 5 years.
- Population estimates were 2,920 (2015) and 3,439 (2016), with greatest densities in areas of mtn. pine beetle infestation.
- Will benefit from maintenance of areas with natural disturbance and diverse vegetation at the stand and landscape levels.

BLACK-BILLED CUCKOO

(Coccyzus erythrophthalmus) **BBCU**

Conservation Profile

TSN	177834
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)
RSGCN	



Description:

Slender, long-tailed bird with a red eye ring, long black bill, and hunchbacked appearance. Secretive bird that can remain perched motionless for long periods. Wingspan 17.5" (44 cm).

Distribution & Habitat:

Widely distributed in central provinces and states eastward through eastern states and provinces. Breeding densities can vary significantly in response to caterpillar outbreaks.

Found statewide except for the Black Hills during the breeding season. The SD Breeding Bird Atlas II found a decline east of the Missouri River compared to the first atlas. Prefers dense deciduous shelterbelts, woods, thickets, and shrubby areas. Eats a variety of large insects but prefers caterpillars.

Conservation Threats:

- Degradation or removal of riparian habitat; water diversions; urbanization; tropical deforestation of winter habitats
- Pesticide use reduces insect prey

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Included as SGCN in 4 adjoining states (ND, NE, MN, WY) and as a Regional SGCN in the Midwest.

Monitoring

- Work with partners to develop and implement monitoring protocols to better understand regional population trends.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Photo © Andy Reago and Chrissy McClarren

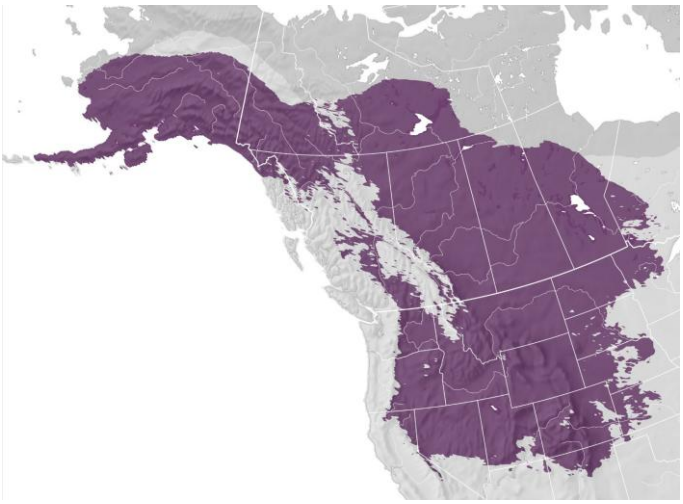
Conservation Highlights: The role of brood parasitism

Some bird species use a reproductive strategy called brood parasitism. A female lays some or all of her eggs in the nest of another bird, saving her the burden of rearing the future chicks. The host bird may be of the same species (intraspecific) or a different species (interspecific). Facultative brood parasites, such as the Black-billed Cuckoo, may lay some eggs in another bird's nest, but the female incubates some of her own eggs. Obligate brood parasites rely completely on the ability to find host nests, because they have lost the ability to build nests and incubate eggs.

The Brown-headed Cowbird is a well-known obligate brood parasite, causing negative impacts to some rare species that instinctively feed and rear the Cowbird chicks at the expense of their own smaller young.

BLACK-BILLED MAGPIE

(Pica hudsonia) **BBMA**



Conservation Profile

TSN	726117
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)

Description:

Flashy jay-like bird with a long tail and heavy bill. Primarily black and white in color with wings and tail shining with a blue-green iridescence. Will gather in large numbers to feed on carrion. Wingspan 25" (63 cm).

Distribution & Habitat:

Widely distributed in much of western North America.

Year-round resident of South Dakota, primarily the western quarter of the state. Most abundant in the southern Black Hills and the Pine Ridge Escarpment in Oglala Lakota and Bennett counties. Habitats include open areas with isolated stands of trees or large shrubs, woodlands, grasslands, and riparian woodlands. Nests in dense thickets in trees and shrubs. Abandoned nests are often reused by other species such as Merlin.

Conservation Threats:

- Susceptible to West Nile Virus
- Scavenging habits make the species vulnerable to intentional and unintentional poisoning of food sources

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Included as an SGCN because of uncertain population status and susceptibility to secondary poisoning because of its foraging habits and diet.

Monitoring

- Monitor population status in the state and investigate causes of population declines, including relationship with West Nile Virus outbreaks.

Research

- Investigate whether topical insecticide use on cattle may be negatively impacting Magpies.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Photo © Ron Knight

Conservation Highlights: Lewis and Clark connection

On September 17, 1804, Meriwether Lewis described that one of the Corps of Discovery expedition's hunters had killed a bird of the *Corvus* genus and "about the size of a jack-daw with a remarkable long tale." He included a detailed description of a Black-billed Magpie, the first such description of this species, which was unfamiliar to easterners. Four live magpies were sent to President Jefferson, along with a black-tailed prairie dog. The prairie dog and one of the magpies survived the trip to reach Jefferson.

The genus *Corvus* includes crows, ravens, and rooks. Thinking the Magpie was in this genus, Lewis and Clark named Corvus Creek, now known as American Crow Creek and also called American Creek, near Oacoma, in modern-day Lyman County, for this discovery. https://lewisandclarkjournals.unl.edu/item/lc.jrn.1804-09-16

BOBOLINK BOBO

(Dolichonyx oryzivorus)

Conservation Profile

TSN	179032
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)
RSGCN	

Description:

Sexually dimorphic grassland songbird. Breeding male is uniquely black below with white and yellow above; sings a bubbling aerial courtship song. Female and non-breeding male are brownish and sparrow-like. Wingspan 11.5 " (29 cm).

Distribution & Habitat:

Widely distributed nesting species in North America. Nesting range expanded with settlement, but serious concern about population declines.

Nests in suitable grasslands throughout much of South Dakota; more common east of the Missouri River. May use a variety of grassland types that provide moderate to tall vegetation height and density; habitats include native prairie, meadows, pastures, hayfields, grain fields, and old fields.

Conservation Threats:

- Grassland, pasture, and hayfield conversion to cropland
- Unfavorable land management including mowing or haying during the nesting season before young have fledged; intensive grazing pressure
- Renewable energy infrastructure
- Invasive woody species

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Management

- Restore cropland to grassland through programs such as the CRP
- Maintain and appropriately manage large tracts of existing public grasslands
- Graze and burn in ways that provide preferred vegetative structure
- Delay mowing and haying until after fledging
- Reduce pesticide use when and where possible

Research

- Gain better understanding of life cycle demographics
- Investigate behavior, movements, and concentrations during migration
- Investigate wintering ecology and behavior

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Steve Maslowski; publisher USFWS

Conservation Highlights:

The Bobolink was Identified as a Tipping Point Species by the NABCI. These spe- cies have lost at least 50% of their breeding population since 1970 and are projected to lose an additional 50% in the next 50 years. Considered a Bird of Conservation Concern by the U. S. Fish and Wildlife Service, a Priority Species by the Prairie Pothole Joint Venture, a RSGCN by the MLI, and a SGCN in the neighboring states of Minnesota, Nebraska, North Da- kota, and Wyoming.

BUFF-BREASTED SANDPIPER

(Calidris subruficollis) **BBSA**

Conservation Profile

TSN	1192598
Global Rank	G4 (Apparently Secure)
State Rank	SNR (State Not Ranked)
RSGCN	

Description:

Long, yellow legs. Slender physique. Scaly pattern on back and unmarked buffy breast. Short bill and dark eyes. Wingspan 18" (46 cm).

Distribution & Habitat:

Within North America, breeds only on well-drained tundra of high Arctic of Alaska, Yukon, and adjacent islands. Area supports 87% of NA breeding population and 75% of global population.

Migrates through central Canada and U.S. in a relatively narrow band enroute to South American wintering grounds, with additional scattered migrants, especially along Atlantic Coast.

Conservation Threats:

- Loss of grassland and wetland habitat along migration route and on wintering grounds to agricultural uses and overgrazing

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Included as SGCN in 4 adjoining states (ND, NE, MN, WY) and as a Regional SGCN in the Midwest.

Monitoring

- Work with partners to develop and implement monitoring protocols to better understand regional population trends.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Photo © Andy Reago and Chrissy McClarren

Conservation Highlights: Potential Climate Change Impacts

A species that concentrates in a small area to breed, migrate, or winter raises unique concerns regarding conservation threats. The Buff-breasted Sandpiper is listed as a species of special concern by the Committee on the Status of Endangered Wildlife in Canada, an entity also known as COSEWIC. The COSEWIC Assessment and Status Report includes several potential climate change impacts for this species: advancing shrub cover may alter breeding habitat; rising sea levels and increased rainfall may flood coastal breeding and wintering habitat; more frequent storms could impact juveniles migrating along Atlantic Coast; and droughts in prairie provinces and prairie states could affect migration habitat and food availability.

BURROWING OWL BUOW

(Athene cunicularia)

Conservation Profile

TSN	177946
Global Rank	G4 (Apparently Secure)
State Rank	S3 (Vulnerable)

Description:

Small, ground dwelling owl with long legs, white chin stripe, round head, and stubby tail. Primarily diurnal. Wingspan 21" (53 cm).

Distribution & Habitat:

Widespread within the Western Hemisphere with localized and unevenly distributed populations. Depends on presence of burrowing mammals and grassland habitat.

Lives in colonies using burrows excavated by black-tailed prairie dogs or ground squirrels for cover; prefers burrows in heavily grazed grass ecosystems that provide good horizontal visibility. Forages in grass ecosystems with low to

moderate grass cover to aid in prey detection.

Conservation Threats:

- Habitat loss from agricultural and urban development
- Prairie dog and ground squirrel control
- Secondary poisoning from feeding on prey killed by certain rodenticides and insecticides

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Image © California Dept. of Fish and Wildlife

Conservation Actions & Needs:

- Encourage prairie dog control methods with the fewest secondary impacts possible
- Share information regarding importance of prairie dog ecosystem to a wide variety of wildlife species
- Work with pesticide applicators to reinforce use of the safest methods possible
- Distribute information to prairie dog shooters on other species likely present in colonies

Monitoring

- Monitor prairie dog colony distribution

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

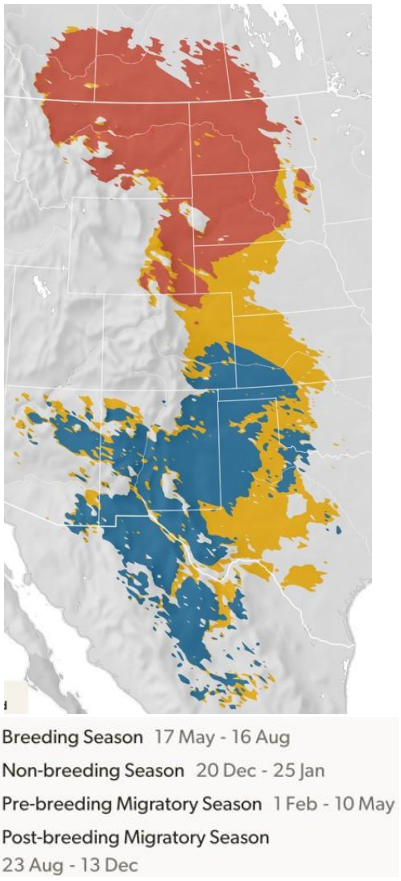
Conservation Highlights: Southern Wings

Bird conservation must include providing for needs during the breeding, migration, and wintering seasons. Burrowing Owls in the northern portion of their range migrate south to the southern U.S., Mexico, and Central America.

Southern Wings is an initiative where state fish and wildlife agencies and conservation entities provide funding assistance to partners in Central and South America to support management and preservation of important migratory and wintering areas. For more information, visit: https://www.fishwildlife.org/afwa-inspires/southern-wings

CHESTNUT-COLLARED LONGSPUR

(*Calcarius ornatus*) **CCLO**



Conservation Profile

TSN	179530
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)

Description:

Sparrow-sized bird with black underparts, white on face and wings and a chestnut collar on the male. Has experienced an estimated 50% decline during the past decade. Wingspan 10.5 (27 cm).

Distribution & Habitat:

A Great Plains grassland species that breeds from central Canada south to Texas. Its core wintering area is in northern Mexico.

Prefers heterogeneous grazed cover of short and mid-statured grasses, particularly bunchgrasses. Longspurs avoid shrubby areas and areas with dense litter accumulation.

Conservation Threats:

- Native prairie habitat conversion for agricultural uses and urban development
- Nest predation in portions of breeding range
- Habitat loss on wintering grounds; reduced habitat quality and quantity in Canadian breeding areas

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes.
- Species may move to new breeding areas in response to management practices such as grazing, burning, and mowing. Monitoring along established routes may not adequately detect these shifts.

Monitoring and Research:

- Periodically identify high population core areas
- investigate habitats used during migration

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Rich Bohn

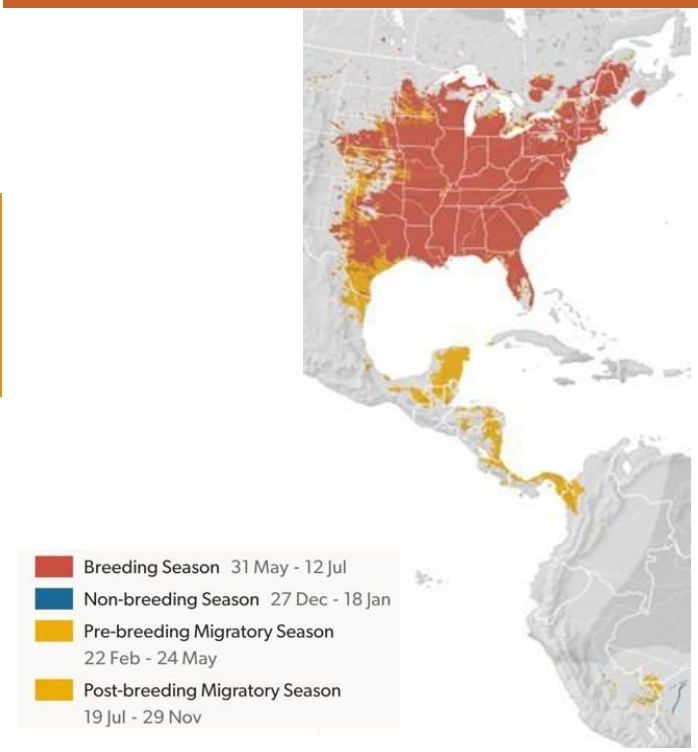
Conservation Highlights:

SWG Project T-33 evaluated habitat use of several grassland bird species in central and western SD. Highlights:

- Increased exotic species negatively impacted 4 grassland species, including this one.
- Important to preserve and restore grasslands that are at least 250 acres that are located near each other and have little exotic species presence and minimal woody habitat edges.
- Exotic species and woody invasion in grasslands may be as detrimental to some species as is overall grassland habitat loss.

CHIMNEY SWIFT CHSW

(Chaetura pelagica)



Conservation Profile

TSN	178001
Global Rank	G4 (Apparently Secure)
State Rank	S4 (Apparently Secure)
RSGCN	

Description:

Brown, cigar-shaped resident of towns and cities. Observed almost exclusively in flight; shallow wing-beats. Wingspan 14" (36 cm).

Distribution & Habitat:

A long distance migrant that breeds as far north as central and eastern Canada and winters in South America.

Nests almost exclusively in chimneys or other human-made structures with low light. Natural nests built in caves and hollow trees. Forages for insects while in flight.

Conservation Threats:

- Reduced availability of aerial insect prey due to insecticide use and ecosystem modifications in much of its year-round range
- Loss of natural and artificial nesting habitat through logging of old growth trees and decreasing availability of chimneys as old structures are destroyed, new chimneys are not being constructed or made of materials unsuitable for nesting
- Mortality during migration due to weather extremes

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Preserve or restore existing chimneys and allow access; build artificial nesting towers
- Allow nesting in your chimney, if compatible with other uses, by removing chimney caps
- Provide information on importance of chimneys for nesting and as stopover locations during migration

Research

- Many aspects of species ecology, behavior, and physiology remain unknown
- Investigate factors that regulate populations, such as the impact of pesticides and most effective designs for artificial nesting structures

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Chimney swifts, Jeff&Amy, Public Domain, https://www.fws.gov/media/chimney-swifts

Conservation Highlights:

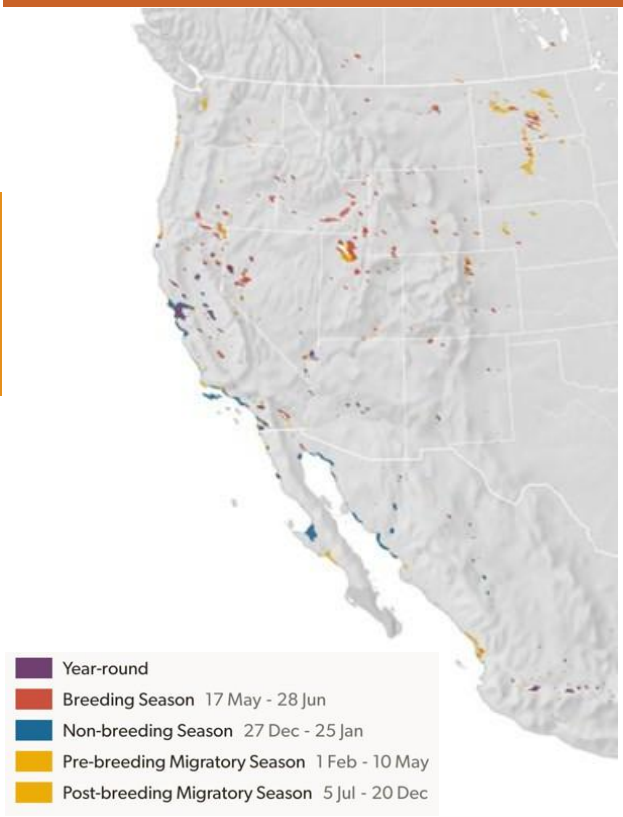
Identified as a state SGCN because it depends on presence of natural decay of trees for nesting cavities and due to loss of human-made structures previously used for nesting. This aerial insectivore is experiencing steep population declines. Considered a Vulnerable species by the International Union for Conservation of Nature. Identified as a Tipping Point Species by the NABCI. These species have lost at least 50% of their breed- ing population since 1970 and are projected to lose an additional 50% in the next 50 years. Considered a RSGCN by the MLI and an SGCN in Minnesota.

CLARK'S GREBE CLGR

(Aechmophorus clarkii)

Conservation Profile

TSN	554027
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)



Description:

Black and white waterbird with a long slender neck and a straight orange bill. White on the face extends above the red eye; amount of white on face used to distinguish it from Western Grebe. Wingspan 24" (61 cm).

Distribution & Habitat:

A widespread colonial and gregarious species of western North America.

Breeding habitats are marshes, lakes, and reservoirs with open water to allow birds to dive for fish and emergent vegetation to protect nesting colonies. Breeds primarily in the northeastern corner of the state; less common west of the Missouri River.

Conservation Threats:

- Nesting colonies vulnerable to disturbance and flooding and pollution impacts affecting aquatic prey
- Threatened by many factors that affect wetland abundance and quality, such as wetland drainage and degradation, environmental contaminants, and invasive plant species
- Vulnerable to oil spills in wintering areas

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Restore & conserve wetlands with suitable habitat
- Improve water quality by reducing contaminant levels
- Provide information about appropriate activities near colonial nesting sites or, when needed, protect nesting sites with fencing or signage

Monitoring

- Periodically revisit known and suspected colonial waterbird colonies in SD to determine species composition, habitat quality, site-specific threats, and nesting productivity

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx;

Image © Kevin L. Cole

Conservation Highlights:

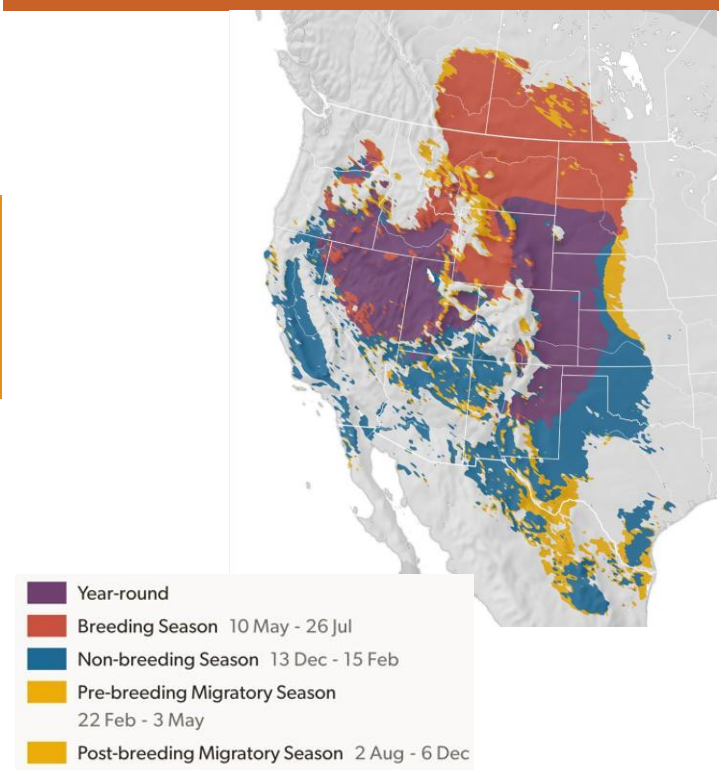
Closely resembles the Western Grebe. During the breeding season, Clark's Grebe has white around the eyes, a bright yellow bill, and a gray back with white patches. In flight, the wing shows more white feathers than the Western Grebe, which has dark feathers around the eyes, a bill that is dull yellow to pale olive, and a more solidly dark gray back. Both Clark's and Western grebes are famous for their courtship displays, particularly "rushing", where a pair runs side by side along the surface of the water, then dives headfirst into the water. The head position during rushing illustrates a unique anatomical feature among grebes for these two species. They can thrust their heads forward like spears. Clark's and Western grebes are colonial nesters, nesting closely together in habitats with flooded emergent vegetation.

FERRUGINOUS HAWK FEHA

(Buteo regalis)

Conservation Profile

TSN	175377
Global Rank	G4 (Apparently Secure)
State Rank	S3 (Vulnerable)



Description:

A medium-large bird of prey. Light morph has rusty brown on the upper parts; a pale head, neck, and underparts; and rust on the legs. The less common dark morph is dark rusty red with a darker gray tail. Wingspan is 56" (142 cm).

Distribution & Habitat:

Widespread grassland species of western North America in appropriate habitat.

Prefers a diversity of grass/shrub ecosystem structures with a variety and abundance of prey, such as ground squirrels, jackrabbits, and prairie dogs; forages in open, short-statured grass/shrub ecosystems; nests near abundant prey sources; nests in trees, but will also use shrubs and areas of tall-clumpy grasses on the ground.

Conservation Threats:

- Human disturbance near nest sites
- Illegal shooting
- Poisoning of prey sources

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Work with agencies, landowners, and the public to minimize disturbance in key nesting habitat and to reduce the use of pesticides to control prey species

Management

- Continue and expand efforts to support full life-cycle conservation needs, such as through the AFWA Southern Wings Program

Research

- Identify critical habitats and prey preferences
- Research effects of lead and other contaminants to raptor populations

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Brandon

Conservation Highlights:

SWG Project T-58 researched the breeding ecology of Ferruginous Hawks and Golden Eagles in northcentral and western SD. Highlights from this study for the Ferruginous Hawk:

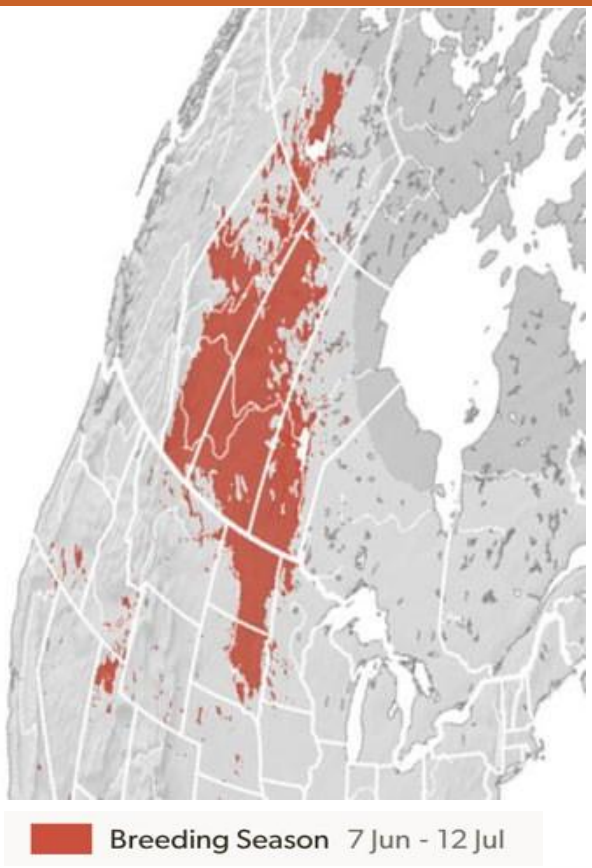
- Nest placement was most closely tied to the amount of grass in the landscape and the extent of development. This species can benefit from availability of grazed and idle grasslands with suitable nesting substrates. Home range size is influenced positively by grassland presence and negatively by percent development.
- Diet was 68% mammalian and 28% avian. Most important prey items were ground squirrels, pocket gophers, prairie dogs, and lagomorphs.
- Treebelts associated with farmsteads are important breeding sites for this species in the NGPs.

FRANKLIN'S GULL FRGU

(Leucophaeus pipixcan)

Conservation Profile

TSN	824082
Global Rank	G5 (Secure)
State Rank	S5 (Secure)



Description:

Gulls require careful study because plumage changes with season and age. Breeding adult has black head, white eye-arcs, gray wings and back, and white undersides. Wingspan 36" (91 cm).

Distribution & Habitat:

Breeds from Canada's prairie provinces through portions of several western and central states and east to several Midwestern states.

Most commonly breeds in northeastern South Dakota. Colony numbers vary widely from year to year with changing water levels. Nests in marshes with relatively deep water and forages in nearby wetland and upland habitats.

Conservation Threats:

- Nesting concentrations vary with wetland availability. Efforts targeting wetland complex protection will benefit this species.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide a variety of wetland types and conditions in northeastern South Dakota
- Although difficult to monitor because breeding colony abundance can vary annually, protect large colonies from disturbance when detected

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Louis Agassiz Fuertes, USFWS publisher

Conservation Highlights: Waterbird Colony Monitoring
SDGFP has funded two colonial waterbird colony monitoring projects in partnership with the Rocky Mountain Bird Observatory, now known as Bird Conservancy of the Rockies. Project T-16 included surveys of more than 1,000 colonies, with 26 locations considered important sites having more than 200 breeding pairs and/or more than 5 breeding species. American White Pelican and Double-crested Cormorant were the 2 most abundant species. In Project T-52, 311 sites were revisited. The Pelican and Cormorant were again the most abundant species. Colony changes were due mainly to changing water level fluctuations due to drought or flooding. Periodic surveys of these important sites are critical. For more information on these and other SWG projects, visit the Wildlife Action Plan Explorer: https://gfp.sd.gov/wildlife-action- plan/

GOLDEN EAGLE GOEA

(Aquila chrysaetos)

Conservation Profile:

TSN	175407
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)

Description:

Long, broad wings (wingspan 79"; 201 cm) and relatively small head compared to the Bald Eagle. Adults are dark brown with golden sheen to the back of the head and neck. Juveniles have white patches at the bases of the wings' primary feathers and at the base of the tail. Soars and glides with wings held in a slight V pattern.

Distribution & Habitat:

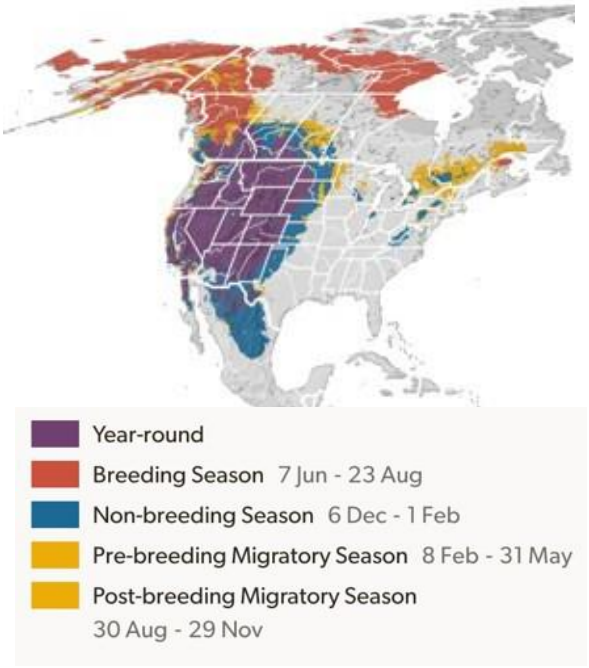
Widely distributed in Northern Hemisphere.

Nests in suitable habitats west of the Missouri River and in a few counties east of and adjacent to the Missouri River. South Dakota habitats include grasslands, cliffs, buttes, badlands, river corridor forests, and upland woodlands. May forage on prairie dog towns. Nesting sites often on cliffs in open areas with potential hunting habitat nearby.

Conservation Threats:

- Collisions with wind turbines and associated infrastructure
- Human disturbance near nest sites
- Illegal shooting and poisoning

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx



Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes

Management

- Inform public of appropriate activities near known nest sites

Monitoring:

- Monitor known nest sites to determine associated habitats, potential threats, and nest success

Research

- Research effects of lead and other contaminants to raptor populations

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Photo © Tony Hisgett

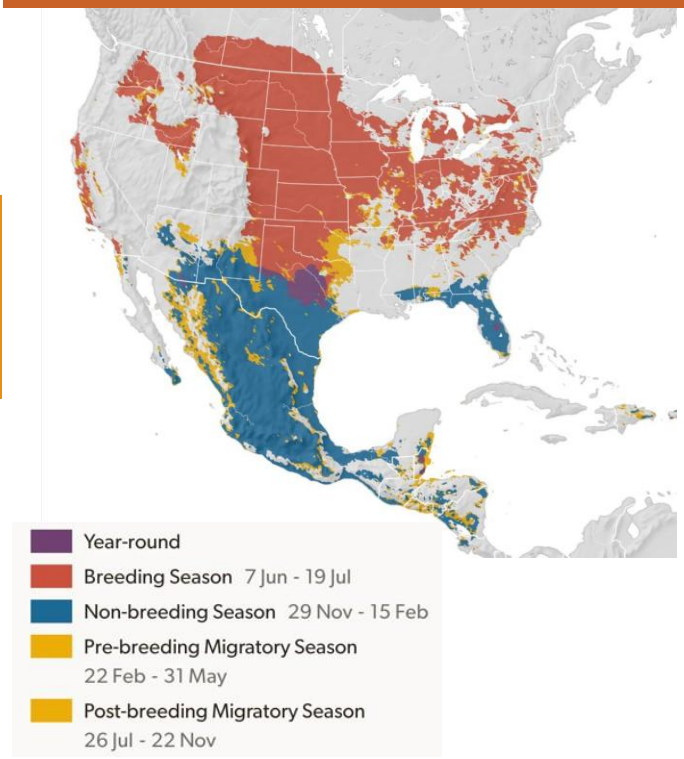
Conservation Highlights:

SWG Project T-58 researched the breeding ecology of Ferruginous Hawks and Golden Eagles in north- central and western SD. Highlights from this study for the Golden Eagle:

- Nest success for 35 monitored nests ranged from 62-94%. Successful nests fledged an average of 1.4 young.
- Nest placement was influenced positively by amount of grass in the landscape and negatively by development.
- Grasslands with nesting substrate, especially cliff sides and trees, are needed for Golden Eagle persistence and recovery.

GRASSHOPPER SPARROW GRSP

(*Ammodramus savannarum*)



Conservation Profile

TSN	179333
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)
RSGCN	

Description:

Small, brown, short-tailed sparrow with a flat head. Buffy chest and white belly are unmarked. Yellow in front of eye and at bend of wing may be visible. Named because of its insect-like song, not its foraging habits. Wingspan 7.75" (20 cm).

Distribution & Habitat:

Widely distributed from southern Canada to northern South America.

Breeder and migrant throughout the state. Abundant in northwestern South Dakota. Key habitats are grasslands with intermediate grass height and density, a moderate to deep litter layer, and few if any trees. Prefers large grassland patches.

Conservation Threats:

- Grassland loss, fragmentation, and degradation
- Land management that does not provide preferred vegetative structure
- Woody vegetation encroachment
- Energy development
- Pesticides

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes

Management

- Burning, haying, or grazing to create moderate-structure grasslands
- Provide open, grasslands with preferred vegetative structure that are large enough for breeding and foraging

Research

- Investigate demographic information, especially reproductive success

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

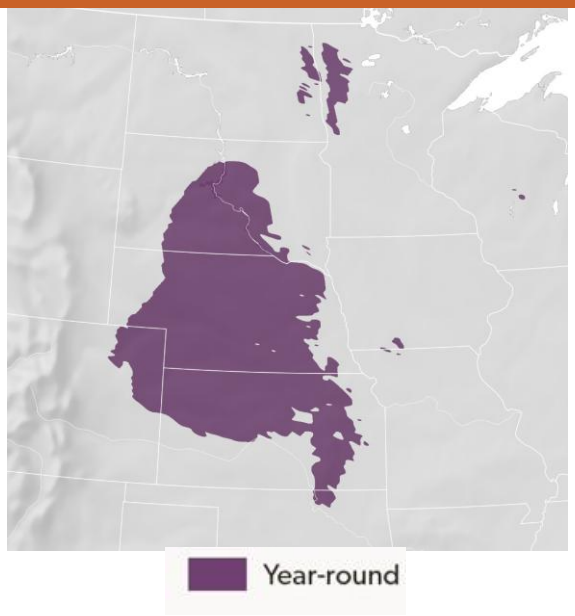
Image © Aron Flanders, USFWS

Conservation Highlights: SD SGCN listing criteria

Listed because of criteria 2b and 3 - depends on large habitat patch sizes or landscapes with large amounts of grassland and because SD represents an important portion of the species range. Considered a Bird of Conservation Concern by the U. S. Fish and Wildlife Service, a Priority Species by both the Prairie Pothole and NGPs joint ventures, a RSGCN by the Midwest Landscape Initia- tive, and an SGCN in Minnesota and North Dakota. Credible, negative population trend for South Dakota based on U. S. Geological Survey Breeding Bird Survey data (1993 - 2019).

GREATER PRAIRIE-CHICKEN

(*Tympanuchus cupido*) **GRPC**



Conservation Profile

TSN	175834
Global Rank	G4 (Apparently Secure)
State Rank	S4 (Apparently Secure)
RSGCN	

Description:

Medium-sized prairie grouse with heavy dark and light brown barring and feathered toes. Males have yellow-orange eye combs. The short, rounded tail is barred in females and black in males. Males perform "booming" displays on leks to attract females during which males have erect, elongated feathers on the neck and yellow-orange inflatable sacs on the sides of the neck. Wingspan 28" (71 cm).

Distribution & Habitat:

Extirpated from large areas of the northern and eastern portions of North American range. Requires diversity of grass ecosystem with suitable structural conditions for breeding, foraging, and nesting. Leks on open short-statured grasslands; nests in mid– to tall-statured grass ecosystems, and foraging habitat often in diversity grass structural stages that maximize insect production. Uses mixed-grass prairie habitat in SD.

Conservation Threats:

- Prairie loss, fragmentation, and degradation
- Land management that does not promote preferred vegetative structure
- insecticide use that decreases insect availability for young birds
- Introduced diseases, such as West Nile Virus

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Work with agencies and landowners to reduce pesticide/herbicide use in important habitats

Monitoring

- Continue monitoring lek locations and density; counts of males on leks considered an index of population change
- Continue monitoring age distribution of harvested birds

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

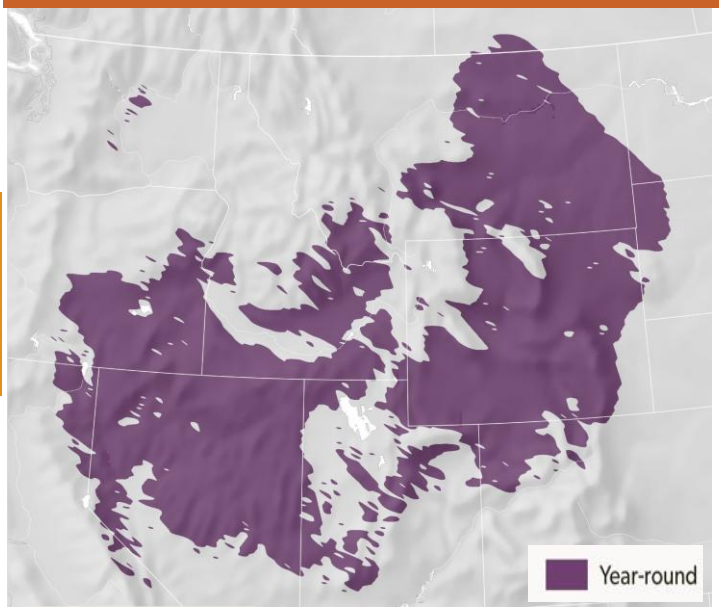
Photo © Keith Anderson

Conservation Highlights: SDBBA II

SWG Project T-41 was a repeat of a statewide breeding bird atlas conducted from 1988- 1992. Repeating the project allowed comparison of changes during the 20-year interval. Distribution of the Greater Prairie-Chicken during the second atlas (2008-2012) included more counties west, north, and east of the distribution documented during the first SD Breeding Bird Atlas.
An interactive website for the second atlas is available: https://gfp.sd.gov/breeding-bird-atlas/

GREATER SAGE-GROUSE GRSG

(Centrocercus urophasianus)



Conservation Profile

TSN	175855
Global Rank	G3 (Vulnerable)
State Rank	S2 (Imperiled)

Description:

The largest North American grouse species. Male has blackish-brown throat feathers separated by a band of white to form a V-shaped pattern (ruff). Male has white breast, black belly, long pointed tail, and two large, yellowish skin sacs on the breast used in courtship displays. Females are drab gray and speckled with a black breast.

Distribution & Habitat:

Formerly widespread in sage-steppe habitats of western states and southwestern provinces of North America. Much reduced in distribution and abundance. SD on eastern periphery of the species' range.

Prefers a diversity of sagebrush-grass ecosystem structural conditions for breeding, foraging, and nesting. Leks require open short-statured grass conditions, nest sites require mid-to tall stature sagebrush-grass ecosystems, and foraging habitat have a diversity of grass structural stages that maximize insect production, including wet meadows.

Conservation Threats:

- Sagebrush habitat loss, fragmentation, and degradation
- Introduced diseases, such as West Nile Virus
- Collisions with fences and powerlines

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Work with agencies and landowners to reduce pesticide/herbicide use in important habitats
- Identify sites for sagebrush restoration

Monitoring

- Periodically map, characterize, and monitor sagebrush habitat
- Continue conducting lek surveys
- Monitor West Nile Virus impacts in important nesting areas

Research

- Investigate effects of livestock grazing on sagebrush habitat

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Stephen Ting, USFWS

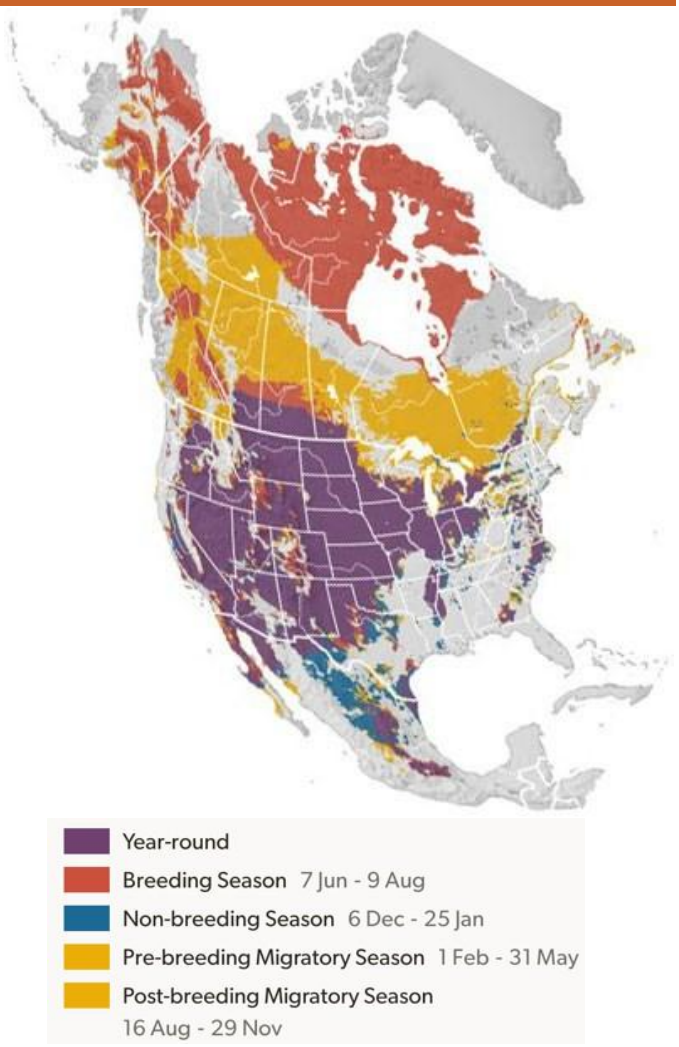
Conservation Highlights:

SWG Project T-51 compared vegetation conditions in sagebrush habitats and on Greater Sage-Grouse leks in western SD. Study highlights:

- Study used lek count data collected from 1992 to 2012 to evaluate trends in sagebrush habitats; all data indicated a decline during these 2 decades.
- Grass composition change showed replacement of taller bunchgrass species (C3 grasses) with shorter stature sod grasses (C4 grasses).
- Forb cover declined, although forb height appeared to increase.
- Appropriate sagebrush restoration strategies are discussed in the study's final report.

HORNED LARK HOLA

(Eremophila alpestris)



Conservation Profile

TSN	*554256*
Global Rank	G5 (Secure)
State Rank	S5 (Secure)

Description:

Slender and long-legged, with short bill and square tail. Black markings on head and breast, with "horns" (feather tufts) sometimes visible on top of head. Wingspan 12" (30 cm).

Distribution & Habitat:

Widespread North American distribution. Inhabits open grasslands, tundra, desert, and agricultural fields.

A widespread breeder in South Dakota, with the exception of the Black Hills. Uses open habitats, including pastures, cropland, roadsides, and hayfields. A year-round resident.

Conservation Threats:

- In South Dakota and rangewide, this species has experienced a slow, steady population decline, as shown by trend analysis from the North American Breeding Bird Survey data.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx; *Image © Tim Bowman, USFWS*

Conservation Highlights: Partners in Flight "Common Birds in Steep Decline"

Conservation agencies and organizations often develop lists to organize and prioritize conservation needs and actions. Some lists have legal meaning, such as state or federal lists of threatened or endangered species. Others provide information to partners or guidance for future work. The Horned Lark is listed by Partners in Flight as a Common Bird in Steep Decline. The species does not yet need additional legal protection, but if its decline is not addressed, it may be headed in that direction. The SD SGCN list functions in a similar way. Although some state and federal listed species are included, many SGCNs are listed to focus attention and identify monitoring and research needs to avoid the need for future state or federal endangered species listing and associated impacts.

HUDSONIAN GODWIT HUGO

(*Limosa haemastica*)

Conservation Profile

TSN	176690
Global Rank	G4 (Apparently Secure)
State Rank	SNR (State Not Ranked)

Description:

Smallest of 4 godwit species. Compare to Marbled Godwit, the other godwit likely in South Dakota. Black underwings coverts visible in flight. Wingspan 29" (74 cm).

Distribution & Habitat:

An Arctic nester in Alaska, Mackenzie Delta, and Hudson Bay Lowlands. Nesting habitat is grassy tundra near water, bogs, and marshes. Nonbreeding habitats are marshes, beaches, flooded fields, tidal mudflats, and shores of lakes and ponds.

Migrates through several regions of Canada, along Atlantic Coast, and through much of central and eastern U.S.

Conservation Threats:

- Degradation of nesting habitat
- Prey availability changes due to climate change
- Impacts of overgrazing by geese on Hudson Bay Lowlands breeding area
- Loss of habitat and disturbance while on South American wintering grounds

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

This species migrates through South Dakota on its way north during the spring. Its fall migration route is much farther east off the Atlantic Coast. The 10,000-mile journey may include thousands of nonstop miles. It is critical the birds find needed resources during migratory, refueling stops.

- Protect wetland habitat along migration corridor, focused on areas where migrants congregate

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Krista Lundgren, USFWS

Conservation Highlights: Southern Wings

Established in 2000, the Southern Wings initiative is a state wildlife agency-led effort to reach across political boundaries for the good of the birds. In recognition of the importance of providing for birds' full annual life cycle needs, AFWA works with a variety of partners in Central and South Ameri- ca to identify important migration and wintering habitats, particularly in areas with successful conservation efforts already in place. Projects are creative, diverse, and often linked to compatible local land management. As of 2024, 41 U.S. state wildlife agencies have contributed to 24 projects in 11 countries.

LARK BUNTING LABU

(Calamospiza melanocorys)

Conservation Profile

TSN	179312
Global Rank	G5 (Secure)
State Rank	S5 (Secure)

Description:

Male is black with white wing patches and outer tail feathers; female is gray brown above and white below with dusky to dark breast streaks. Large bill, short tail, and short rounded wings. Wingspan 10.5“ (27 cm).

Distribution & Habitat:

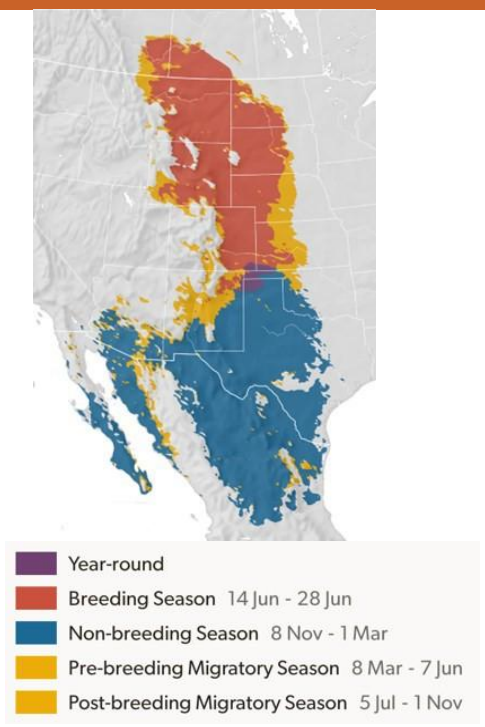
This grassland songbird nests in the Great Plains of North America as far north as the prairie provinces south to Texas and shifting between breeding seasons in response to grasshopper abundance.

Prefers native grass ecosystems of low to moderate stature with relatively high ground cover, possibly with a shrub overstory or with shrubs or forbs nearby.

Conservation Threats:

- Destruction of nests by mowing
- Grassland conversion
- Brown-headed Cowbird nest parasitism
- Pesticides and herbicides that reduce grasshopper prey

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx



Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Work with agencies to reduce pesticide/ herbicide use in important breeding habitats
- Avoid poorly-timed mowing of nesting areas

Monitoring

- Difficult to monitor because of its nomadic habits. Long-term population decline justifies continued population monitoring over multiple years

Research

- Assess grassland habitats used during migration and breeding seasons

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Gary Kramer, USDA NRCS; breeding male

Conservation Highlights: State distribution change detected during SD Breeding Bird Atlas II

The SDBBA II project (SWG T-41) compared how distributions of breeding bird species changed during the 20 years following the first SDBBA. Alt- hough still common and widespread through much of central and western South Dakota, the Lark Bunting’s distri- bution was reduced along the eastern edge of its state range. Atlassers documented this species in 12 counties in eastcentral and southeastern South Dakota during the first atlas where it was not found during the second at- las.

LEAST TERN LETE

(Sternula antillarum)

Conservation Profile

TSN	176923
Global Rank	G4 (Apparently Secure)
State Rank	S3 (Vulnerable)
RSGCN; State Endangered (SE)	

Description:

The smallest North American tern; wingspan 20 inches (52 cm), body length 8-9 inches (20-23 cm). Black crown, white forehead, gray back, gray wings above and white below, orange legs, and yellow bill with black tip. Immature birds have darker feathers, a dark bill, and dark eye stripes on a white head.

Distribution & Habitat:

Widely distributed but can be locally uncommon in riparian and coastal habitats within many of the contiguous 48 states.

In South Dakota, nests mainly along the Missouri River (Lake Oahe and below Fort Randall and Gavins Point dams) and less commonly along the Cheyenne River. Needs bare sandy habitats, favorable water levels, and abundant food for successful nesting. Nesting habitat is bare or sparsely vegetated sand, shell, and/or gravel beaches, dry mudflats, or sand and gravel pits along rivers. Feeds in shallow water of lakes, ponds, and rivers near nesting areas and with abundant small fish.

Conservation Threats:

- Human disturbance at nest sites and colonies
- Loss of clutches and nestlings to predators
- Vegetation of nesting areas due to reduction in historical flooding regimes
- Loss of nests to unstable or unpredictable water levels during nesting season

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Continue efforts to simulate historical flooding regimes as often as possible to offset conversion of Missouri River riparian habitat to reservoirs

Management

- Conversion of Mo. River riparian habitat has made intensive nesting colony management necessary. Methods include signage and fencing to discourage recreational use and free-roaming dogs at nesting colonies and specific predator control if needed

Monitoring

- In South Dakota, Least Terns may nest along the Missouri River with federal listed Piping Plovers. Piping Plovers are monitored by the U.S. Army Corps of Engineers to inform reservoir water level management to avoid flooding nesting colonies

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © by Kaiti Titherington, USFWS

Conservation Highlights: State and federal endangered species listings

The Least Tern is listed as state endangered because of its rarity within South Dakota's boundaries. The authority to list species rests with the SDGFP Commission. At the national level, the USFWS is responsible for listing, delisting, and leading recovery for federal listed species. The Interior Least Tern (*Sterna antillarum athalassos*) was listed by the USFWS as a federal endangered species in 1985. Since then, the species was assigned to a different genus, and the subspecies is no longer considered valid. The result of those changes and a reexamination of threats to the Least Tern at the national level led the USFWS to remove this species from the list of federal endangered species in 2021.

LE CONTE'S SPARROW LESP

(*Ammospiza leconteii*)

Conservation Profile

TSN	179348
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
RSGCN	

Description:

Very secretive small sparrow with mottled brown back, white belly and median crown stripe, and orange-yellow eye stripe and collar. Closely resembles Henslow's Sparrow. Wingspan 6.5" (16.5 cm).

Distribution & Habitat:

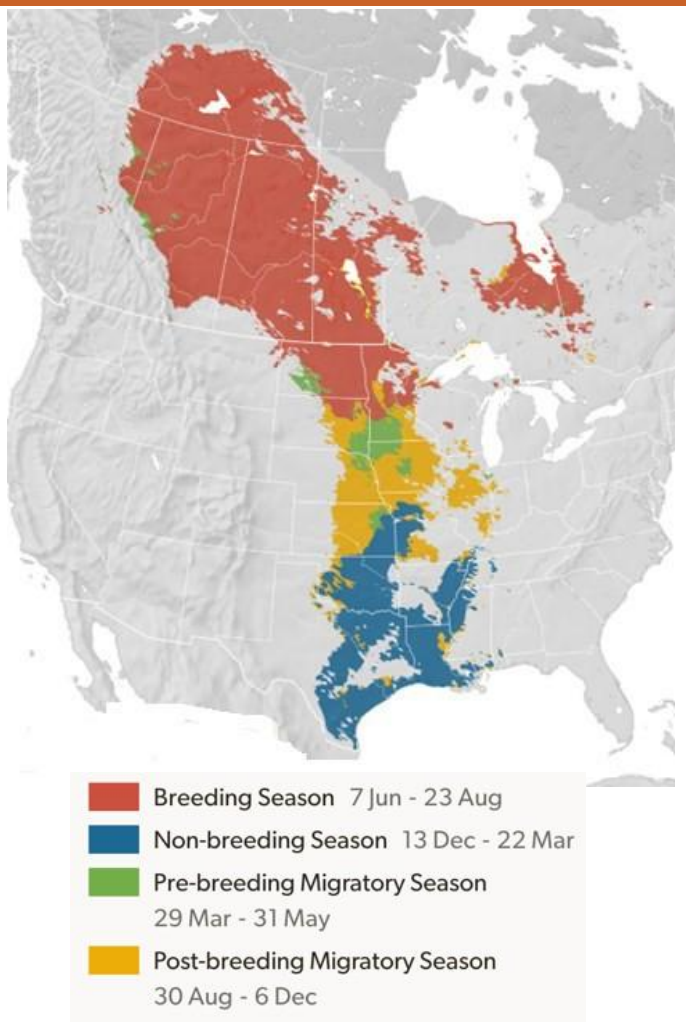
Breeding range includes suitable habitats in central Canada as far south as northeastern South Dakota and eastward in parts of Minnesota and Wisconsin.

Builds nest in drier portions of preferred habitats, which include areas of tall, dense grass in wet meadows, marshy areas, springs, and fens. Avoids areas with woody vegetation.

Conservation Threats:

- Mowing or grazing of nesting habitats during the breeding season
- Nest parasitism by Brown-headed Cowbirds

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx



Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Ben Ovengros

Conservation Highlights: Partners in Flight Watch Lists

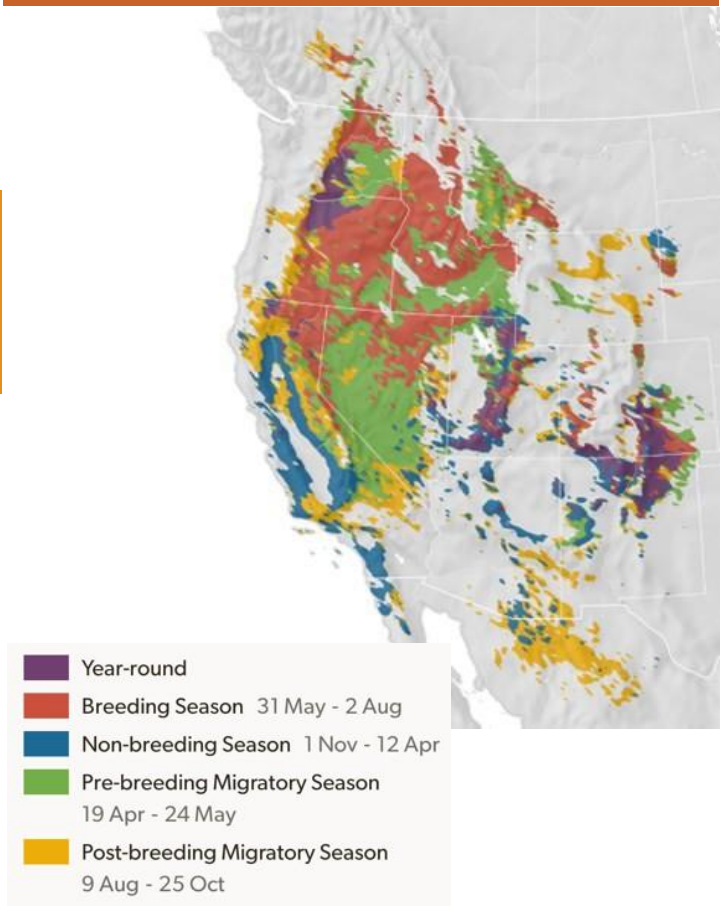
In the 2016 publication, "Partners in Flight Landbird Conservation Plan," Partners in Flight (PIF) sorted roughly 450 breeding landbird species into 3 categories—Red Watch List, Orange Watch List, and Yellow Watch List. Le Conte's Sparrow is one of 55 Yellow Watch List species due to population declines and moderate to high threats. PIF estimates this species experienced a 61% loss of its global population during the years 1970-2014.

LEWIS'S WOODPECKER LEWO

(*Melanerpes lewis*)

Conservation Profile:

TSN	178196
Global Rank	G4 (Apparently Secure)
State Rank	S2 (Imperiled)



Description:

Large, dark woodpecker with long wings and tail. Wingspan is 21 inches (53 cm). Adult has dark red face, pale gray collar, and dark greenish back. Smooth wingbeats resemble those of a crow.

Distribution & Habitat:

Widely distributed across western states and southwestern provinces, but abundance and distribution are spotty due to loss of favorable habitat conditions and loss of nesting sites.

Found in suitable habitats of the Black Hills and rarely, parts of Harding County in northwestern South Dakota. Prefers fire-maintained old-growth ponderosa pine and can be found in older burned stands. Nest cavities are excavated in large snags (dead or dying trees). Eats flying insects with a fall shift to acorns and other nuts. Will defend acorn and nut caches from woodpeckers of its own and other species.

Conservation Threats:

- Loss of nesting and foraging habitats due to fire suppression that causes replacement of ponderosa pine forests and denser forest stands with closed canopies
- European Starlings may outcompete them for nesting cavities

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

This species depends on an important historical disturbance factor, forest fire, to create and maintain habitats needed for nesting and foraging.

Monitoring and Research

- Opportunistically monitor species response to fires in the Black Hills. Past studies in South Dakota have lacked sufficient sample sizes of Lewis's Woodpeckers due to the species' rarity.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © by Tim Lenz

Conservation Highlights: Connection to the Corps of Discovery expedition

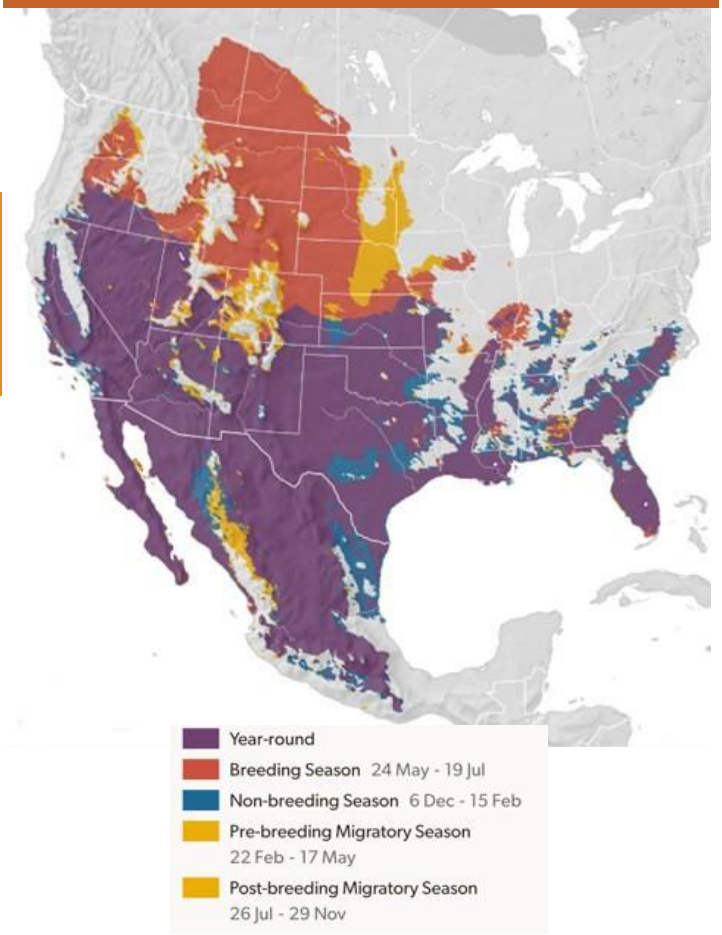
On July 20, 1805, Meriwether Lewis recorded the following entry in his journal (he did not excel at spelling): "I saw a black woodpecker today about the size of the lark woodpecker as black as a crow. I indevoured to get a shoot at it but could not. it is a distinct species of woodpecker; it has a long tail and flys a good deel like the jay bird." He provided a more detailed description during a journal entry from May 27, 1806. This species would eventually be named for Lewis, who was the first to document this woodpecker for scientific purposes. https://lewisandclarkjournals.unl.edu/

LOGGERHEAD SHRIKE LOSH

(*Lanius ludovicianus*)

Conservation Profile

TSN	178515
Global Rank	G4 (Apparently Secure)
State Rank	S3 (Vulnerable)



Description:

A large-headed bird that is gray above and white below with a black mask and wings. Short, hooked bill helps it take a variety of prey (large insects, lizards, small mammals, and birds), which it impales on thorns or barbs. Wingspan 12" (30 cm).

Distribution & Habitat:

Widespread distribution in southern Canada and much of U.S.

Found statewide in suitable habitat; more common west of the Missouri River. Nests in open areas where short vegetation is interspersed with trees or shrubs.

Conservation Threats:

- Loss of open habitats within forested habitats
- Widespread declines in portions of its range are due to unknown causes not explained by habitat loss or changes

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Maintain large areas of suitable habitat including areas for nesting, perching, and foraging with adequate prey base

Research

- Investigate potential links between pesticide use and population declines

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx; *Image © Roger Baker, USFWS*

Conservation Highlights:

The subspecies *Lanius ludovicianus migrans*, known as the migrant Loggerhead Shrike, is a Midwest Regional SGCN.

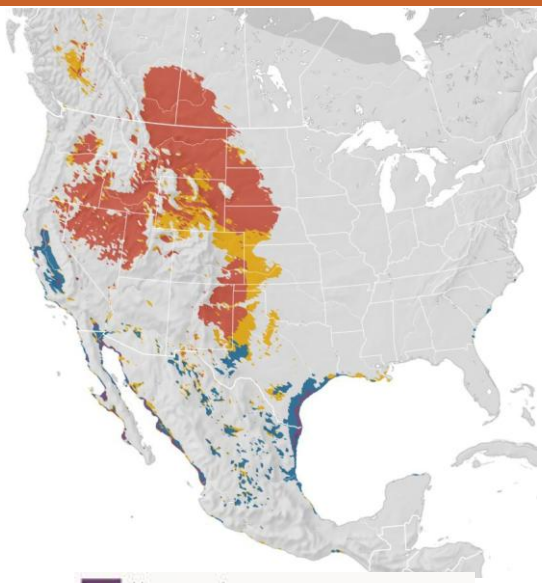
South Dakota hosts both of North America's shrike species. The Loggerhead Shrike leaves the state for the winter, with the Northern Shrike moving in from its more northern breeding areas. The two species can be difficult to tell apart. In addition to the season of the observation, the Northern Shrike is slightly larger (wingspan 14.5"; 37 cm) with a narrower mask and a slightly longer and more strongly hooked bill. The Loggerhead Shrike's thicker mask may extend over the eyes and above the bill.

LONG-BILLED CURLEW LBCU

(*Numenius americanus*)

Conservation Profile

TSN	176593
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)



Description:

The largest North American shorebird; wingspan i35"; 89 cm). Long, decurved bill helps distinguish it from Marbled Godwit. Buffy-colored body and orangish underwings visible from below. Dark area on forward wing edge visible in flight.

Distribution & Habitat:

Nests from grasslands of western Canada south through suitable prairies of Great Plains.

Prefers short grasses (<12 in) and may use prairie dog colonies for foraging. Within South Dakota, nests in mixed-grass prairie and mowed wet meadows, mainly west of

the Missouri River outside the Black Hills. The majority of nests found during the second SDBBA were in grasslands, primarily pastures.

Conservation Threats:

- Nest site disturbance and loss from agricultural practices, human activities, and impacts of pesticide and herbicide use
- Loss and degradation of native grasslands

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes

Monitoring and Research

- Continue to investigate impacts of typical farming and ranching practices on this species in western South Dakota

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © by Michael L. Baird

Conservation Highlights:

SWG Project T-13 was a short-term investigation of some attributes of Long-billed Curlews in grazed land- scapes of western South Dakota. The needs of wildlife species are not always compatible with existing land uses. In this case, researchers were interested in how livestock grazing regimes impact this species. Study highlights:

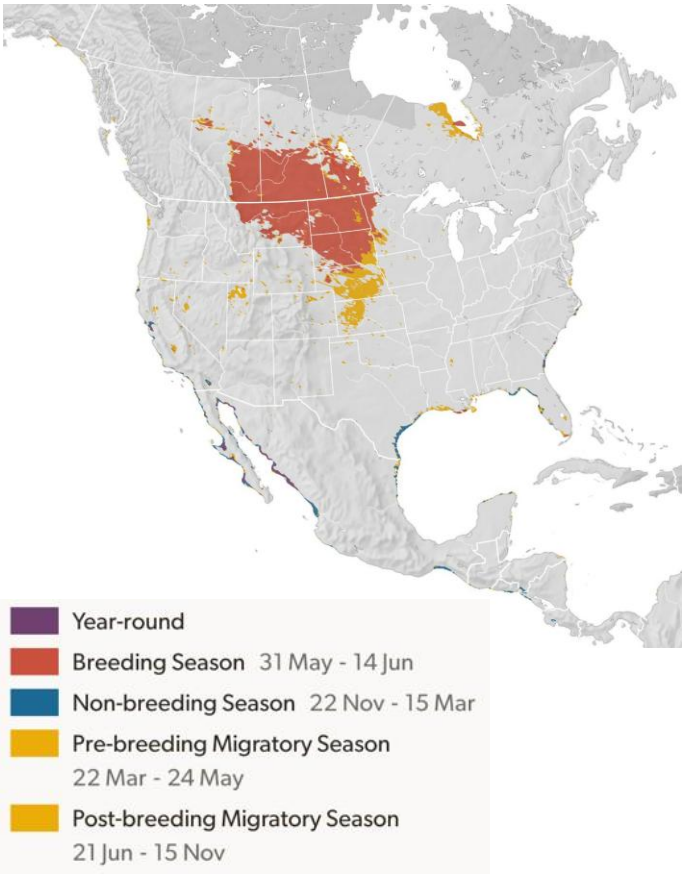
- Forty-eight adult curlews were radio-marked. The second year of the study had severe drought conditions.
- Curlews selected nest sites with more junegrass and buffalograss and more forb cover than found at random points.
- Only 1/2 of broods from radio-marked curlews fledged young, possibly due to avian predation and heat impacts.

MARBLED GODWIT MAGO

(*Limosa fedoa*)

Conservation Profile

TSN	176686
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
RSGCN	



Description:

Large shorebird with marbling pattern on breast and belly in breeding plumage. Wingspan 30" (76 cm). Similar color patterns as the Long-billed Curlew, especially nonbreeding Marbled Godwits. Long bill appears straight, but has a subtle upturn at the dark lower end.

Distribution & Habitat:

Nests from grasslands of western Canada south through suitable prairies of Great Plains.

Widely distributed across appropriate habitats in South Dakota, excluding the Black Hills. Prefers short, sparse to moderately grazed upland prairie mixed with wet prairies in relatively large contiguous blocks of at least 250 acres.

Conservation Threats:

- Nest site disturbance and loss from livestock and human activities
- Loss and degradation of native grasslands, including wet prairie habitats

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Continue support for landowner programs that facilitate protection and restoration of native grasslands blocks, including wet prairie habitats

Monitoring and Research

- Monitor impacts of tile drainage
- Identify high-quality stopover habitat

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © by Dawn Scranton

Conservation Highlights:

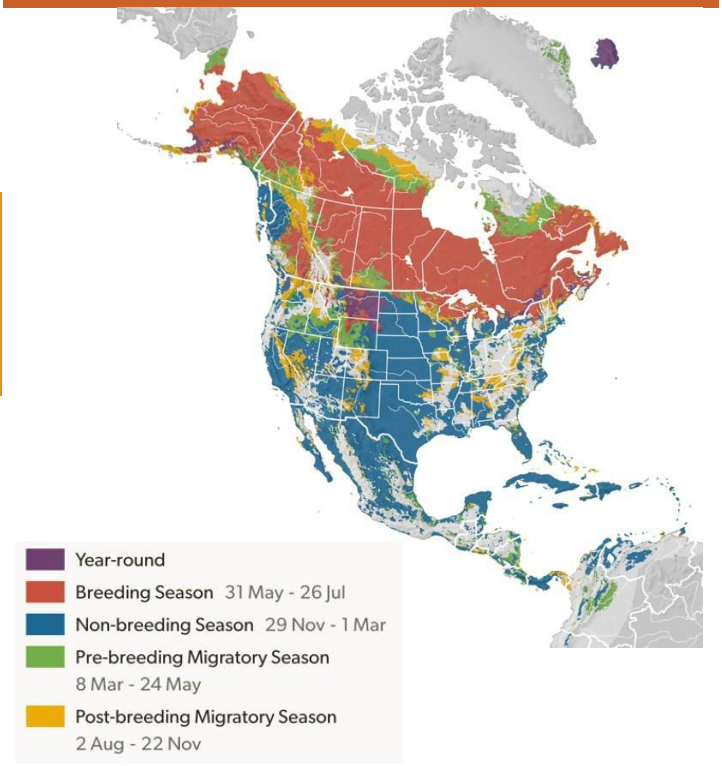
State Wildlife Action Plans are designed to address the needs of all fish and wildlife species, not only rare or unstudied species. An early message for this effort was that we should "Keep common species common." This species is considered secure in South Dakota, but its long-term status may help reveal what is happening with other grassland and wetland dependent species. The Marbled Godwit is also considered secure at a global level (G5), although it is vulnerable to reduction due to a need for large nesting territories and many threats to grassland and wetland habitats. This shorebird was included as a state SGCN because of criterion 2a: regionally or globally imperiled species for which SD represents an important portion of remaining range.

MERLIN MERL

(Falco columbarius)

Conservation Profile

TSN	175613
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)



Description:

Small, stocky falcon with a powerful flight. Has streaky, dark coloration and lacks the obvious mustache marks characteristic of other falcon species. Wingspan 24" (61 cm).

Distribution & Habitat:

Widely distributed throughout much of North America.

Uncommon to rare breeder in SD. Nesting habitat is coniferous or mixed conifer-deciduous stands near grasslands. Does not build its own nest; may reuse abandoned nests of other species, such as Black-billed Magpie. Hunts in open or semi-open areas.

Conservation Threats:

- Habitat loss
- Disturbance near nest sites
- Pesticide use in Central and South America

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SD_Conservation_Threats.xlsx

Image © by USFWS

Conservation Actions & Needs:

This species has increased as use of harmful pesticides has been reduced in North America and regionally where crows and ravens have increased.

- Protect known nest sites from disturbance

Monitoring

- Continue periodic monitoring of nests in northwestern South Dakota
- Monitor population trends and determine how they are influenced by prey abundance and magpie and crow presence for nest site availability

Research

- Opportunistically investigate pesticide and lead levels of Merlins and other raptors

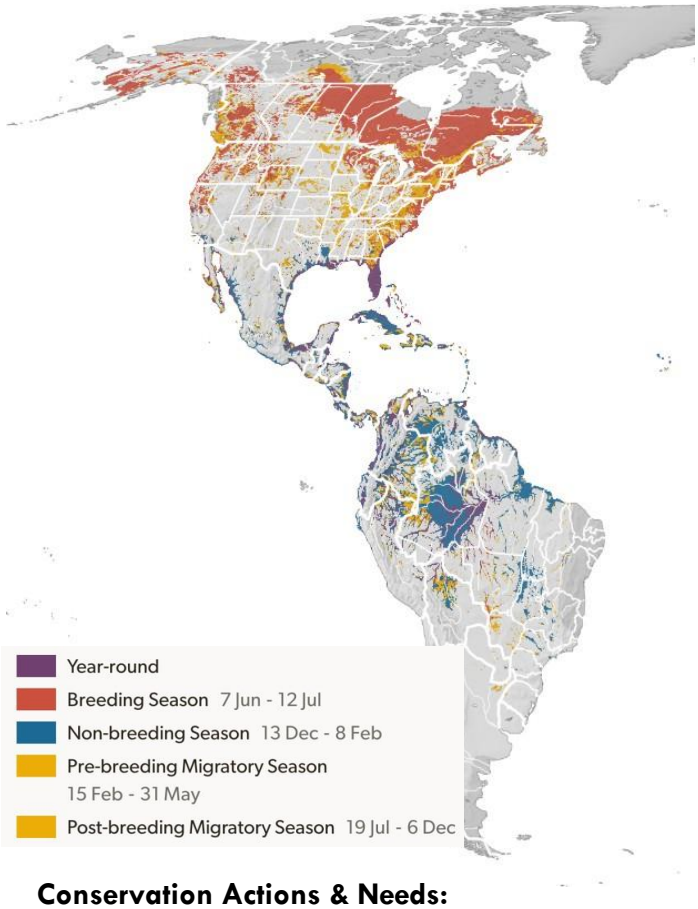
South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation Highlights:

This species is also listed as an SGCN in Nebraska and Wyoming. Merlin are highly dependent on unoccupied nests built by other bird species, particularly Black-billed Magpie in South Dakota, another species experiencing population declines. During the SDBBA II project, only 11 Black-billed Magpie nests were confirmed, with an additional 23 probable nests. Only 2 Merlin nests were confirmed during the same period and project: https://gfp.sd.gov/breeding-bird-atlas/

OSPREY OSPR

(Pandion haliaetus)



Conservation Profile

TSN	175590
Global Rank	G5 (Secure)
State Rank	S3 (Imperiled)
Legal Status	State Threatened (ST)

Description:

A nearly eagle-sized bird of prey (wingspan 63"; 160 cm) with dark eyestripe on white head, dark back, and white undersides. Wings show a sharp bend or crook with a dark wrist patch visible from below.

Distribution & Habitat:

Widely distributed in much of North America.

Nests primarily in the Black Hills and slowly expanding in central South Dakota from a reintroduction project along the Missouri River in Clay and Yankton counties. In SD, nests mainly along natural lakes or human-made reservoirs. Typical nest is high in tree or on an artificial structure.

Conservation Threats:

- Disturbance near nest sites
- Contamination of aquatic prey
- Challenges with nest placement on structures that cause human safety or infrastructure problems

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

This species has increased with decreased use of harmful pesticides affecting aquatic resources.

- Protect known nest sites from disturbance
- Continue working to address problem nests, including use of suitable, accessible nesting platforms

Monitoring

- Continue monitoring Black Hills nests and documenting additional nests elsewhere to assess when this state threatened species has met delisting goals

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

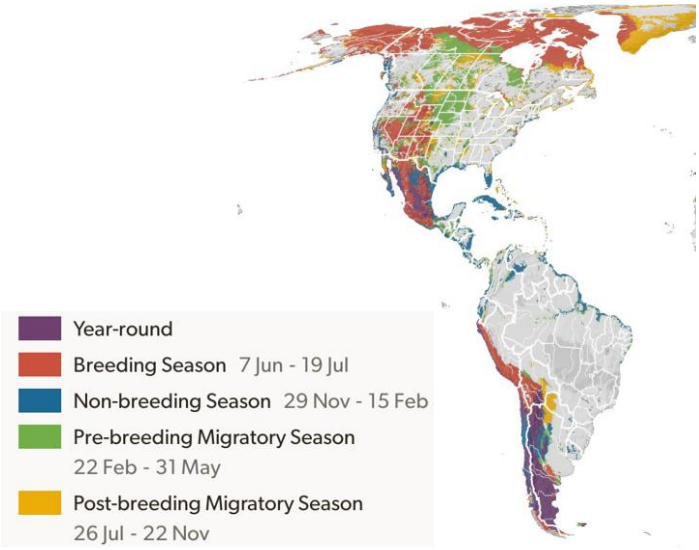
Image of juvenile Osprey © Wayne Melquist

Conservation Highlights:

SWG Project T-10 funded the reintroduction of Ospreys to southeastern South Dakota. Reintroduc- tions come with many challenges. In this case, Ospreys often migrate to South America for the winter, exposing them to many potential dangers. The species may not breed until it is several years old. SDGFP and partners com- pleted 6 years of reintroduction. Although nesting was not confirmed in the reintroduction area near Gavins Point Dam, a reintroduced female eventually nested for several years below Big Bend Dam, where birds continue to nest successfully today. We have seen a slow expansion into the Pierre area, with Ospreys appearing to key in on the various Missouri River dams and associated infrastructure and prey sources.

PEREGRINE FALCON PEFA

(Falco peregrinus)



Conservation Profile

TSN	175604
Global Rank	G4 (Apparently Secure)
State Rank	S1 (Critically Imperiled)
Legal Status	State Threatened (ST)

Description:

A crow-sized raptor (wingspan 41"; 104 cm). Dark head with dark mustache marks. In flight, look for pointed wings, short tail, and underwings that are uniformly patterned. Usually captures prey in the air, often from long, steep dives called stoops.

Distribution & Habitat:

Widely distributed in much of North America, although continuing to recover in many areas.

Prefers open grasslands with suitable nesting cliffs and rock outcroppings near potential prey. Has adapted to both natural and urban sites, and urban reintroductions benefited from abundant prey (pigeons and European starlings). A few nests known in the Black Hills, with additional potential habitat in northwestern SD and possibly southwestern SD.

Conservation Threats:

- Disturbance near nest sites, such as from recreational climbing
- Impacts to prey sources
- Pesticide impacts
- Highly pathogenic avian influenza (HPAI) is an emerging threat; impacts recently documented in the Netherlands

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Once a federal endangered species, populations increased following the banning of DDT in the U.S. DDT disrupted reproductive success by affecting fertility and causing eggshell thinning. Early reintroductions benefitted from availability of captive birds held by falconers and falconer involvement in hacking projects.

- Protect known nest sites from disturbance
- Solicit and investigate potential nesting site locations from birders, landowners and land managers
- Engage with recreational climbers to identify practices and routes that avoid known or likely nesting sites; ask for assistance in identifying new sites

Monitoring

- Continue monitoring known nests and related threats to document additional nests to assess when this state threatened species has met delisting goals

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

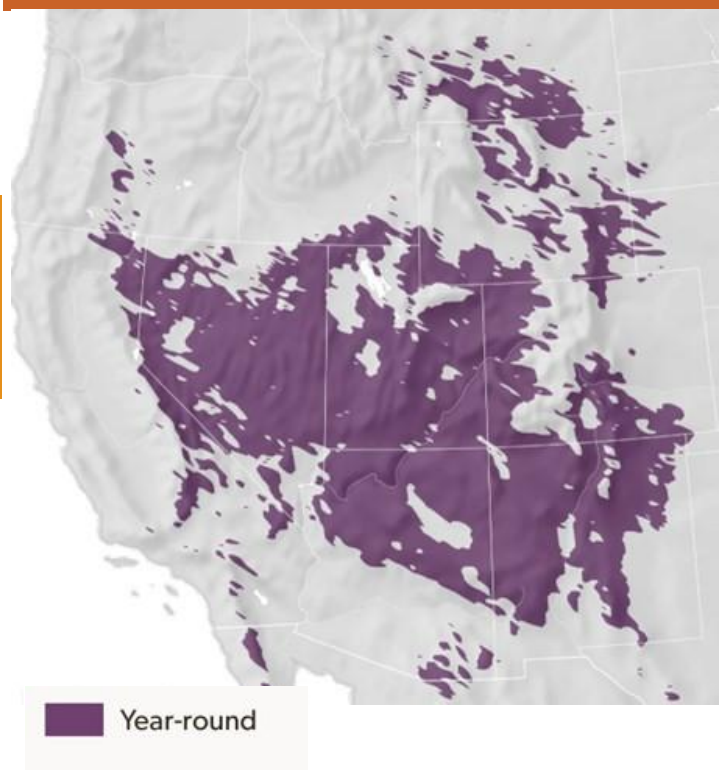
Image © by Wayne Butterworth

Conservation Highlights:

SWG Project T-10 funded the reintroduction of Peregrine Falcons to Rapid City, SD., following the exam- ple of many successful urban reintroductions. Fifty-seven chicks aged approximately 35 days were released from a downtown rooftop. These birds were banded but not radio-marked. The project included installation of a nestbox at the site. We are not aware of nesting by these individual birds. In recent years, Peregrines have begun nesting in the Black Hills following many decades of absence. It is not known whether the new nesting relates to the Rapid City reintroduction or a natural population expansion from Wyoming and other neighboring states. South Dakota currently has a small popu- lation of nesting Peregrines that will hopefully expand to fill remaining available habitat in the Black Hills and elsewhere.

PINYON JAY PIJA

(Gymnorhinus cyanocephalus)



Conservation Profile:

TSN	179748
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)

Description:

Extremely social, medium-sized (wingspan 19”; 48 cm), short-tailed, dusky-blue bird with a straight bill and paler throat. Lives in flocks.

Distribution & Habitat:

Resides in western states, especially in foothills and lower mountain slopes. Flocking behavior and nomadic lifestyle make population estimation difficult.

SD forms part of the eastern periphery of the species’ range.

This year-round resident is known from scattered breeding locations in the Black Hills and southern Pine Ridge escarpments. Habitats are dry, low elevation ponderosa pine woodlands and scrublands interspersed with large amounts of grassland.

Conservation Threats:

- Habitat destruction from livestock or wildlife grazing impacts
- Fire regime changes that affect habitat availability

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Incorporate habitat needs into habitat management planning

Monitoring

- Cooperate with federal land managers in the Black Hills and northwestern South Dakota to investigate reports of existing flocks or potential population expansion

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

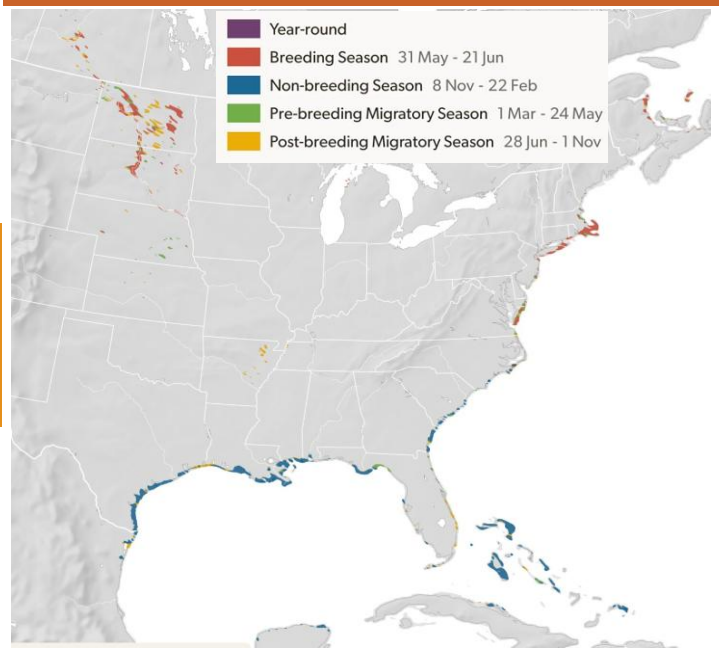
Image © by Dave Menke, USFWS

Conservation Highlights:

Listed as a SD SGCN because of criterion 3a - represents a unique or declining habitat. Considered Vulnerable by the International Union for Conservation of Nature. Identified as a Tipping Point Species by the NABCI. Tipping point species have lost at least 50% of their breeding population since 1970 and are projected to lose an additional 50% in the next 50 years. Identified as a Bird of Conservation Concern by the U. S. Fish and Wildlife Service, and a SGCN in Nebraska. This species has experienced one of the greatest populations declines of any breed- ing species in the state. Pinyon Jay is currently being evaluated for potential listing by the USFWS under the authority of the ESA, with listing status as “under review” as of October 2024.

PIPING PLOVER PIPL

(Charadrius melodus)



Conservation Profile:

TSN	176507
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)

Federal Threatened (FT); State Threatened (ST); RSGCN

Description:

Small, stocky, sandy-gray colored shorebird with one dark breast band. Has s dark stripe across the crown during the breeding season. White rump visible in flight. Calls are clear, whistled peeps. Wingspan 19" (48 cm). More common Killdeer is larger and more darkly colored with two dark breast bands.

Distribution & Habitat:

Ranges from the Atlantic Coast westward as far as Montana and Alberta, but rare in much of its range. South Dakota's nesting is mainly along suitable shorelines and islands of the Missouri River and small alkaline wetlands.

Prefers shorelines around small alkaline lakes, large reservoirs, or river islands and sandbars with wide beaches and highly clumped but sparse (< 25% cover) vegetation.

Conservation Threats:

Conversion of upper Missouri River to a series of regulated reservoirs has seriously impacted this species by eliminating historical flooding regimes that scoured vegetation and caused water levels to decrease as the nesting season progressed. Remaining habitat is limited and vulnerable to nest flooding and loss of chicks, disturbance and destruction by river recreationists and free-roaming pets, and loss to predators.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Simulate native ecosystem diversity with historical disturbance regimes, such as use of higher spring releases out of dams to scour vegetation.
- Intensive management of nest sites may include site-specific predator control, nest colony fencing and signage, and caging of individual nests.
- Use information sources that reach anglers, boaters, and other river recreationists to enlist their help in proper stewardship for this species.

Monitoring

- Continued NWI mapping to help identify likely nesting habitats.

Research

- Continue investigating methods to enhance nesting productivity

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © by Sam Stukel

Conservation Highlights:

The subspecies *Charadrius melodus circumcinctus* has 3 populations, including the NGPs population that includes South Dakota's nesting birds. The Missouri River reservoir system was created for flood control, irriga- tion, and power generation, with many associated recreational, fish, and wildlife benefits. The Piping Plover is an extremely challenging species to recover in the NGPs because of the dramatic changes resulting from this habitat transformation and the dynamic annual water level and habitat changes. Those who enjoy the many recreational benefits of Missouri River reservoirs can help this species by learning to identify it, heeding any warning signs at colonies or boat ramps, and avoiding disturbing or harming nesting adults, nests, and chicks.

RED-HEADED WOODPECKER

(Melanerpes erythrocephalus) **RHWO**

Conservation Profile

TSN	178186
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
RSGCN	

Description:

Medium-sized woodpecker (wingspan 17"; 43 cm). Adult has an entirely red head; black back; and white belly, rump, and wing patches.

Distribution & Habitat:

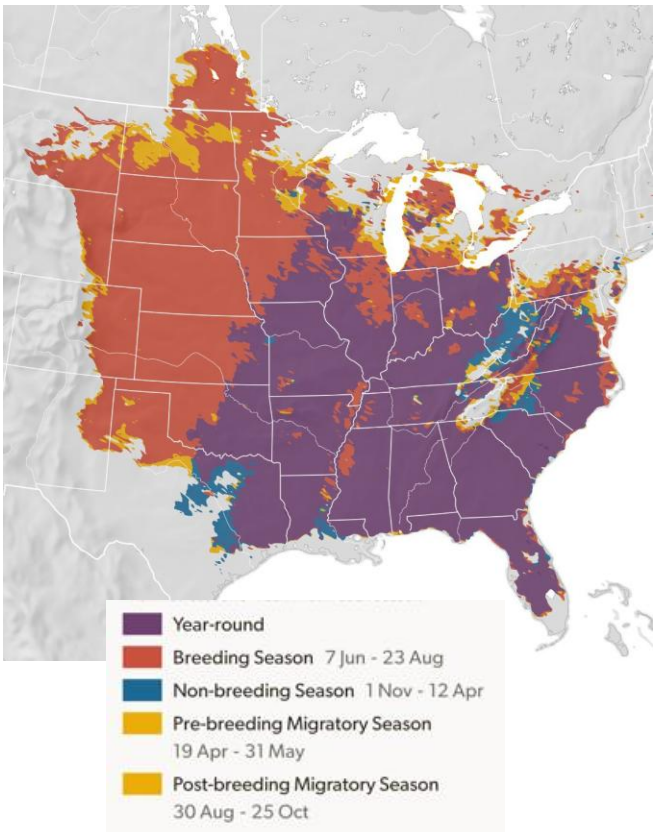
Widely distributed in much of North America, although significantly declining due to loss of suitable trees for nesting cavities.

Found statewide in South Dakota during the breeding season in areas with suitable nesting trees. Its omnivorous diet includes invertebrates, seeds, nuts, and berries.

Conservation Threats:

- Loss of standing dead trees for nesting and food caching due to removal for residential and agricultural development and firewood cutting
- Loss of mature deciduous forests
- Increased competition for nest sites from native and non-native bird species

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx



Conservation Actions & Needs:

- Create or maintain snags for nesting and roosting habitat
- Encourage snag protection where they do not pose a safety hazard
- Encourage planting of mast-producing trees such as oaks
- Place and monitor nestboxes where snags are scarce (but see Conservation Highlights section)

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

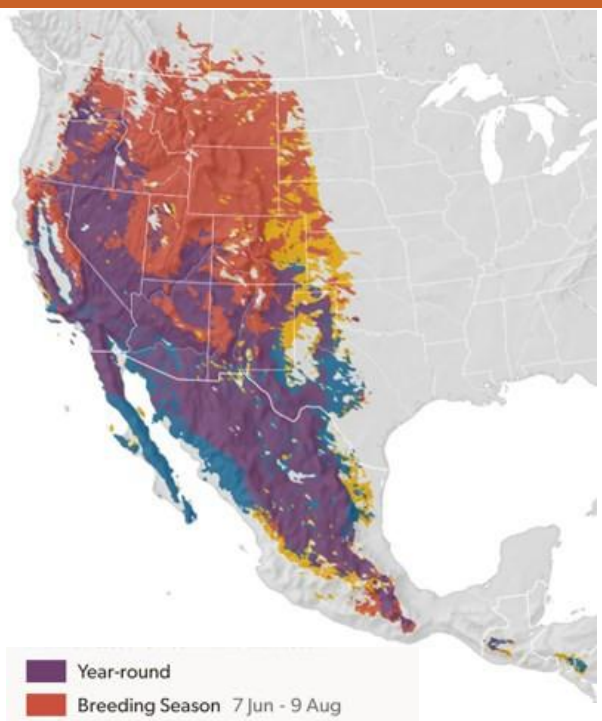
Image © Dave Menke, USFWS

Conservation Highlights:

Many homeowners enjoy attracting birds by offering nestboxes, gourds, or platforms. Species that evolved using natural cavities often readily accept nestboxes as an alternative. Examples include the House Wren, Eastern Bluebird, Tree Swallow, and American Kestrel. Two non-native competitors for nestboxes are the House Sparrow and European Starling, which can aggressively outcompete the native species you may be trying to help. Neither of these species is protected by state or federal law. Be observant about which species occupy nestboxes, because you may be unintentionally increasing populations of non-native species at the expense of the native species that need help. Many on-line resources provide information on how and where to place nestboxes and ways to discourage non-native species, although these birds can be very determined.

ROCK WREN ROWR

(Salpinctes obsoletus)



Conservation Profile

TSN	178614
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)

Description:

Pale overall. Light gray from top of head down speckled grayish back. Outer tail feathers have buffy tips visible in flight. Long, straight bill. Wingspan 9" (23 cm).

Distribution & Habitat:

Nests in arid or semi-arid rocky habitats in southwestern provinces and western U.S. and Mexico. South Dakota is on the eastern edge of range. May inhabit rock piles or talus slopes.

Western South Dakota nesting areas are dry, barren sites in cliffs, canyons, badlands, and other similar rocky habitats. Nest may have a stone foundation and a trail of small rocks leading to the entrance, sometimes called a "front porch."

Conservation Threats:

- Breeding habitats are rocky, sparsely-vegetated areas in arid areas, such as badlands, cliffs, and canyons. These are unique habitat types within the state. By including the Rock Wren as a state SGCN, this habitat type is identified, and other species dependent on these habitats may benefit.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- The International Union for Conservation of Nature (IUCN) considers climate change and severe weather a potential conservation threat for this species. If sufficient data allow, apply climate change analyses to the Rock Wren to determine if this threat applies to South Dakota's nesting population.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Dave Menke, USFWS

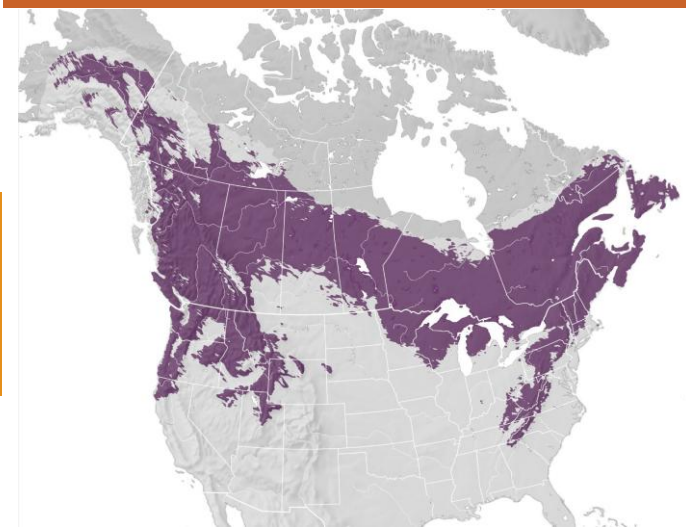
Conservation Highlights: SD Breeding Bird Atlases

A breeding bird atlas is an extensive, standardized survey effort to confirm as many breeding bird species in a particular area as possible to the highest confirmation level. South Dakota has had 2 such atlases, which allowed a comparison of results between the two projects, conducted 20 years apart.

During the second atlas, the Rock Wren was found where expected based on the first atlas, but was also locally common along most of western South Dakota's major rivers and at some sites along the Missouri River. Additional nesting sites during the second atlas were primarily at gravel pits.

RUFFED GROUSE RUGR

(Bonasa umbellus)



Conservation Profile

TSN	175790
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)

Description:

Gray or rufous grouse with barred sides; fan-shaped tail has black band near tip. Wingspan 22" (56 cm). Male displays include fanning tail and "drumming" by beating wings rapidly while standing in place. Named for the thick ruff of black neck feathers the male displays during courtship.

Distribution & Habitat:

Occurs in central Alaska and forested Canada, extending south into suitable conifer forests elsewhere. Successfully introduced in some areas (IA, NV, portions of MI).

Limited distribution in Black Hills where it finds a mix of multiple age-classes of aspen for food and cover. May also use hardwoods and open pine forests. Today's range is reduced from historical distribution in state.

Conservation Threats:

- Thrives in young forests. Prefers dense forests with some deciduous trees. Broods need habitats with abundant ground cover.
- Preferred habitat patch to meet food and cover needs estimated at 25-40 acres (10-16 ha).

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes.
- Monitor aspen stands for Ruffed Grouse. Manage occupied stands to provide patches of at least the minimum identified and for multiple age classes.
- Maintain existing and encourage additional aspen stands regardless of Ruffed Grouse occupancy to aid in species expansion.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © illustration by Louis Agassiz Fuertes, published for public domain by USFWS

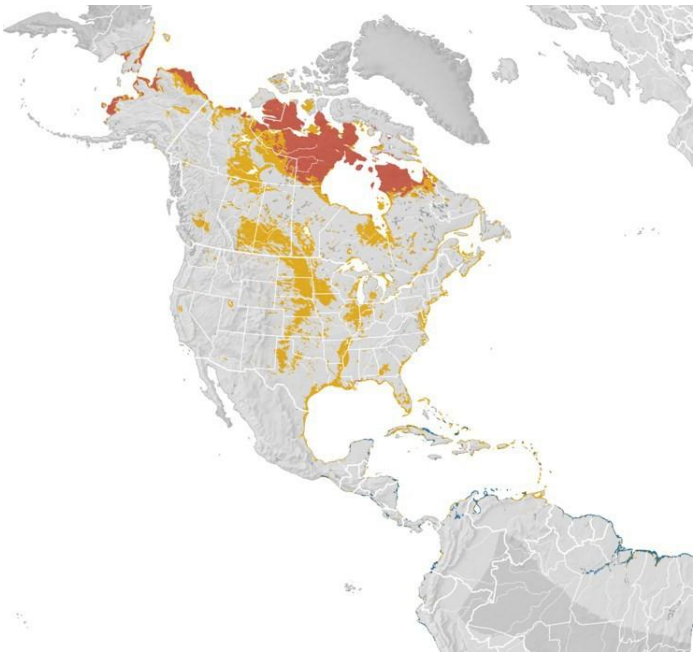
Conservation Highlights:

Not all SGCNs are rare. Some species are included to represent other fish and wildlife species. This species was included because it depends on aspen habitat. By monitoring the status of the Ruffed Grouse in the Black Hills, land managers can evaluate how well forest management is providing for some of the less common and more unique habitats in the area, such as multiple age classes of aspens.

Quaking aspen (*Populus tremuloides*) is a South Dakota plant SGCN.

SEMIPALMATED SANDPIPER

(Calidris pusilla) **SESA**



Conservation Profile

TSN	176667
Global Rank	G5 (Secure)
State Rank	SNR (State Not Ranked)

Description:

Shorebirds are challenging to identify, especially when not in breeding plumage. Many smaller sandpipers are called "peeps." It can be helpful to begin learning shorebird identification by focusing on those most likely to migrate through South Dakota. Wingspan 14" (36 cm).

Distribution & Habitat:

Breeds in northern Canada and Alaska and migrates through the interior states enroute to coastal wintering habitats of Central and South America.

Does not breed in South Dakota. Migratory habitats include mudflats, beaches, shallow estuaries and inlets, and lake and marsh edges near shallow water.

Conservation Threats:

- Legal and illegal hunting in South America
- Wetland destruction and modification of coastal and inland wetlands

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Identify important migratory stopover areas

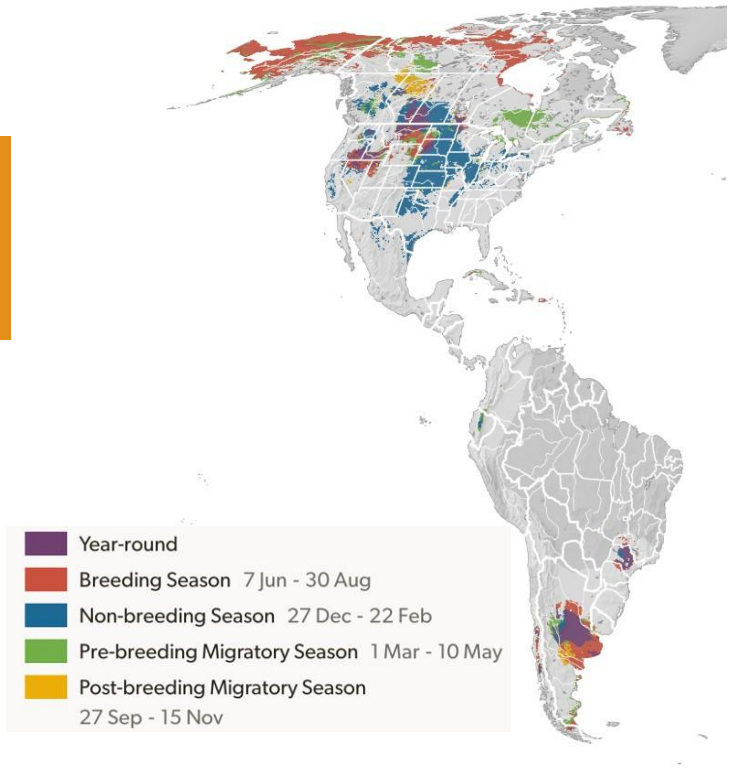
South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © USFWS

Conservation Highlights: What's in a (common) name?
Naming plant and animal species is a complex and dynamic process. Bird species are organized by kingdom, phylum, class, order, family, genus, species, and sometimes additional categories, such as subspecies or populations. The American Ornithological Society is the naming authority for both scientific (Latin) and common bird names. A common name may refer to the place a species was first collected and documented; a physical characteristic; or to honor a naturalist, scientist, or related person other than the person who first described the species. Bird common names are typically capitalized. A palmate foot is webbed, with the 3 front-facing toes connected by a fold of skin. This species is named for its semipalmated feet, where the toes have only partial webbing at the base of the 3 forward-facing toes.

SHORT-EARED OWL SEOW

(*Asio flammeus*)



Conservation Profile

TSN	177935
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)
RSGCN	

Description:

Medium-sized owl (wingspan 38";97 cm) with large head and small ear tufts. Often seen during the day perched on fence posts or flying in a wafting manner over grasslands while hunting.

Distribution & Habitat:

A nomadic, wide-ranging owl of open prairies, wetlands, and tundra. Breeds through large expanses of Canada and the western U.S. Found farther south during winter, potentially extending through much of the eastern U.S.

Tied to large expanses of native prairies of South Dakota. Most nesting is in western, central, and northcentral areas of the state. Relies heavily on vole populations for food.

Conservation Threats:

- Populations fluctuate with small mammal prey availability.
- Vulnerable to continued loss of native prairies and land management that may destroy nests and young, including early haying or mowing.
- Builds a nest on the ground, making it vulnerable to depredation.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Species is nomadic and fluctuates with prey populations, making it difficult to monitor. Increase awareness of this species, its feeding habits, and its conservation challenges to encourage stewardship to benefit this owl.
- Encourage protection and wise management of remaining native prairies to benefit species that require undisturbed grasslands.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

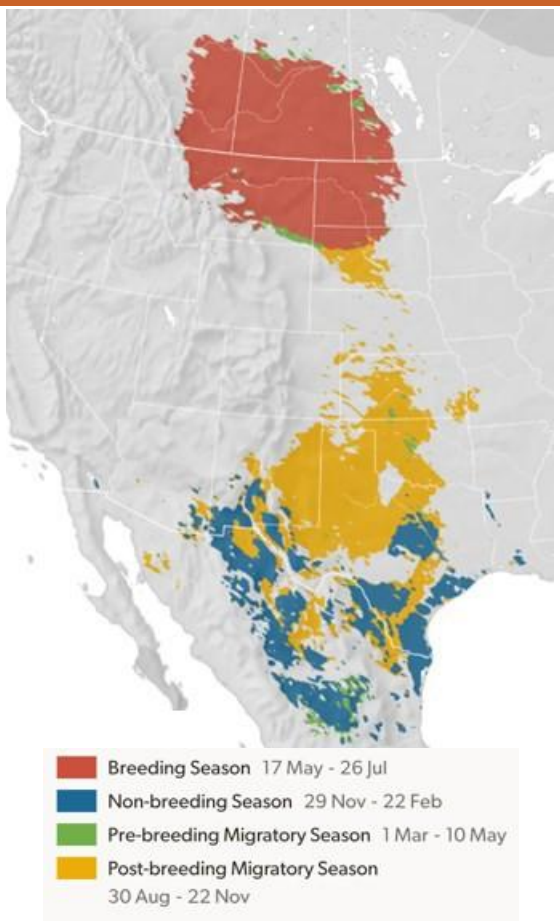
Image © Sandra Uecker, USFWS

Conservation Highlights:

In addition to being a Midwest Regional SGCN, the Short-eared Owl is listed as an SGCN in Iowa, North Dakota, Nebraska, Minnesota, and Wyoming. Partners in Flight estimates this species has experienced a 65% decline in North America since 1970, making it a Species of Conservation Concern for that organization (https://partnersinflight.org/species/short-eared-owl/)

SPRAGUE'S PIPIT SPPI

(Anthus spragueii)



Conservation Profile

TSN	178499
Global Rank	G3 (Vulnerable)
State Rank	S2 (Imperiled)
RSGCN	

Description:

Pale, secretive, short-tailed, sparrow-sized bird with white outer tail feathers, pale legs, and streaked back. Wingspan 10" (25 cm). Males known for their aerial courtship displays.

Distribution & Habitat:

Nests in NGPs of the U.S. and Canada. Widely distributed, but experiencing significant declines.

Breeds mainly in northwestern and northcentral South Dakota. Prefers lightly to moderately grazed short-grass ecosystems with low to moderate levels of litter; may also inhabit short-grass ecosystems several years following a burn.

Conservation Threats:

- Habitats threatened by woody plant encroachment
- Vulnerable to nest parasitism by Brown-headed Cowbirds

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Image © Logan Kahle

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes

Monitoring:

- Identify important migratory habitats

Research:

- Investigate minimum size of habitat needed

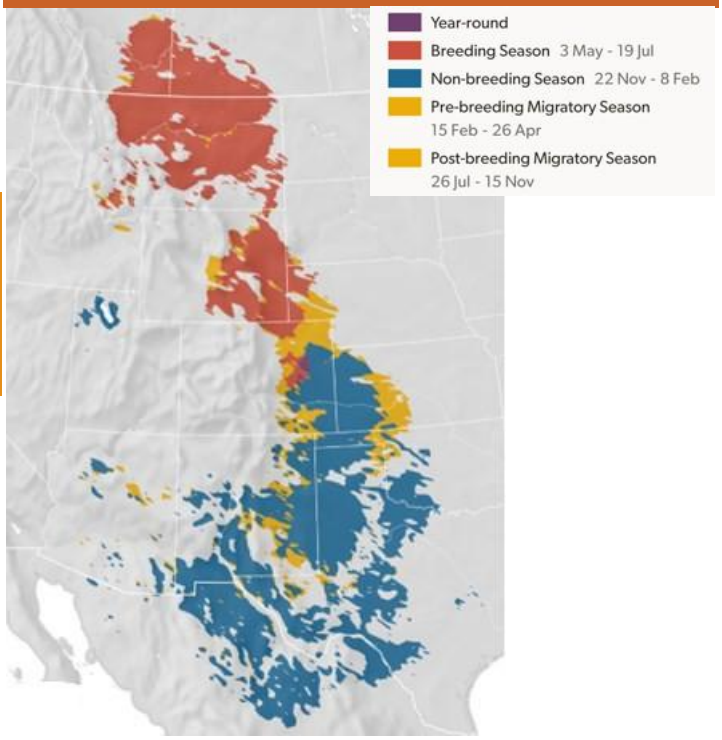
South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation Highlights: "Tipping Point Species" list, USFWS

The USFWS identified 112 "Tipping Point Species" in its Road to Recovery initiative (Tipping Point Species - Road to Recovery (r2rbirds.org). These species need immediate action to better understand why they are declining and to work toward their recovery. The list is divided into red-alert, orange-alert, and yellow-alert species. Sprague's Pipit is on the orange-alert list. Orange-alert species typically have large, long-term population losses.

THICK-BILLED LONGSPUR

(Rhynchophanes mccownii) **TBLO**



Conservation Profile

TSN	997873
Global Rank	G4 (Apparently Secure)
State Rank	SH (Historical)

Description:

Stocky, short-tailed bird with large head and stout bill. Breeding male has subtle markings on face and a black breast. Tail has a black "T" on a white background, visible in flight. Wingspan 11" (28 cm). Formerly known as McCown's Longspur.

Distribution & Habitat:

Nests in central and NGP in sparsely-vegetated shortgrass prairies.

Last known nest site in the state was in Harding County in northwestern SD in 1910, with 2 sightings considered possible evidence of breeding during the second SD Breeding Bird Atlas.

Conservation Threats:

- Listed as an SGCN in North Dakota and Nebraska.
- Conversion and loss of shortgrass prairie habitats; fire suppression.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes.
- If nesting sites or nesting attempts are discovered, protect sites from disturbance and practice appropriate land management to maintain favorable nesting conditions.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

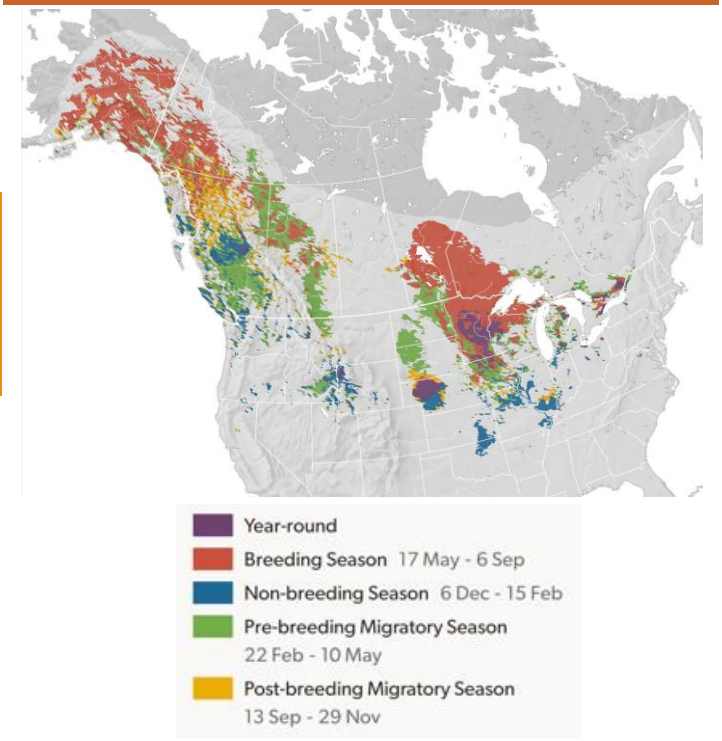
Image © USFWS

Conservation Highlights: Tipping Point Species

The Road to Recovery (R2R) bird conservation partnership identified 112 "Tipping Point Species" that need immediate attention to identify reasons for decline and strategies for recovery. Species are assigned to red, orange, and yellow alert categories. The Thick-billed Longspur is included on the red-alert list based on a scoring system that indicates dangerously low population size and population trends that are unknown or steeply declining.

TRUMPETER SWAN TRSW

(Cygnus buccinator)



Conservation Profile

TSN	174992
Global Rank	G4 (Apparently Secure)
State Rank	S3 (Vulnerable)

Description:

Largest North American swan (wingspan 80"; 203 cm). Compared to Tundra Swan (wingspan 66"; 168 cm), Trumpeter Swan is larger and with longer neck and bill.

Distribution & Habitat:

Widely distributed in much of Canada and U.S. Three populations—Pacific, Rocky Mountain, and Interior.

SD is part of the High Plains flock of the Interior population. Preferred habitats are shallow ponds, rivers, and lakes with aquatic and emergent vegetation. Builds nest on an island, beaver lodge, or a mat of floating vegetation that may be cattails, bulrushes, and horsetails. SD nesting slowly expanding.

Conservation Threats:

- Sensitive to wetland pollution, lead poisoning impacts, and nesting disturbance from recreational users

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Work with agencies, landowners, and conservation organizations to reduce water pollution and pesticide/herbicide contamination of wetlands
- Encourage use of nontoxic shot to reduce lead poisoning impacts to wildlife

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

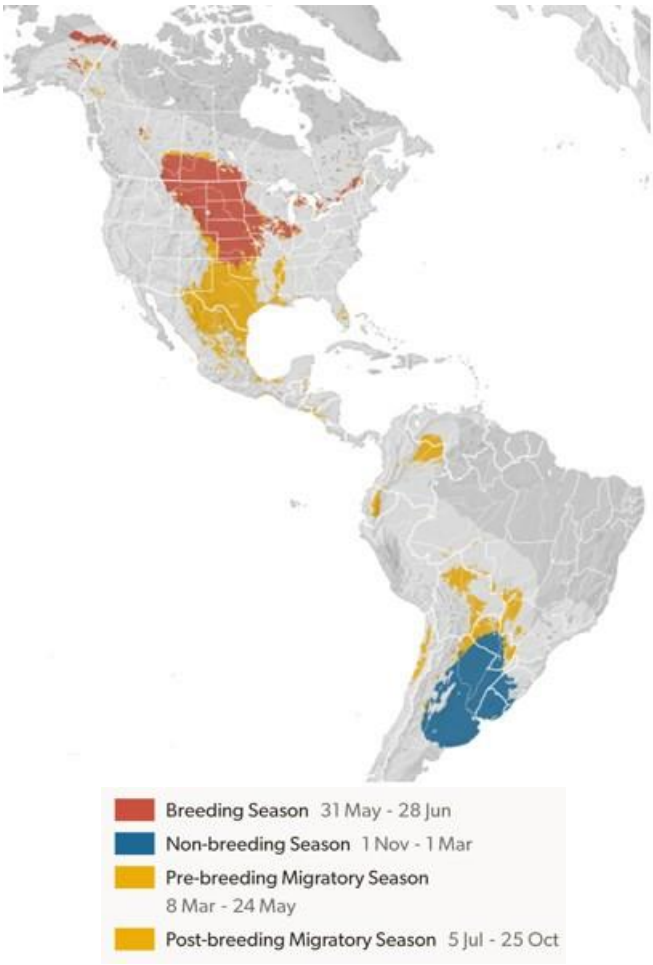
Image © Thomas G. Barnes, USFWS

Conservation Highlights: Coarse and fine filter approach

South Dakota's Wildlife Action Plan uses a coarse filter/fine filter approach to strategic thinking about the future of fish, wildlife, and native habitats. Mirroring past ecosystem management with related disturbance regimes will meet the needs of the majority of species, but some need more intensive management or protection. The Trumpeter Swan was exploited by subsistence hunting and commercial skin harvest, particularly by the Hudson Bay Company, with thousands of skins exported to Europe from the late 1700s to the late 1800s. Species restoration and protection resulted in the recovery of this largest North American waterfowl species.

UPLAND SANDPIPER UPSA

(Bartramia longicauda)



Conservation Profile

TSN	176610
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
RSGCN	

Description:

A curlew-like sandpiper with a long tail (note species name *longicauda*), thin neck, and short bill. Often seen perching on fence posts. Distinctive flight song. Wingspan 26" (66 cm).

Distribution & Habitat:

A widespread breeding species in prairies through much of Canada and U.S., with the exception of the Southwest. Has declined on the edges of its range.

With the exception of the Black Hills, a widespread breeder in South Dakota in relatively large grassland patches that have a mixture of vegetation of varying heights.

Conservation Threats:

- Significant historical declines due to market hunting, which continued until the 1920s
- Following a period of increasing averages from 1966 -1979, analysis of North American Breeding Bird Survey data indicated a 20% decline from 1980-2000
- Grassland habitat loss and degradation
- Nests and chicks vulnerable to nest predators

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Protect grassland patches of at least 200 hectares, especially where species is considered rare

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

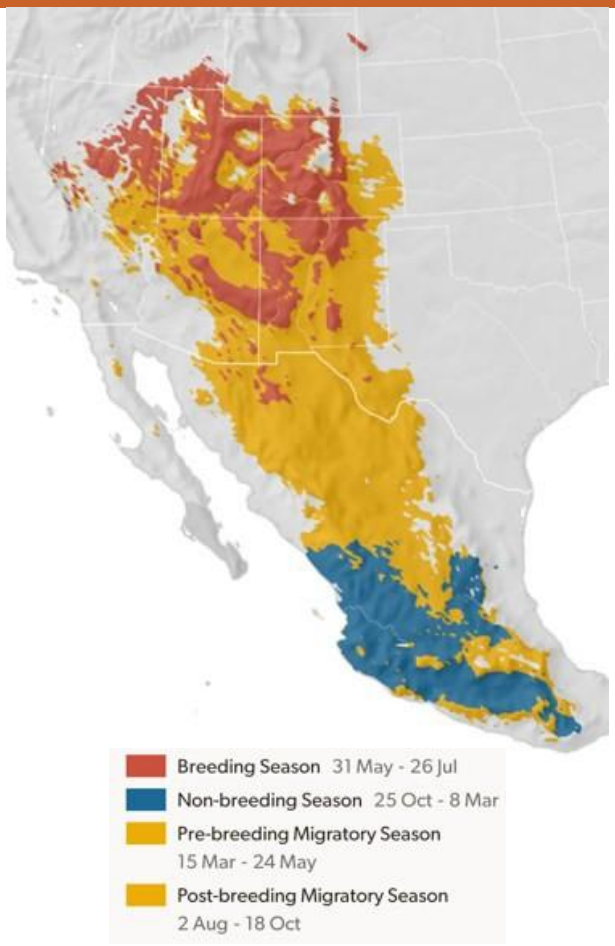
Image © Krista Lundgren, USFWS

Conservation Highlights: "Our birds"

Many of us consider breeding birds as "our birds" because the production of fledged young is such a critical part of a bird's annual cycle. In reality, many of our breeding birds spend the majority of their time elsewhere. Many bird conservation interests actively promote the importance of meeting full annual cycle needs for birds., which include nesting, migration, and wintering requirements. As seen by the map above, the Upland Sandpiper migrates a tremendously long way to and from its wintering grounds in South America and must meet its survival needs all along the way.

VIRGINIA'S WARBLER VIWA

(Leiothlypis virginiae)



Conservation Profile

TSN	950019
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Small gray warbler with yellow undertail coverts and complete white eye-ring. Male has yellow breast and rufous patch on top of head. Wingspan 7.5" (19 cm).

Distribution & Habitat:

Found in scattered populations of southwestern states in montane woodlands, pinyon-juniper, and oak thickets. SD's isolated population is at the northeastern range extent.

Breed primarily in dry canyons of western Custer County. Inhabits pine-juniper shrublands found on steep slopes with dense cover of mountain mahogany and skunkbrush sumac.

Conservation Threats:

- Isolated population in South Dakota may be vulnerable to controlled burns
- Nests may be parasitized by Brown-headed Cowbirds

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Periodically survey South Dakota's breeding distribution and inform resource agencies of the population's boundaries to encourage appropriate land management

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © P. Dotson, Utah Div. of Wildlife Resources

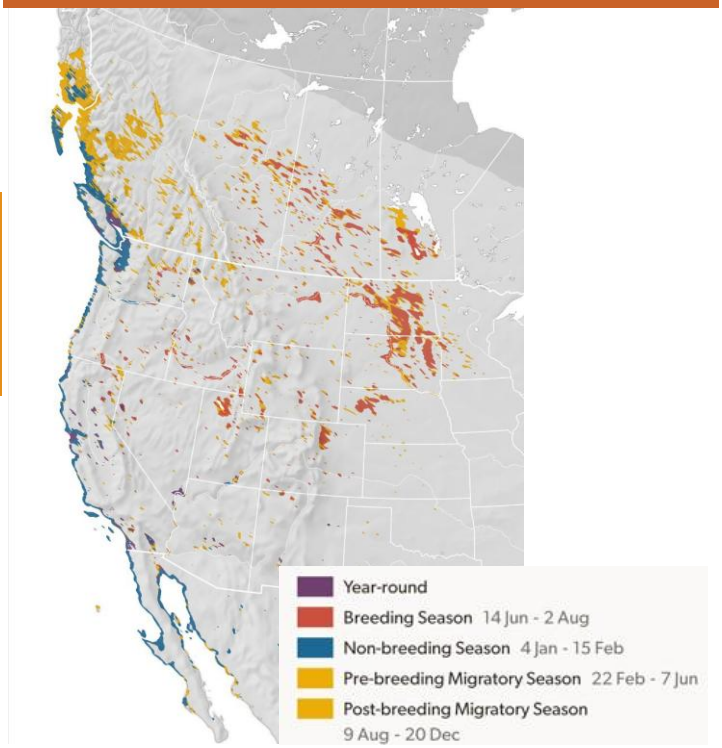
Conservation Highlights: Partners in Flight Watch List

Virginia's Warbler was not named for the state of Virginia, but for the wife of naturalist Dr. W. W. Anderson, who collected the first specimen in New Mexico in 1858.

Partners in Flight (PIF) is a network of organizations working to meet landbird conservation needs. PIF's mission is: "Keeping common birds common and helping species at risk through voluntary partnerships." PIF assigned the Virginia's Warbler to its "D" Yellow Watch List. These are species with population declines and moderate to high threats.

WESTERN GREBE WEGR

(Aechmophorus occidentalis)



Conservation Profile

TSN	174503
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)

Description:

Large slender grebe with long neck and long, thin bill. Black to gray on uppersides; white below. Similar in appearance to Clark's Grebe. Known for elaborate courtship displays. Wingspan 24" (61 cm).

Distribution & Habitat:

Breeds from southwestern Canada south and east through much of western and central U.S.

State breeding distribution is concentrated in prairie potholes, but changes with annual water conditions. Habitat includes semipermanent wetlands with reed beds. Different parts of a wetland complex meet different needs. Birds forage in open water and nest in marsh vegetation.

Conservation Threats:

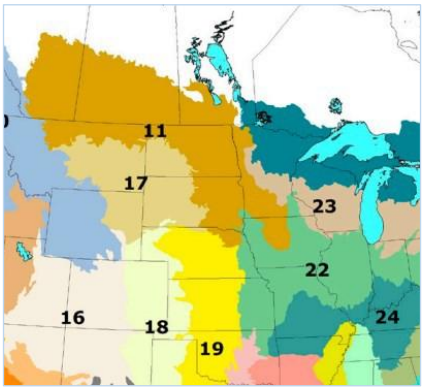
- Gregarious nature of this species may make it vulnerable to impacts that affect large concentrations, such as disturbance to nesting colonies and impacts of oil spills within wintering areas

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Lee Karney, USFWS



Conservation Highlights: And another bird list.

To help prioritize species needs, the USFWS developed a list of birds of conservation concern (BCC). A BCC is: "a species, subspecies and populations of all migratory nongame birds that without additional conservation action are likely to become candidates for listing under the ESA." These are further categorized within bird conservation regions (BCRs). A portion of the BCR map is shown above. The majority of South Dakota is included in BCR 11 (Prairie Potholes) or BCR 17 (Badlands and Prairies). The Western Grebe is a national BCC and a BCC within both BCR 11 and 17.

WHITE-WINGED JUNCO

(*Junco hyemalis aikeni*) **WWJU**

Conservation Profile

TSN	179411
Global Rank	G5T4 (Species Secure, Subspecies Apparently Secure)
State Rank	S4 (Apparently Secure)

Description:

Subspecies of Dark-eyed Junco with two subtle white wingbars. Wingspan 9.25" (23 cm).

Distribution & Habitat:

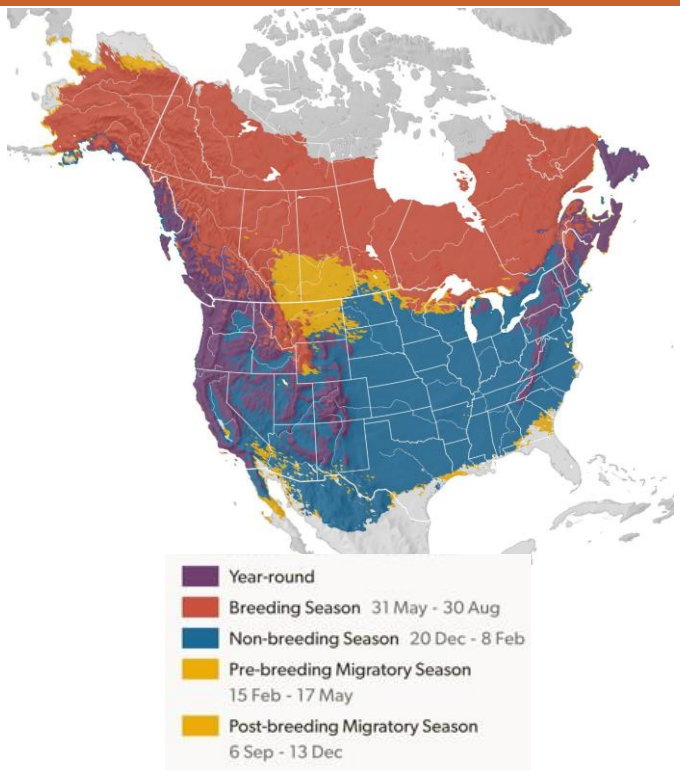
Subspecies breeds in portions of Montana, Wyoming, South Dakota, and Nebraska.

SD Breeding Bird Atlas II results showed that the White-winged Junco nests at all elevations of pine, spruce, and aspen stands within conifer forests of the Black Hills and portions of northwestern and southwestern SD.

Conservation Threats:

- As South Dakota's only endemic subspecies, the White-winged Junco was listed as a state SGCN because the state represents a significant portion of this subspecies' range. Serious conservation threats are unknown.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx



Map above depicts all seasons for dark-eyed junco (*Junco hyemalis*), including White-winged Junco subspecies.

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Because of the importance of South Dakota distribution to this subspecies, periodically summarize status with information from existing survey methods, such as North American Breeding Bird Survey and reporting to SD Ornithologists' Union and eBird

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation Highlights: Community Science Example

This is South Dakota's only breeding junco species or subspecies, although many Dark-eyed Juncos winter in the state. Juncos are easily attracted to backyard bird feeders and cover. Project FeederWatch is a long-running community science opportunity for those who feed birds to contribute to science. This website also includes a section about "Sick Birds and Bird Diseases," an important topic to help those who feed birds understand how to maintain a safe and sanitary feeding environment. (https://feederwatch.org)

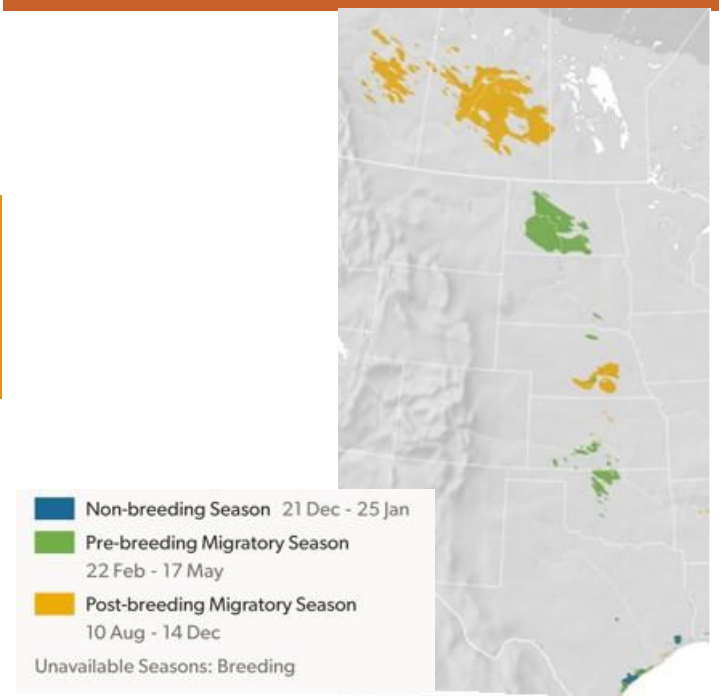
WHOOPING CRANE WHCR

(Grus americana)

Conservation Profile

TSN	176176
Global Rank	G1 (Critically Imperiled)
State Rank	S1 Critically Imperiled)

(FE) Federal Endangered; (SE) State Endangered; RSGCN



Map does not include reintroduction areas in eastern U.S.

Description:

North America's tallest bird species. First-year birds have a mixture of reddish-brown and white plumage. Adults are all white with black wingtips, a red crown, and red malars (cheeks). Smaller Sandhill Crane adult is gray with a red crown.

Distribution & Habitat:

Much reduced from historical range. Remaining population breeds in remote sites in Canada and winters primarily along Texas coast.

Migrates through South Dakota during spring and fall, most commonly in central and eastcentral parts of the state. Roosting habitat includes marshes and submerged sandbars along rivers. Often feeds in fallow agricultural fields.

Conservation Threats:

- Collisions with powerlines and wind farm infrastructure, especially during rainy or foggy weather
- Accidental or intentional shooting

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Continue informing hunters how to distinguish Whooping Cranes from similar, huntable species.
- Continue working with power and wind energy entities to address infrastructure components that pose a risk to this species. Address real-time situations where Whooping Cranes are seen near wind farms during migration, particularly during weather that cause poor visibility.
- Encourage natural resource agency staff to report Whooping Crane sightings through established reporting system and follow up in situations where birds may be at risk.

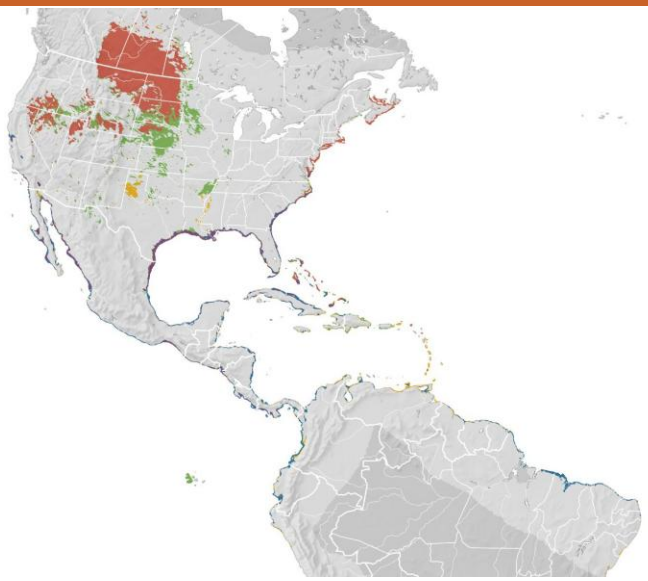
South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx; *Image © Luther Goldman*

Conservation Highlights:

Often touted as a tremendous success story, this species was recovered from a low of 14 individual birds. Due to the risk of losing the migratory population that travels through South Dakota to a catastrophic natural or human-caused event, current efforts center around establishing additional self-sustaining populations, both migratory (eastern North America) and nonmigratory (Florida). Visit this website for more information about these efforts: Saving Cranes and the Places Where Cranes Dance - International Crane Foundation

WILLET WILL

(Tringa semipalmata)



Conservation Profile

TSN	824147
Global Rank	G5 (Secure)
State Rank	S5 (Secure)

Description:

Large wading bird with nondescript plumage. Broad, rounded wings have distinctive black and white pattern visible in flight. Wingspan 26" (66 cm).

Distribution & Habitat:

Breeds from central Canada south to portions of western states as far east as eastern South Dakota.

Nesting within South Dakota mainly in shallow areas of prairie potholes of Missouri Coteau and Prairie Coteau and in Sandhills of southcentral portion of the state. Nests in grasslands near shallow wetlands and in pastures with low-stature grasses.

Conservation Threats:

- Nest site disturbance and nest depredation
- Grassland and wetland conversion to other uses
- Wintering areas reduced by development of coastal areas
- Collisions with powerlines placed through wetland nesting areas

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Preserve and protect a variety of wetlands

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Keith Anderson

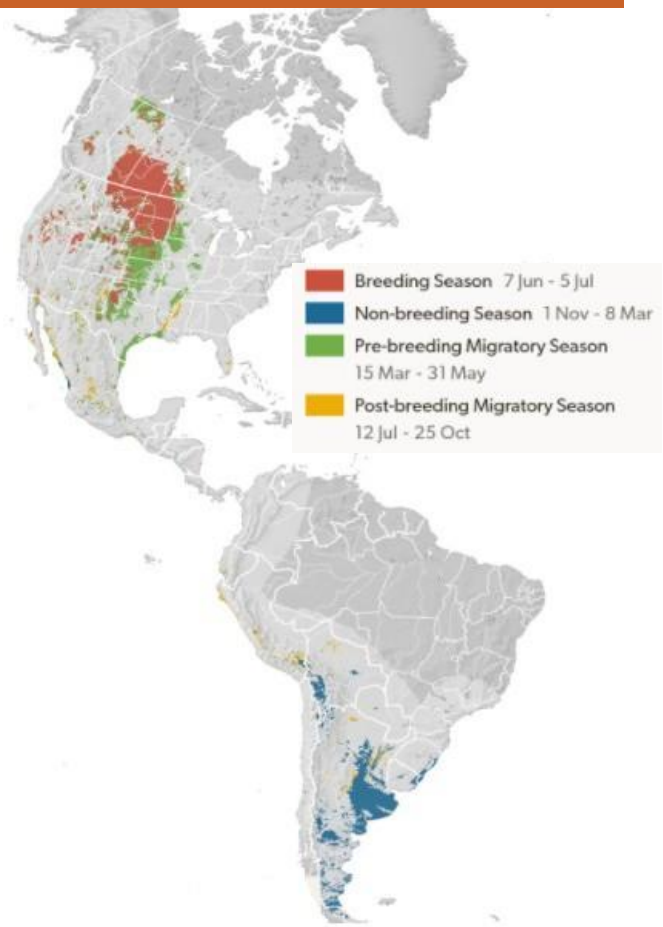
Conservation Highlights:
Bird vocalizations are typically considered songs or calls. Learning these sounds can open up a new world of bird identification possibilities. A bird's song is usually associated with mating, courtship, and territory maintenance. A call is more often used by members of a flock to sound an alarm or keep group members in touch. The Willet is named for its song, which can sound like: "*pilly Will Willet*." Other examples of naming birds for their songs or calls include the several species of chickadees (call), Whip-poor-will (song), Chuck-will's-widow (song), Long-billed Curlew (call), and Grasshopper Sparrow (song).

WILSON'S PHALAROPE WIPH

(Phalaropus tricolor)

Conservation Profile

TSN	176736
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)



Description:

More slender and longer legged than other phalaropes. Small head with thin bill. Female more brightly colored than male. Wingspan 17" (43 cm). Forages by swimming and spinning in water to bring food to the surface.

Distribution & Habitat:

Breeds in interior of North America and along Great Lakes.

Widespread breeder in South Dakota with the exception of the Black Hills and areas of intensive agriculture in southeastern portion. Prefers shallow marshes and wet meadows adjacent to intact upland grass ecosystems.

Conservation Threats:

- Factors that affect quality and quantity of wetlands

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Continue mapping and updating occurrences and distribution of wetland habitats

Monitoring:

- Investigate alternatives to the North American Breeding Bird Survey for monitoring this species

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Phalarope Friends, Cortez Rohr, USFWS

Conservation Highlights: Polyandry

Bird species use a variety of breeding strategies. Phalaropes practice polyandry, meaning the female often mates with more than one male during a nesting season. She uses her brightly colored plumage to attract a mate. After she has laid her clutch of 4 eggs, she leaves him to incubate them and care for the nestlings as she moves on to her next mate. The male's drabber plumage matches his roles of being the member of the nesting pair being courted and as the parent responsible for tending to the nest and young by blending in with his surroundings.

YELLOW-BILLED CUCKOO

(Coccyzus americanus) **YBCU**

Conservation Profile

TSN	177831
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)

Description:

One of 2 cuckoo species in the state. Long, slender, long-tailed, and secretive. Mostly yellow bill and yellow orbital ring. These features and tail pattern help distinguish this species from the Black-billed Cuckoo. Distinctive song. Wingspan 18" (46 cm).

Distribution & Habitat:

Breeds primarily in the eastern U.S. with scattered breeding in western states, where it has declined to justify federal listing under the ESA.

Scattered breeding throughout much of South Dakota, excluding the Black Hills. Found in riparian forests and woody draws of smaller streams and large rivers.

Conservation Threats:

- Loss and degradation of riparian nesting habitat

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Encourage reporting of nesting to improve knowledge of distribution and habitat associations

Monitoring

- Participate in multi-state efforts to evaluate whether NA Breeding Bird Survey accurately depicts abundance and distribution

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Chelsea Steinbrecher-Hoffmann, Eastern Ecological Science Center, USGS

Conservation Highlights: Endangered Species Act listing

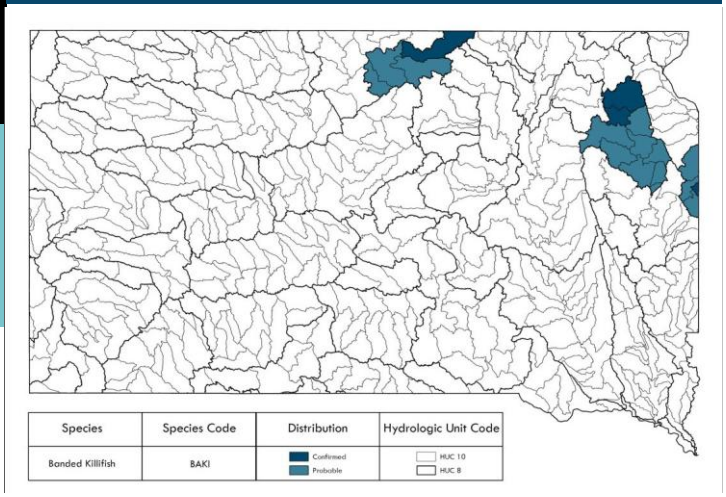
When implementing the federal ESA, the USFWS can list populations of vertebrates as threatened or endangered without listing the entire species. That group is called a distinct population segment (DPS). The western population of the Yellow-billed Cuckoo breeds in some western states, not including South Dakota. That DPS is federal threatened, and critical habitat has been designated. Critical habitats are areas considered to be essential to the conservation of a listed species. This is one of few species that can digest the hairy spines of the spongy moth (formerly gypsy moth) caterpillar.

BANDED KILLIFISH-BAKI

(Fundulus diaphanus)

Conservation Profile

TSN #	165646
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)
State Endangered	



Description:

Small, olive colored fish with yellow sided having distinct dark vertical bands along the lateral sides. Small, superior mouth with protruding lower jaw and rounded caudal fin.

Distribution & Habitat:

Banded Killifish are found in the Great Lakes, Mississippi River basin, northern IA, and northeastern NE. In SD, they are limited to the Minnesota and Big Sioux River basins.

Inhabits quiet, shallow lakes, ponds & streams with abundant aquatic vegetation & sand, gravel substrates.

Threats:

This species has been affected by land disturbance and loss of native grass cover in the prairie which has led to habitat degradation and loss, and pollution. Increased turbidity, siltation of stream bottoms, and resulting loss of aquatic vegetation have all been linked to this species decline. Reduction of beaver dams and increases in physical barriers such as dams, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

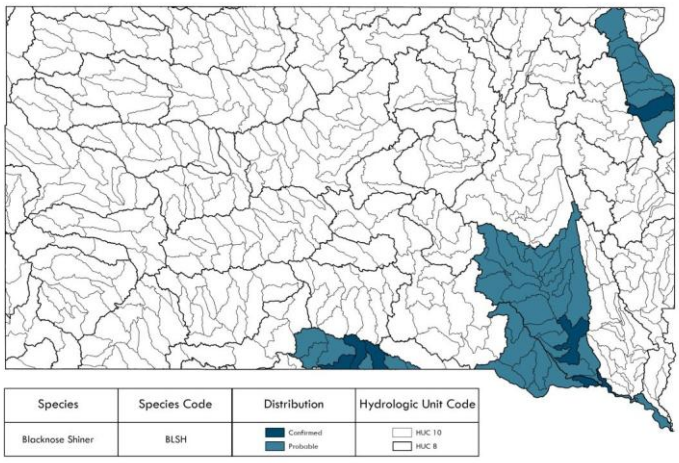
Monitoring
- Determine baseline data & status through monitoring efforts

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

Management
- Explore ways work to with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection and nutrient runoff into lakes.

BLACKNOSE SHINER - BLSH

(Notropis heterolepis)



Conservation Profile

TSN #	163446
Global Rank	G5 (Secure)
State Rank	S1 (Critically imperiled)

RSGCN, State endangered

Description:

Slender, silvery minnow with large eyes. Black crescent-shaped marks form a dark stripe along the lateral line from the tip of the nose to the caudal fin, passing through the eye.

Distribution & Habitat:

Blacknose Shiner originally had a broad distribution over the Atlantic, Hudson Bay, Great Lakes, and Mississippi Rivers but is extirpated from much of its southern range.

In SD, they are found in perennial and spring-fed streams of the Niobrara River with disjunct, populations in the Big Sioux, James and Minnesota River basins.

Inhabits cool, moderate-flow water in low-gradient streams with sand, gravel, or cobble substrates.

Threats:

This species has been affected by land disturbance and loss of native grass cover in the prairie which has led to habitat degradation and loss, and pollution. Increased turbidity, siltation of stream bottoms, and resulting loss of aquatic vegetation have all been linked to this species decline. Reduction of beaver dams and increases in physical barriers such as dams, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts in the Black Hills

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Seasonal movements & recolonization capabilities

Management
- Explore ways work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

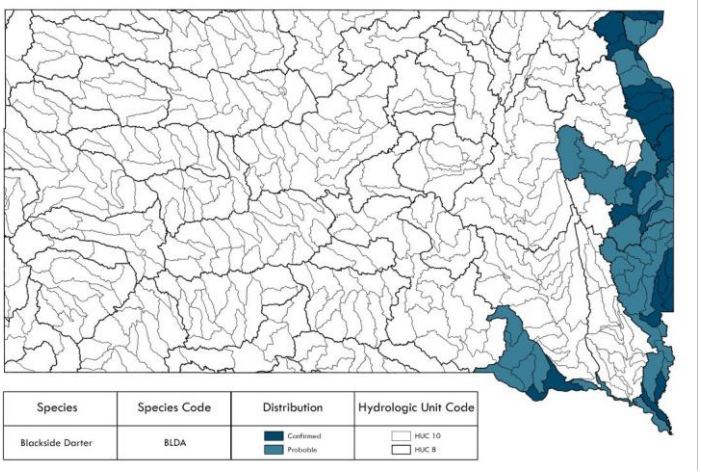
A SWG project was recently conducted to look at the distribution and status of gla- cial relict species in the Sandhills area of SD (T2-8). Thirty-two species were sampled including Plains Topminnow, Northern Pearl Dace, Northern Redbelly Dace, and a single Blacknose Shiner. No Finescale Dace were sampled. SGCN were limited by stream (perennial headwater streams with cool groundwater influence) and habitat (backwater areas and areas created by beaver dams) types.

BLACKSIDE DARTER - BLDA

(Percina maculata)

Conservation Profile

TSN #	168488
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)



Description:

Olive-brown darter with broad black stripe along sides made up of 6-11 dusky blotches. Complete lateral line. Head is pointed, fully scaled, with tear drop spot below the eye.

Distribution & Habitat:

Blackside Darter range includes the Great Lakes, Hudson Bay & Mississippi River basins. In SD, they are limited to the Minnesota & Big Sioux River basins.

Inhabits pools of streams to medium sized rivers with moderate current & sand or gravel substrates.

Threats:

The species has been affected by habitat degradation and loss, and pollution. Reduction of beaver dams and increases in physical barriers such as dams, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring

- Determine baseline data & status through monitoring efforts

Research

- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

Management

- Explore ways work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

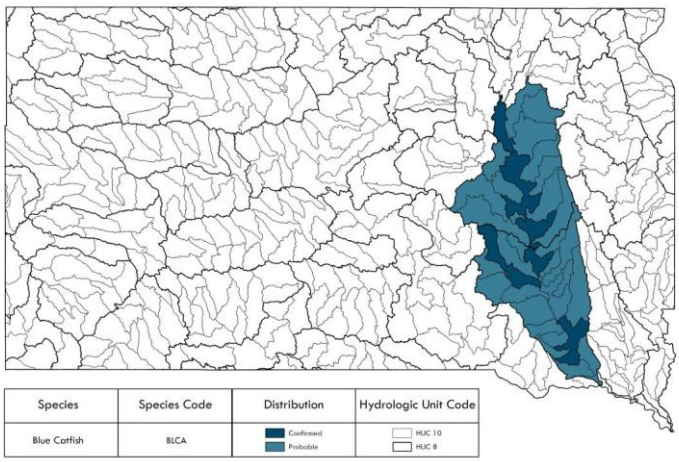
Aquatic habitat restoration can increase both the abundance and diversity of habitats that generally lead to increases in fish abundance and diversity owing to increased forage production, diverse spawning areas and improved overwintering habitats for fish. Gary Creek in Deuel county is slated to receive stream restoration to restore stream connectivity and secure the long-term protection of unique and high quality habitat. This project will directly enhance in stream and riparian habitat with the construction of in stream boulders and woody debris to create pools and washouts and stabilize bank locations that show signs of high erosion or scouring within the Gary Gulch GPA.

BLUE CATFISH - BLCA

(Ictalurus furcatus)

Conservation Profile

TSN #	163997
Global Rank	G5 (Secure)
State Rank	S5 (Secure)



Description:

Deep, robust blueish-silver body with a broad, wedge-shaped head. Distal edge of anal fin is straight and tapers towards a deeply forked caudal fin.

Distribution & Habitat:

Blue Catfish range includes the Mississippi, Missouri and Ohio Regions. In SD, they are limited to the James River & lower Missouri River basins.

Inhabits large rivers with deep, swift channels or flowing pools with mud or silt substrate. They can also be found in open waters of large reservoirs.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, alter flows and water levels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring

- Determine baseline data & status through monitoring efforts

Research

- Life history characteristics and feeding habitats
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements
- Climate vulnerability assessment

Management

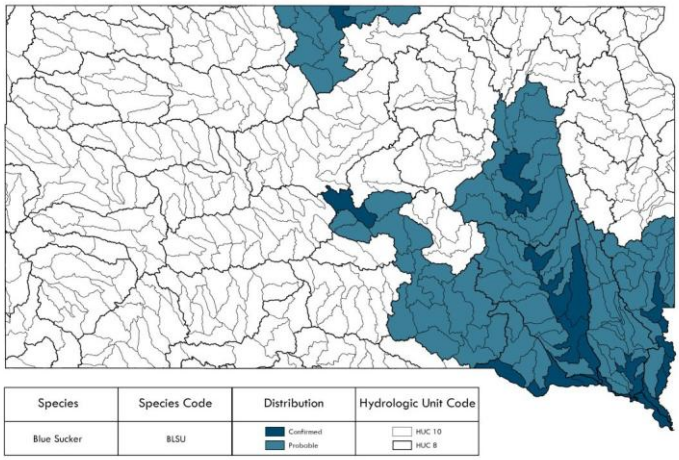
- Develop a management plan for large river benthic species.
- Augment populations with hatchery-origin fish

BLUE SUCKER - BLSU

(Cycleptus elongatus)

Conservation Profile

TSN #	163953
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)



Description:

A large, slender, gray-blue sucker with a small head and long sickle shaped dorsal fin. This species mouth is on the bottom of the face, protractile, with thick, heavily bumpy lips. Sexual dimorphism exists in spawning males which are blue-black in color with small tubercles on the head, body and fins.

Distribution & Habitat:

Blue Suckers are native to the mainstem Mississippi River, Missouri River, and their major tributaries. In SD, they are found throughout the Missouri River, Vermillion, James and Big Sioux River basins.

Highly mobile fish that inhabits large rivers with natural hydrographs, prefers riffle habitats with clear, fast flowing water and smooth, hard substrates.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, change hydrology, channelize rivers and impact water levels. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. This species is moderately vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue and expand monitoring efforts
- Develop protocols for monitoring all life stages

Research
- Evaluate the role of sediment transport & discharge on habitats for all life stages
- Identify reproductive potential & life history
- Identify natal and spawning areas
- Influence of flooding on recruitment & resource use

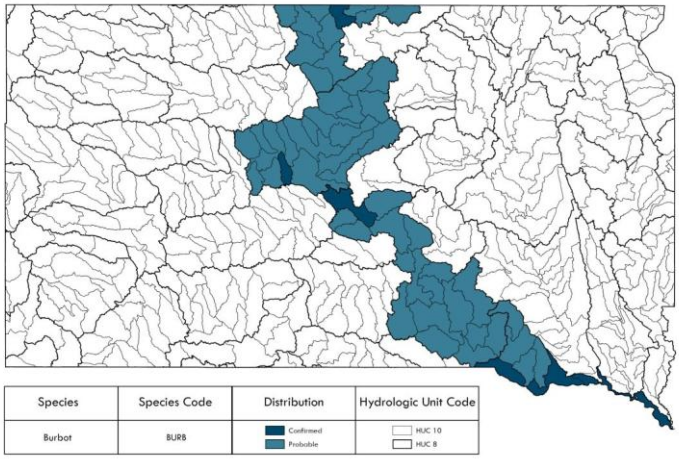
Management
- Develop a management plan for large river benthic species
- Habitat improvement projects

Conservation Highlights:

A SWG project was recently conducted looking at the population dynamics and seasonal movements of Blue Suckers in the James River. We found fin rays underestimated otoliths up to 30+ years for this long lived species. Recruit- ment was impacted by discharge in the James River, i.e. more water=more fish. Blue Suckers exhibited large seasonal movements based on flows and temperature. A fish migration barrier was identified near Fleeg's Bridge on the James River.

BURBOT - BURB

(Lota lota)



Conservation Profile

TSN #	164725
Global Rank	G5 (Secure)
State Rank	S5 (Secure)

Description:

Elongated, eel-like body, brown in color and may be mottled. Large mouth with single chin barbel. Two-part, soft dorsal fin with first being short and the second extending nearly half the length of the body. Long anal fin nearly as long as second dorsal fin.

Distribution & Habitat:

Burbot range includes northern Europe, Asia, Canada, and the northern United States. In SD, they are limited to Missouri River and it's reservoirs, Lake Oahe, Fort Randall & Lewis and Clark Lake basins.

Inhabits deep, cold, lakes, reservoirs, and large rivers. They often hide in dark crevices under boulders.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, alter flows and water levels. Burbot are impacted by pollution from nutrient loading from pesticides and herbicides. This species will potentially be impacted by climate change with warming water temperatures.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Determine baseline data & status through monitoring efforts

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Early life history and spawning habitats
- Identify critical habitats & limiting factors
- Seasonal movements
- Climate vulnerability assessment

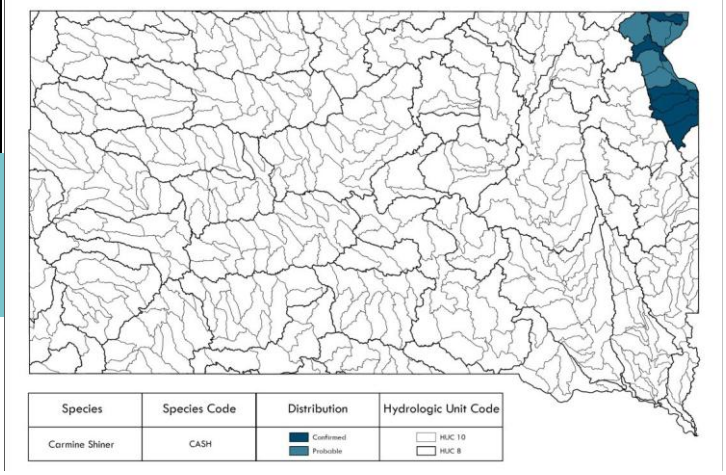
Management
- Develop a management plan for large river benthic species.
- Consider the impact of angling pressure
- Augment populations with hatchery-origin fish

CARMINE SHINER - CASH

(Notropis percobromus)

Conservation Profile

TSN #	163592
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)



Description:

A small, slender minnow that is olive colored above the lateral line and silvery below. A black line is above the silver line along the sides. Snout is pointed. Breeding adults develop red color on heads, bodies, & fins.

Distribution & Habitat:

Carmine Shiner range includes Manitoba, Canada, eastern ND, eastern SD, MN, WI, IN, AR, & OK. In SD, they are found in the Minnesota & Bois de Sioux River basins.

Inhabit headwaters of streams with perennial flow with sand or gravel substrates. Often found in or near riffles and pools.

Threats:

This species has been affected by land disturbance and loss of native grass cover in the prairie which has led to habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, block upstream migrations, alter flows, water levels, & channelize streams which all degrade habitat. Nutrient loading from pesticides & herbicides. Moderately vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Determine baseline data & status through monitoring efforts

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

Management
- Explore ways to work with private lands biologists to develop site specific best management practices for land-

Conservation Highlights:

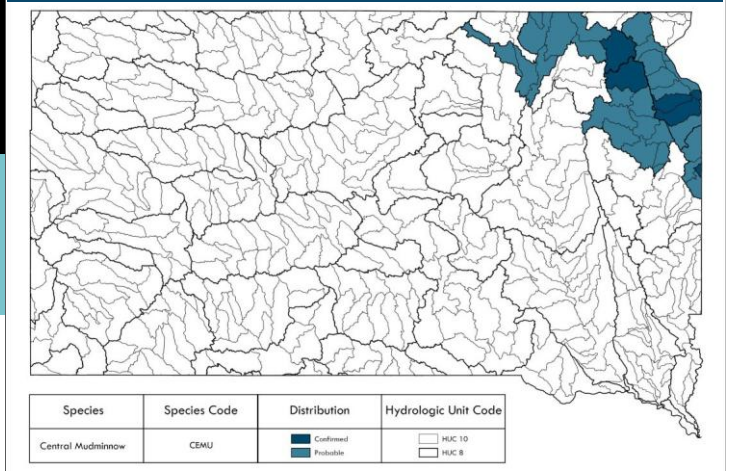
Road crossings act as major barriers to the movement of stream fishes. Movement between habitats can be essential for the survival and viability of stream fish populations. A project to survey and identify road stream crossings as barriers to fish is underway. Additionally identified fish migration barriers are being retrofitted with fish ladders to provide access to critical habitat & reestablish connectivity in priority locations.

CENTRAL MUDMINNOW - CEMU

(Umbra limi)

Conservation Profile

TSN #	162153
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)



Description:

A small, slender fish that is dark olive-brown in color with a light belly. Lacks a lateral line but has several irregular dark vertical bars along the sides. Tail fin is rounded with a black vertical bar at the base.

Distribution & Habitat:

Central Mudminnow range includes the St. Lawrence-Great Lakes, Hudson Bay (Red River) & Mississippi River basins, from Canada, the Dakotas, to the east coast and south to AR & TN. In SD, they are found in the Minnesota & Big Sioux River basins.

Inhabit lake shorelines, wetlands, pools in small streams with little to no flow & dense aquatic vegetation with gravel, sand, silt or muddy substrates.

Threats:

The species has been affected by habitat degradation, loss, and pollution. Conversion of wetlands to agricultural use. Physical barriers such as dams, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. Moderately vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring

- Determine baseline data & status through monitoring efforts Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

Management

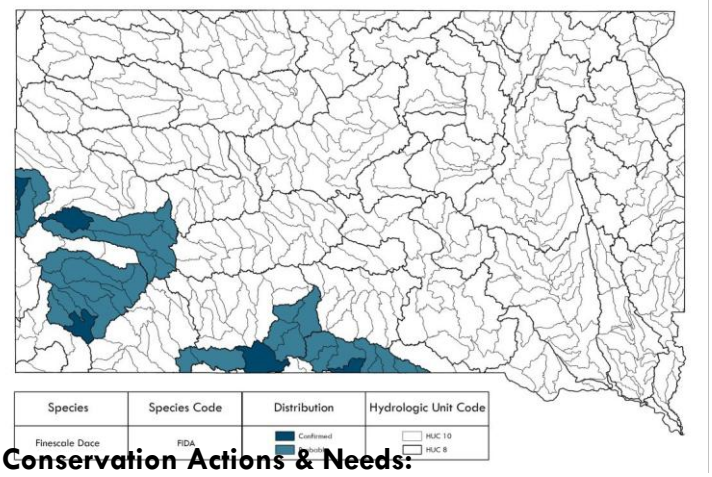
- Explore ways to work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

Road crossings act as major barriers to the movement of stream fishes. Movement between habitats can be essential for the survival and viability of stream fish populations. A project to survey and identify road stream crossings as barriers to fish is underway. Additionally identified fish migration barriers are being retrofitted with fish ladders to provide access to critical habitat & reestablish connectivity in priority locations.

FINESCALE DACE - FIDA

(Chrosomus neogaeus)



Conservation Profile

TSN #	163594
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)
Endangered, RSGCN	

Description:

A small, dusky colored fish with a silvery-white belly. A dusky stripe on the sides, ending with a distinct spot. A silvery band is found above the dusky colored stripe on the sides. Breeding males have a red belly and yellow fins.

Distribution & Habitat:

Finescale dace range includes Atlantic, Great Lakes, Hudson Bay, upper Mississippi & Missouri river basins, from Canada south to NE and east to NY. In SD, they are found in the Niobrara & Cheyenne River basins.

Inhabit small glacial lakes, beaver ponds, bogs, & cool, spring-fed, headwater stream & pools of perennial first & second order streams. Their preferred habitat includes meandering streams with well-vegetated banks, abundant macrophyte growth, & undercut banks.

Threats:

The species has been affected by habitat degradation, loss, and pollution. Reduction of beaver dams and increases in physical barriers such as dams, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. Hybridization with Northern Redbelly Dace. Extremely vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Determine baseline data & status through monitoring efforts

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

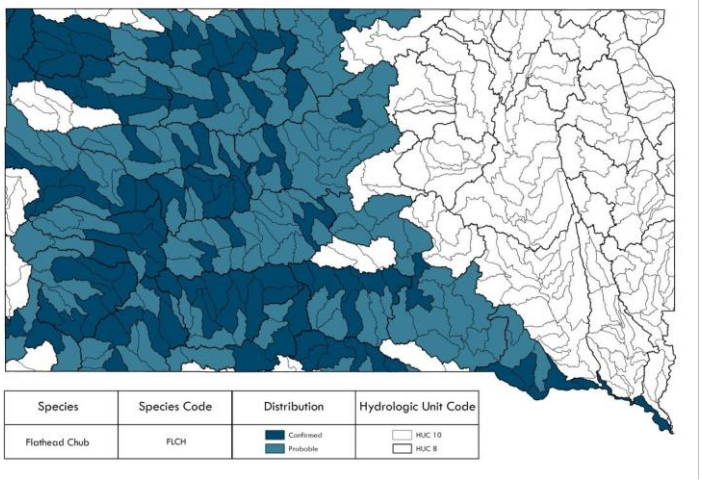
Management
- Monitor Mud/Cox Lake reintroduced population
- Explore ways work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

Mud & Cox Lakes near McNenny fish hatchery historically housed populations of Finescale dace. Due to an illegal introduction of Green sunfish into Mud Lake the Finescale became extirpated after a lake renovation in 2004, a population was reestablished in Mud Lake where a population of ~8,000 exist today.

FLATHEAD CHUB - FLCH

(Platygobio gracilis)



Conservation Profile

TSN #	163882
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
RSGCN	

Description:

A minnow with a broad, flattened, "wedge-shaped" head with a pointed snout, small eyes, and small barbels in the corners of the mouth.

Distribution & Habitat:

Flathead Chub are native to the Missouri-Mississippi and Rio Grande River systems from Canada to MT, to LA and south to NM. In SD, they are found in the Missouri River and its major western tributaries (Grand, Moreau, Belle Fourche, Cheyenne, White River basins). Also found in the Little Missouri and Niobrara River basins.

Inhabits large, turbid rivers with moderate to strong current over sand or silt substrates.

Threats:

The species has been affected by habitat degradation and loss. Reduced turbidity and altered flow regimes caused by barriers, impoundments and channel modifications which also block fish migrations. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

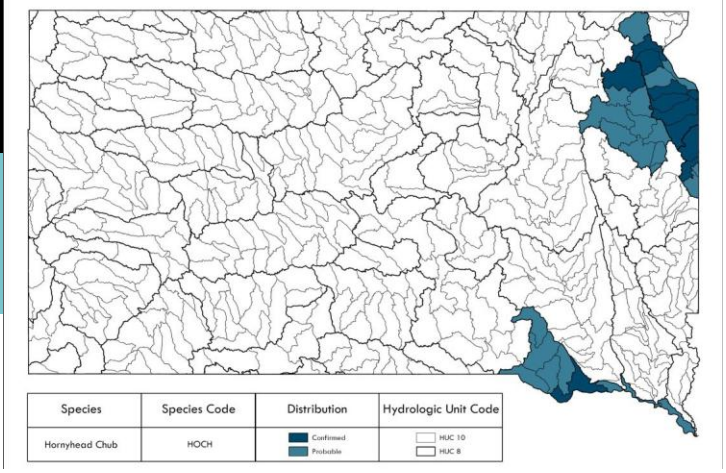
Monitoring
- Continue monitoring efforts

Research
- Assess temporal changes in population levels
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Seasonal movements & recolonization capabilities

Management
- Develop a management plan for large river benthic species

HORNYHEAD CHUB - HOCH

(Nocomis biguttatus)



Conservation Profile

TSN #	163395
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)

Description:

A stout minnow with olive-brown back, a dark stripe along sides & white belly. Barbels are found at the edges of the mouth, with a red spot behind the eye, less prominent in adults. A black spot at the base of tail fin. Breeding males display tubercles on their heads.

Distribution & Habitat:

Hornyhead Chub range is widespread across the north central glacial regions of the US & Canada, including the Missouri, upper Mississippi, northern Ohio, and St. Lawrence-Great Lakes River basins. In SD, they are found in the Minnesota & Big Sioux River basins.

Inhabit backwaters of low-to-moderate gradient streams with aquatic vegetation, clear water, and clean gravel, rubble, or sand substrates.

Threats:

This species has been affected by land disturbance and loss of native grass cover in the prairie to agriculture which has led to habitat degradation & pollution. Increased turbidity, siltation of stream bottoms, & resulting loss of aquatic vegetation have all been linked to this species decline. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Determine baseline data & status through monitoring efforts

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

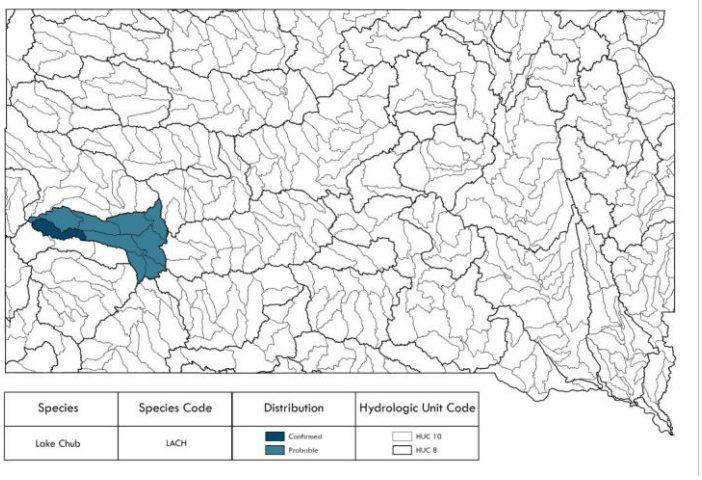
Management
- Explore ways to work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

Road crossings act as major barriers to the movement of stream fishes. Movement between habitats can be essential for the survival and viability of stream fish populations. A project to survey and identify road stream crossings as barriers to fish is underway. Additionally identified fish migration barriers are being retrofitted with fish ladders to provide access to critical habitat & reestablish connectivity in priority locations.

LAKE CHUB - LACH

(Couesius plumeus)



Conservation Profile

TSN #	163535
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)

Description:

Small bodied gray to brown fish with a lead colored mid lateral stripe. Closely resemble Creek Chub. Lake Chub with well-developed barbel located at the corner of each side of the mouth.

Distribution & Habitat:

Lake Chub range includes much of Canada and the extreme northern United States. In SD, they are limited to the Cheyenne basin with most recent records reported from Boxelder Creek a tributary of the Cheyenne River. Historic records are reported from the Little Missouri River basin. Inhabits large rivers and lakes with sand, gravel, or mud substrate.

Lake Chub inhabit cool, clear waters of lakes and small streams and will often school within shallow waters over sand or gravel substrates.

Threats:

This species is threatened by suppressed fire regimes, nonnative trout species introductions, habitat degradation and loss and pollution from mining, heavy grazing, and forest management practices such as logging. An increase in pollution from nutrient loading from pesticides and herbicides and mining practices has also impacted the species. This species is extremely vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting conservation programs and incentives to landowners to secure the long-term protection of unique & high quality habitats, increasing, and promoting management practices that reduce/limit soil erosion & nutrient/pesticide runoff.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts in the Black Hills

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Seasonal movements & recolonization capabilities

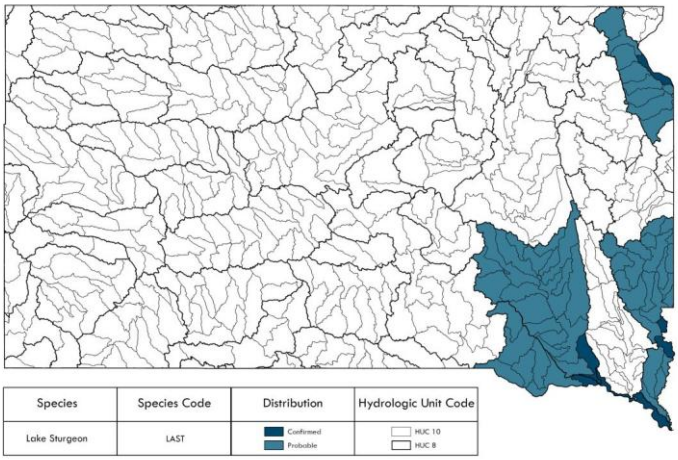
Management
- Explore trap & transfer efforts for reintroduced populations

Conservation Highlights:

A recent study of Lake Chub found they were limited to Boxelder Creek and it's tributary Bogus Jim, capturing 202 individuals including the loss zone, an area where water is intermittent with only a few pools and springs year round. Lake Chub were found in areas of slow water velocities, springs, and low trout abundance. Geneflow is occurring between Bogus Jim and Boxelder Creek above the loss zone but little between Bogus Jim and Boxelder in the loss zone.

LAKE STURGEON - LAST

(Acipenser fulvescens)



Conservation Profile

TSN #	161071
Global Rank	G3 (Vulnerable)
State Rank	S2 (Imperiled)
RSGCN	

Description:

A large, dorsoventrally-flattened, dark olive or gray fish, with a short, rounded, conical snout. Five prominent rows of large bony scutes on top & sides but lacking on the belly. Bases of barbels without fringe, aligned in a single, straight row. A small opening, the spiracle, is present between the eye & the upper corner of the gill cover.

Distribution & Habitat:

Lake Sturgeon range extends from the Missouri, Upper Mississippi, Great Lakes, Ohio, Tennessee, and Souris-Red -Rainy regions. In SD, they are limited to the lower Missouri, James, Big Sioux & Minnesota River basins. Historic population was extinct before being re-established through stocking efforts beginning in 2014.
Inhabits large rivers and lakes with sand, gravel, or mud substrate.

Threats:

The species has been historically affected by overexploitation, habitat degradation and loss, and pollution. Many populations continue to be negatively affected by physical barriers such as dams, which block migrations, alter flows and water levels, silt spawning grounds, stream channelization, and pollution.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Assess population dynamics
- Genetic variation
- Seasonal movements
- Climate vulnerability assessment

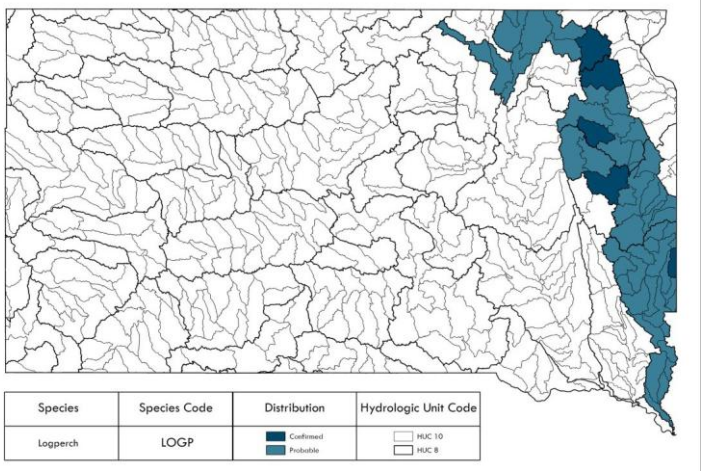
Management
- Analyze stocking success
- Habitat improvements

Conservation Highlights:

In 2014, a Lake Sturgeon reintroduction program began in Bigstone Lake with a goal to establish a self-sustaining population and potential fishery. A habitat restoration project is planned for the Little Minnesota River, a tributary to Bigstone Lake which will restore access to 50 river miles of historic Lake Sturgeon spawning grounds. The project proposes to construct a rock arch rapids to improve stream fragmentation to spawning grounds.

LOGPERCH - LOGP

(Percina caprodes)



Conservation Profile

TSN #	168472
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

A yellowish-brown fish with several vertical bars of alternating length on the sides & black spot at base of rounded tail fin. This species lacks scales on its head and has a tear drop spot below the eye.

Distribution & Habitat:

Logperch range includes Saskatchewan and the Mississippi River basins, east through the Great Lakes and St. Lawrence Rivers to VT, & south to LA and the Rio Grande River system in southern TX. In SD, they are found in the Big Sioux and Minnesota River basin.

Inhabit lakes & medium-to-large rivers with clear to slightly turbid water, pools or riffles, & sand, gravel, & cobble substrates.

Threats:

The species has been affected by habitat degradation, loss, & pollution. Reduction of beaver dams and increases in physical barriers such as dams & drop culverts, which block upstream migrations, alter flows & water levels, channelize streams all degrade habitat. An increase in pollution from nutrient loading from pesticides & herbicides has also been observed. Moderately vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Determine baseline data & status through monitoring efforts

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

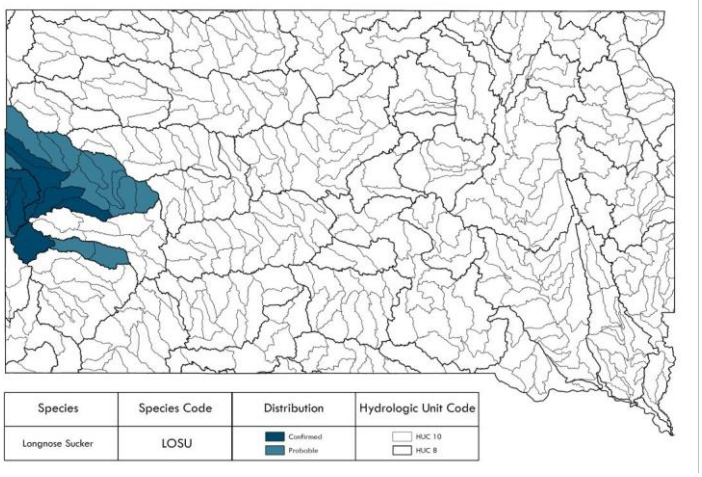
Management
- Explore ways to work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

Road crossings act as major barriers to the movement of stream fishes. Movement between habitats can be essential for the survival and viability of stream fish populations. A project to survey and identify road stream crossings as barriers to fish is underway. Additionally identified fish migration barriers are being retrofitted with fish ladders to provide access to critical habitat & reestablish connectivity in priority locations.

LONGNOSE SUCKER - LOSU

(Catostomus catostomus)



Conservation Profile

TSN #	163894
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Threatened	

Description:

Elongated, cylindrical gray-silver sucker with long pointed snout. This species mouth is on the bottom of the face, protractile, with thick, heavily bumpy lips separated by notch forming an acute angle. Breeding males develop crimson band on sides.

Distribution & Habitat:

Longnose sucker are the most widespread sucker in North America. It's range includes Canada and northern United States south to CO, IL, & PA. In SD, they are limited to the Cheyenne basin with most recent records reported from Crow and Spearfish Creeks.

Longnose sucker occupy a wide range of habitats, including small-to-medium-sized rivers, lakes, and reservoirs. It is a benthic dweller, preferring cool, clear water with lit- tle to no turbidity and sand or gravel substrates.

Threats:

This species is threatened by habitat degradation, habitat loss and pollution from mining, heavy grazing, and forest management practices such as logging. An increase in pollution from nutrient loading from pesticides and herbicides and mining practices has also impacted the species. This species is highly vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, increasing, and promoting management practices that reduce/limit soil erosion & nutrient/pesticide runoff, and restoring and maintaining habitat and stream connectivity.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts in the Black Hills

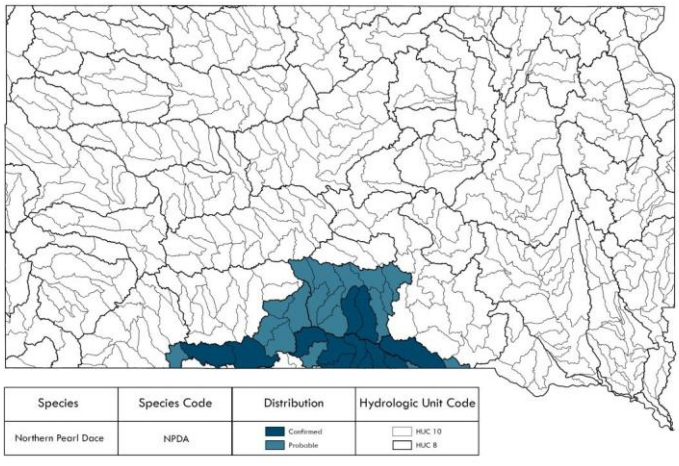
Research
- Assess population dynamics
- Genetic variation
- Identify critical habitats and limiting factors
- Seasonal movements & recolonization capabilities

Management
- Explore trap & transfer efforts for reintroduced populations

Conservation Highlights:

A recent study sampled for Longnose Sucker from May-August 2021 and 2022. Historic locations in addition to exploratory locations were sampled for Longnose Sucker. Longnose Sucker were restricted to two major tributaries of the Redwater subbasin in the Black Hills (Crow and Spearfish Creeks), where they were more often captured in stream reaches with steep banks and more even substrates. Additionally, Longnose Sucker were more common in areas with greater width-depth ratios and higher species richness.

NORTHERN PEARL DACE - NPDA *(Margariscus nachtriebi)*



Conservation Profile

TSN #	163592
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Threatened	

Description:

Small bodied minnow with olive-green body and a single dark stripe on the sides. Breeding males develop a red band below the dark stripe. Breeding females develop a gold band below the dark stripe.

Distribution & Habitat:

Northern pearl dace range includes Atlantic, Great Lakes, Hudson Bay, upper Mississippi river basins, from Canada south to NE and east to NY. In SD, they are found in the Niobrara River basins.

Inhabit small glacial lakes, beaver ponds, bogs, & cool, spring-fed, headwater stream & pools of perennial first & second order streams. Their preferred habitat includes meandering streams with well-vegetated banks, abundant macrophyte growth, & undercut banks.

Threats:

The species has been affected by habitat degradation, loss, and pollution. Reduction of beaver dams and increases in physical barriers such as dams, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. Extremely vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Determine baseline data & status through monitoring efforts

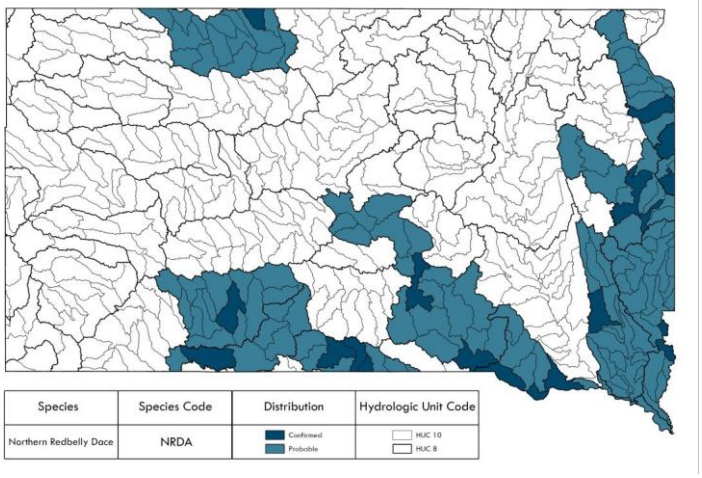
Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

Management
- Explore ways work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

A SWG project was recently conducted to look at the distribution and status of glacial relict species in the Sandhills area of SD (T2-8). Thirty-two species were sampled in- cluding Plains Topminnow, Northern Pearl Dace, Northern Redbelly Dace, and a single Blacknose Shiner. No Finescale Dace were sampled. SGCN were limited by stream (perennial headwater streams with cool groundwater influence) and habitat (backwater areas and areas created by beaver dams) types.

NORTHERN REDBELLY DACE - NRDA *(Chrosomus eos)*



Conservation Profile

TSN #	163592
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)
Threatened	

Description:

Small bodied minnow with olive-green body and two dark stripes on the sides. Breeding males develop a red band below the bottom dark stripe and yellow belly.

Distribution & Habitat:

Northern redbelly dace range includes Atlantic, Great Lakes, Hudson Bay, upper Mississippi & Missouri river basins, from Canada south to NE and east to PA. In SD, they are found in the Missouri, Minnesota, Big Sioux, & Niobrara River basins, with an isolated population in the Grand River.

Inhabit cold, clear waters of first-order spring-fed streams in areas with submerged vegetation, low velocities, and sand or gravel substrate.

Threats:

The species has been affected by habitat degradation, loss, and pollution. Reduction of beaver dams and increases in physical barriers such as dams, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. Hybridization with Finescale Dace. Extremely vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring

- Determine baseline data & status through monitoring efforts

Research

- Life history characteristics
- Assess population dynamics
- Genetic variation
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

Management

- Explore ways to work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

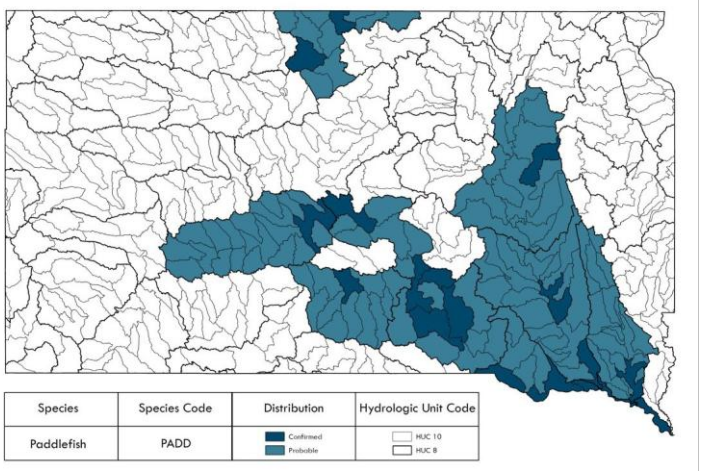
Aquatic habitat restoration can increase both the abundance and diversity of habitats that generally lead to increases in fish abundance and diversity owing to increased forage production, diverse spawning areas and improved overwintering habitats for fish. Gary Creek in Deuel county is slated to receive stream restoration to restore stream connectivity and secure the long-term protection of unique and high quality habitat. This project will directly enhance in stream and riparian habitat with the construction of in stream boulders and woody debris to create pools and washouts and stabilize bank locations that show signs of high erosion or scouring within the Gary Gulch GPA.

PADDLEFISH- PADD

(Polyodon spathula)

Conservation Profile

TSN #	161088
Global Rank	G4 (Apparently Secure)
State Rank	S4 (Apparently Secure)



Description:

A large, blueish-gray fish, often mottled, scaleless body, with a strongly forked & unequally divided. Long, paddle -shaped snout, approximately one-third of adult body length, covered with small sensory pores.

Distribution & Habitat:

Paddlefish are native to the Missouri and Mississippi Rivers from MT to the Gulf of America. In SD, they are limited to the Missouri, James, lower Vermillion and White Rivers basins.

Inhabits medium to large rivers and reservoirs in open waters and below structures and sandbars. Present in impounded and free-flowing reaches of the Missouri River. Prefers depths greater than 5 ft. Spawn in fast shallow water over gravel bars.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, alter flows, channelize streams and impact water levels. An increase in pollution from nutrient loading from pesticides and agricultural runoff has also been observed. This species has historically been threated by overharvest.
South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting management practices that reduce/limit erosion & nutrient runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Determine population demographics for reservoir populations
- Identify critical habitats and limiting factors associated with natural recruitment
- Genetic variation
- Climate change vulnerability assessment

Management
- Augment populations with hatchery-origin fish

Conservation Highlights:

A recent collaboration between the US Fish and Wildlife Service and SDGFP was initiated to introduce Paddlefish into Lake Sharpe in central South Dakota. USFWS have stocked between 17,000 and 44,000 juvenile Paddlefish annually starting in 2015. Stockings appear to be successful as recent population surveys have collected 3 (2022), 34 (2023) and 24 (2024) Paddlefish. Average size of these fish are 14.5 pounds revealing that Paddlefish are now present in Lake Sharpe and stocked fish appear to be growing well.

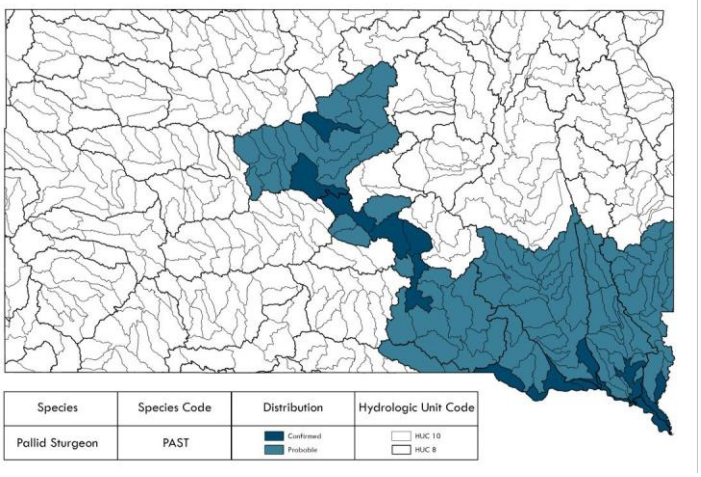
PALLID STURGEON - PAST

(Scaphirhynchus albus)

Conservation Profile

TSN #	161081
Global Rank	G2 (Imperiled)
State Rank	S2 (Imperiled)

RSGCN, Federally Endangered, State Endangered



Description:

A long, slender, gray-white body with a flattened shovel-shaped snout. Body with bony plates on their top and sides but lacking on the belly. Bases of outer chin barbels slightly farther back and twice as long as inner barbels.

Distribution & Habitat:

Pallid Sturgeon are native to the Missouri and Mississippi Rivers from MT to LA. In SD, they are limited to the lower Missouri, lower James and lower Big Sioux River basins. Inhabits large, free-flowing, turbid rivers with a diverse assemblage of dynamic physical habitats. Prefer areas with firm sand or silt substrate around wing dikes and occasionally near islands.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, alter flows, channelize streams and impact water levels. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. This species has historically been threated by overharvest. This species is moderately vulnerable to climate change.
South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx
Monitoring

- Continue monitoring efforts

Research

- Develop standardized protocols for monitoring all life history stages
- Evaluate the role of sediment transport & discharge on the creation & maintenance of habitats for all life stages
- Identify limited factors associated with natural recruitment
- Seasonal movements

Management

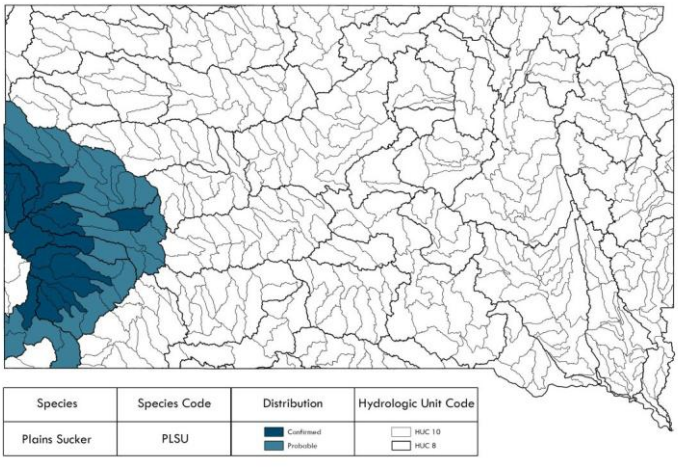
- Assist as needed with stocking efforts

Conservation Highlights:

Pallid sturgeon is a large river species that has suffered from loss of riverine habitats with natural flow regimes resulting in a lack of natural reproduction. Recent recovery efforts have included hatchery propagation and reintroduction. A SWG project was funding to provide a better understand of the habitat needs and food habits of juvenile Pallids in the Missouri River. Juvenile relied on primarily on invertebrates and fish prey for larger individuals. Juveniles and early adults were found in deeper water (>3 m) and a higher proportion of sand substrate, with bottom water velocities >1.2 m/s.

PLAINS SUCKER - PLSU

(Pantosteus jordani)



Conservation Profile

TSN #	1171649
Global Rank	GNR (No Status Rank)
State Rank	S3 (Vulnerable)
Watchlist RSGCN	

Description:

Stout sucker with a small head & long snout. Dark olive-brown in color with black mottling, fading to white on the belly. Spawning males develop a burnt orange lateral stripe & tubercles on entire body.

Distribution & Habitat:

Mountain Sucker are found from the upper Missouri drainage from the Black Hills in SD to western WY, MT, & Alberta. In SD, they are limited to the Cheyenne & Belle Fourche River basins within the Black Hills.

Inhabits cool, moderate-flow water in low-gradient streams with sand, gravel, or cobble substrates.

Threats:

This species is threatened by suppressed fire regimes, nonnative trout species introductions, habitat degradation and loss and pollution from mining, heavy grazing, and forest management practices such as logging. An increase in pollution from nutrient loading from pesticides and herbicides and mining practices has also impacted the species. This species is extremely vulnerable to climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting conservation programs and incentives to landowners to secure the long-term protection of unique & high quality habitats, increasing, and promoting management practices that reduce/limit soil erosion & nutrient/pesticide runoff.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts in the Black Hills

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Seasonal movements & recolonization capabilities

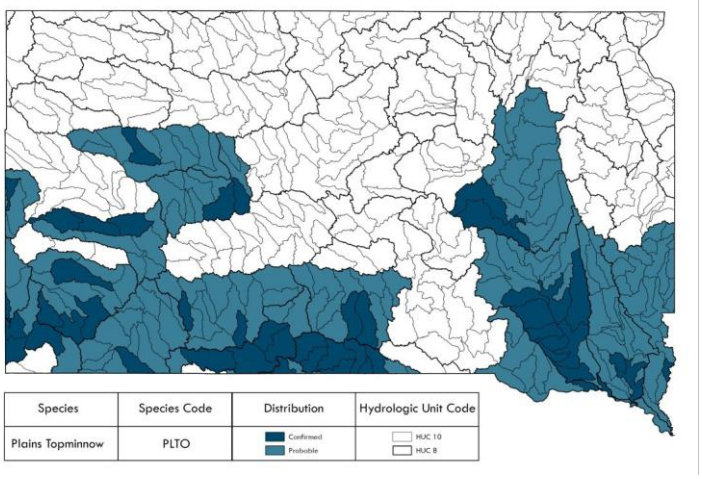
Management
- Explore trap & transfer efforts for reintroduced populations

Conservation Highlights:

Several SWG projects have recently been conducted to look at the distribution and status of Mountain Suckers in the Black Hills (T-63, T-93). Recent projects determined that Mountain Sucker have high-sight fidelity with limited potential for recolonization. However, SDGFP is exploring areas in the Black Hills for trap and transfer/reintroduction efforts from several areas with high densities of Mountain Suckers to serve as source populations.

PLAINS TOPMINNOW - PLTO

(Fundulus sciadicus)



Conservation Profile

TSN #	165666
Global Rank	G4 (Apparently Secure)
State Rank	S4 (Apparently Secure)
RSGCN	

Description:

Small, stout bodied fish, dark olive colored body with prominent gold stripe down the back. Broad and flattened head with upturned mouth. Dorsal and anal fins situated parallel to each other near the rounded tail fin.

Distribution & Habitat:

Plains topminnow occur in the Great Plains and are found in two disjunct populations in the Missouri River basin from MN to OK and west to WY and east to IA. In SD, Plains Topminnow are found in the James, Vermillion, Cheyenne, White, and Niobrara River basins.

Prefer small, clear streams with groundwater input, backwater areas, pools & dugouts with sand, silt or mud substrate with submerged and overhanging vegetation.

Threats:

The species has been affected by habitat degradation and loss. Loss of native grass cover in the prairie has let to habitat degradation and increases in turbidity and pollution resulting in siltation of stream bottoms and loss of aquatic vegetation. Reduction of beaver dams and increases in physical barriers such as dams, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible. Explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring

- Monitoring distribution and status

Research

- Life history characteristics
- Assess population dynamics
- Genetic variation
- Seasonal movements & recolonization capabilities
- Climate vulnerability assessment

Management

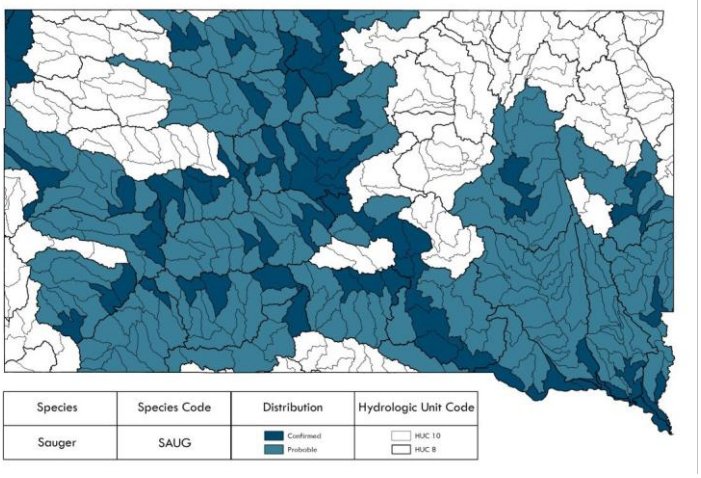
- Explore trap and transfer and stocking programs
- Explore ways to work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

A SWG project was recently conducted to look at the distribution and status of gla- cial relict species in the Sandhills area of SD (T2-8). Thirty-two species were sampled including Plains Topminnow, Northern Pearl Dace, Northern Redbelly Dace, and a single Blacknose Shiner. No Finescale Dace were sampled. SGCN were limited by stream (perennial headwater streams with cool groundwater influence) and habitat (backwater areas and areas created by beaver dams) types.

SAUGER– SAUG

(Sander canadensis)



Conservation Profile

TSN #	650171
Global Rank	G5 (Secure)
State Rank	S5 (Secure)

Description:

A fusiform, slender body with dark gray to brown body and dark spots or saddles. Two part-dorsal fin, front with sharp spines and dark spots, second with soft rays.

Distribution & Habitat:

Sauger are native to the Hudson Bay, Great Lakes and Mississippi River basins from southern Canada south to WY, KS, LA, AL. In SD, sauger are found within the Missouri River (Lake Oahe-101301, Ft. Randall– 1010401, Lewis & Clark-101701) and it's major tributaries including the Cheyenne (101201), White (101402), and Little Missouri (101102) River basins.

Inhabits deep, turbid, main channels of large rivers with sand and silt substrates. Will also inhabit large, shallow lakes.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, alter flows, channelize streams and impact water levels. An increase in pollution from nutrient loading from pesticides and agricultural runoff has also been observed.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting management practices that reduce/limit erosion & nutrient runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, river corridor habitat protection through conservation programs/incentives, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Determine population demographics for reservoir populations
- Identify critical habitats and limiting factors associated with natural recruitment
- Research seasonal movements
- Genetic variation
- Climate change vulnerability assessment

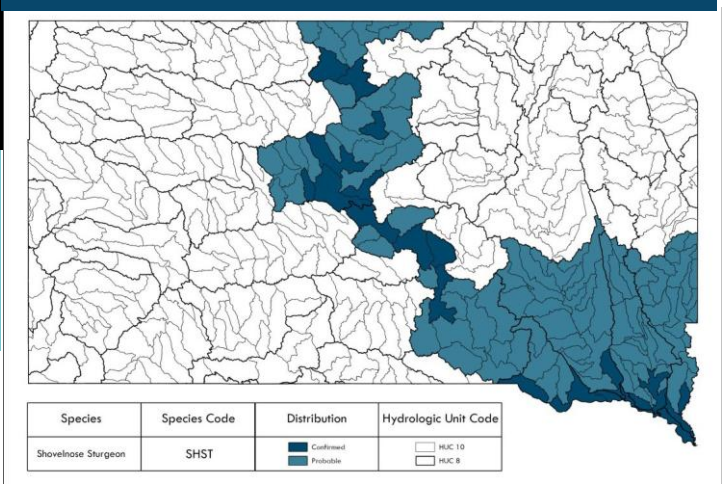
Management
- Augment populations with hatchery-origin fish

SHOVELNOSE STURGEON - SHST *(Scaphirhynchus platorynchus)*

Conservation Profile

TSN #	161082
Global Rank	G4 (Apparently Secure)
State Rank	S3 (Vulnerable)

RSGCN, Federally Threatened



Description:

Large, flat bodied fish, wider towards the bottom, yellowish-brown body with a flattened shovel-shaped snout. Body with bony plates on their top, sides and belly. Bases of chin barbels aligned in a single straight row and similar in length.

Distribution & Habitat:

Shovelnose Sturgeon are native to the Missouri and Mississippi Rivers from MT to LA. In SD, they are found in the Missouri, James and Big Sioux River basins.

Prefers swift currents of large rivers with natural hydrographs and deep channels. Prefer areas with sand, gravel or cobble substrates.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, alter flows, channelize streams and impact water levels. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. This species has historically been threated by overharvest.
South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Develop standardized protocols for monitoring all life history stages
- Identify limited factors associated with natural recruitment
- Seasonal movements

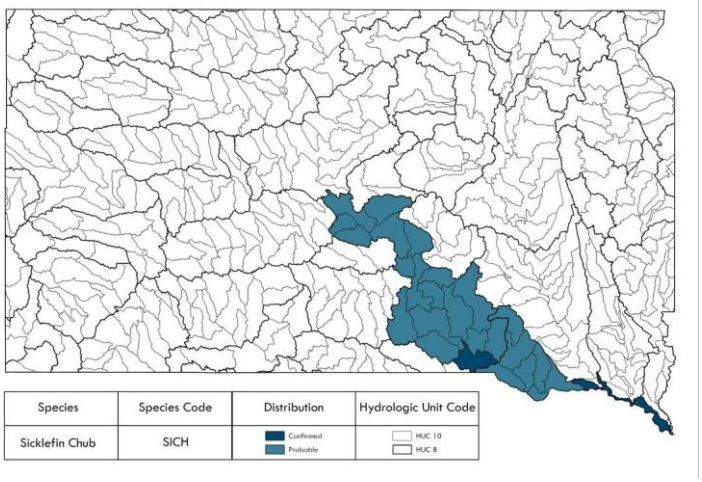
Management
- Continue biannual population sampling with estimates of age, growth, and recruitment performed every 5 years

Conservation Highlights:

A SWG looked at Shovelnose Sturgeon population de- mographics and movement in Lake Sharpe× Crews sampled 1,251 fish be- tween 2017-2019 with 113 recaptures. Fish implanted with transmitters were sampled from the Bad River to DeGray and preferred deeper holes (4.48 m) with little bottom current (1.44 m/s). Lake Sharpe Sturgeon appear older (max age=50) with slower growth than other populations with low annual mortality less than 8%.

SICKLEFIN CHUB - SICH

(Macrhybopsis meeki)



Conservation Profile

TSN #	163868
Global Rank	G3 (Vulnerable)
State Rank	S1 (Critically Imperiled)

RSGCN, State Endangered

Description:

A slender bodied minnow with small eyes and long sickle shaped pectoral fins. Body is yellowish-brown with silvery -white belly and conspicuous barbels at corners of the mouth.

Distribution & Habitat:

Sicklefin Chub range found in the Missouri River from MT to MO and the middle Mississippi River from its confluence with the Ohio River to MO. In SD, they are limited to the Lower Missouri River (Ft. Randall Reservoir & Lewis and Clark Lake). Historic occurrences were once documented from the upper Missouri River near Pierre and from Lake Oahe.

Inhabits main channels of large, turbid rivers with strong currents and sand or fine gravel substrates.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, alter flows, channelize streams and impact water levels. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. This species is moderately vulnerable to climate change.
South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Assess temporal changes in population levels
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Seasonal movements & recolonization capabilities

Management
- Develop a management plan for large river benthic species

Conservation Highlights:

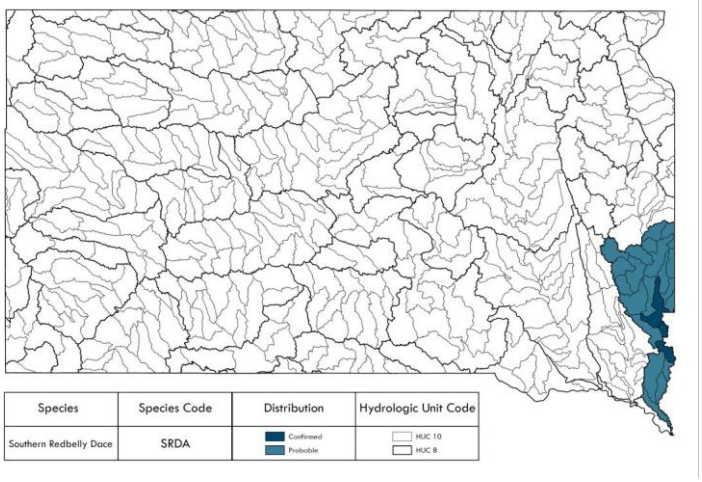
A SWG project was recently conducted looking at the distribution and status of Sturgeon Chub in SD (T-89). Sturgeon Chub were captured in the Cheyenne (n = 81), White (n = 331), and Little White (n = 71) rivers but were absent from the Little Missouri and Grand rivers. Relative abundances of Sturgeon Chub of all life stages were highest in the White River. The USFWS published a not-warranted 12-month finding for Sturgeon Chub in the *Federal Register*, Sept. 20, 2023. The USFWS completed a species status assessment (SSA) report which determined that Sturgeon Chub are not at risk of extinction now or in the foreseeable future & a federal listing is not warranted.

SOUTHERN REDBELLY DACE - SRDA

(Chrosomus erythrogaster)

Conservation Profile

TSN #	163593
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)



Description:

Small bodied minnow with extremely small scales, with olive-green body and two dark stripes on the sides. Pointed snout. Males develop a red band below the bottom dark stripe and yellow fins.

Distribution & Habitat:

Southern redbelly dace range includes the Great Lakes and Mississippi basins, from NY to eastern SD & south to the Kansas, Tennessee & White-Arkansas River basins from AL to NM. In SD, they have been reported from two tributaries of the Big Sioux River in Lincoln County: Little Beaver and Ninemile Creeks.

Inhabit small spring-fed headwaters & slow-flowing pools in streams with cool, clear waters with substrates of gravel, pebble, sand, & small boulders. They also prefer undercut banks and areas with permanent vegetation.

Threats:

This species has been affected by land disturbance and loss of native grass cover in the prairie which has led to habitat degradation and loss, and pollution. Increased turbidity, siltation of stream bottoms, resulting in loss of aquatic vegetation have all been linked to this species decline. Physical barriers such as dams, block upstream migrations, alter flows and water levels, channelize streams which all degrade habitat.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

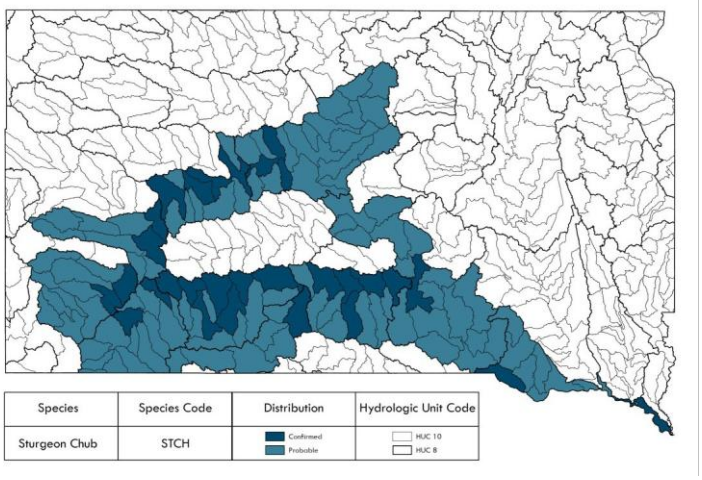
Monitoring
- Determine baseline data & status through monitoring efforts

Research
- Life history characteristics
- Assess population dynamics
- Identify critical habitats & limiting factors
- Seasonal movements & recolonization capabilities

Management
- Explore ways work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

STURGEON CHUB - STCH

(Macrhybopsis gelida)



Conservation Profile

TSN #	163866
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)

RSGCN, State Threatened

Description:

A slender minnow with small eyes, tan to light bronze in color with silvery sides and light belly. brownish blue back with dark specks and light belly. This species mouth is subterminal with conspicuous barbels in the corners of the mouth.

Distribution & Habitat:

Sturgeon Chub range extends from the Missouri River in MT & WY through the lower Mississippi River to LA and the Gulf of Mexico. In SD, they are limited to the lower Missouri, White & Cheyenne River basins. Historic occurrences were once documented from the Missouri River near the Grand River mouth & Little Missouri River.

Inhabits areas with moderate to strong current on large turbid rivers with rocks, gravel, or coarse sand substrates.

Threats:

The species has been affected by habitat degradation and loss. Physical barriers such as dams, which block migrations, alter flows, channelize streams and impact water levels. An increase in pollution from nutrient loading from pesticides and herbicides has also been observed. This species is highly vulnerable to climate change.
South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, and, explore captive breeding and stocking programs.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Assess temporal changes in population levels
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Seasonal movements & recolonization capabilities

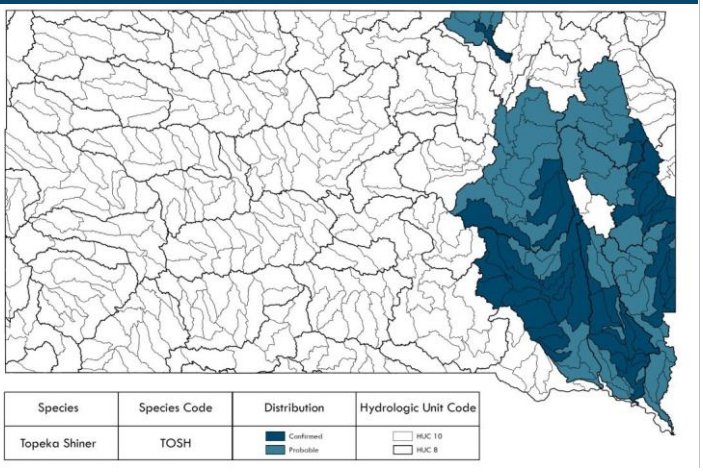
Management
- Develop a management plan for large river benthic species

Conservation Highlights:

A SWG project was recently conducted looking at the distribution and status of Sturgeon Chub in SD (T-89). Sturgeon Chub were captured in the Cheyenne (n = 81), White (n = 331), and Little White (n = 71) rivers but were absent from the Little Missouri and Grand rivers. Relative abundances of Sturgeon Chub of all life stages were highest in the White River. The USFWS published a not-warranted 12-month finding for Sturgeon Chub in the *Federal Register*, Sept. 20, 2023. The USFWS completed a species status assessment (SSA) report which determined that Sturgeon Chub are not at risk of extinction now or in the foreseeable future & a federal listing is not warranted.

TOPEKA SHINER - TOSH

(Notropis topeka)



Conservation Profile

TSN #	163471
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)
RSGCN, Federally Endangered	

Description:

Small, stout bodied minnow. Olive colored back with dark edged scales and dark lateral stripe with a light underside. Tail fin with chevron shaped spot at the base.

Distribution & Habitat:

Topeka Shiner range western tributaries of the Mississippi River basin from central MO, IA, MN, SD, NE & KS . In SD, they are found in tributaries to the Big Sioux, Vermillion & James River basins.

Inhabit small, quiet, & moderately cool creeks, as well as tributaries & headwaters of larger streams in off-channel habitats with submerged vegetation & sand, gravel or cobble substrate. Often found in pools, oxbows, & backwaters areas.

Threats:

This species has been affected by land disturbance and loss of native grass cover in the prairie which has led to habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, block upstream migrations, alter flows, water levels, & channelize streams which all degrade habitat. Agricultural practices and heavy grazing have lead to increased pollution & nutrient loading from pesticides & herbicides. Introduced piscivores have also threatened the species.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible, provide conservation programs/incentives to landowners to secure the long-term protection of unique & high quality Topeka Shiner habitats.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue & expand current monitoring efforts

Research
- Life history characteristics
- Assess population dynamics
- Genetic variation
- Home range
- Seasonal movements & recolonization capabilities

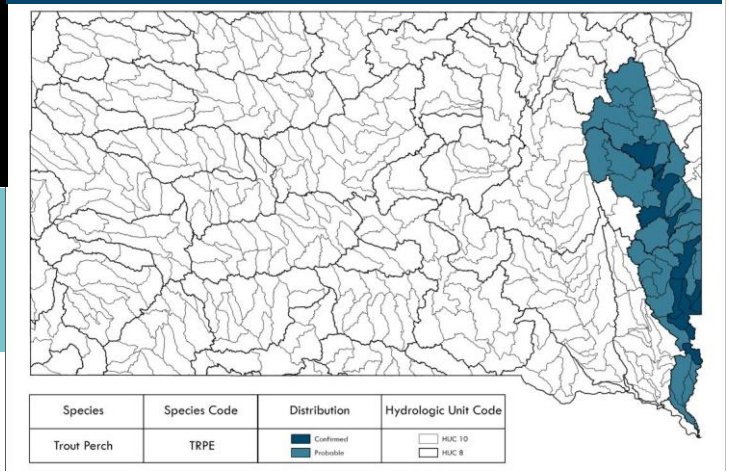
Management
- Restoration of oxbow habitats
- Explore ways to work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

Following the federal listing of Topeka Shiner in 1999, SDGFP has led a state effort to conduct annual monitoring for Topeka Shiner in the three river drainages they are found in. Due to the large number of streams in eastern SD that Topeka Shiner live, it is difficult to sample all streams annually. However, over time Topeka Shiner continue to persist in streams in eastern SD demonstrating resiliency over time. Future sampling efforts will also incorporate eDNA sampling.

TROUT-PERCH - TRPE

(Percopsis omiscomaycus)



Conservation Profile

TSN #	164409
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Small, thick bodied fish with a large scaleless head, adipose fin, and soft spines. Silvery to almost transparent in color with several dark spots above the lateral line from head to tail.

Distribution & Habitat:

Trout-perch range from Alaska through Canada throughout the Atlantic & Artic basins, the Great Lakes, Mississippi basins from western tributaries of the Mississippi River basin from WA to MO to KY. In SD, they are found in tributaries to the Big Sioux, with historical references from the Minnesota River basin.

During the night, they inhabit shallow and intermediate depths of clear to slightly turbid lakes & pools in streams & rivers with slow-to-moderate current over gravel & sand substrates.

Threats:

This species has been affected by land disturbance and loss of native grass cover in the prairie which has led to habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, block upstream migrations, alter flows, water levels, & channelize streams which all degrade habitat. Nutrient loading from pesticides & herbicides. Introduced piscivores have also threatened the species.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increase educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Determine baseline data & status through monitoring efforts

Research
- Assess population dynamics
- Genetic variation
- Seasonal movements & recolonization capabilities

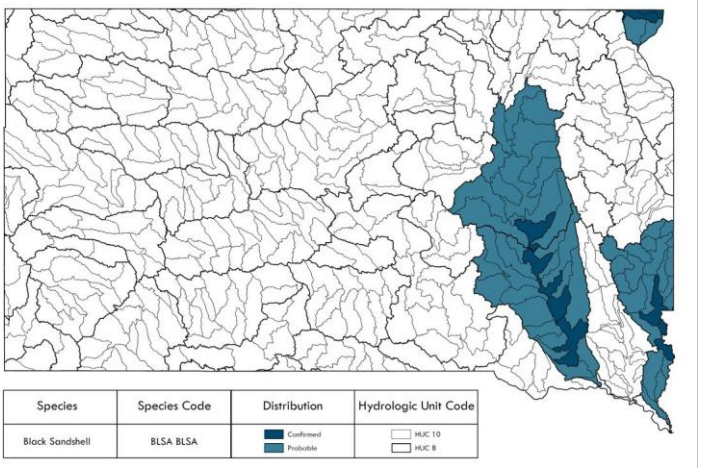
Management
- Explore ways to work with private lands biologists to develop site specific best management practices for landowners to ensure habitat protection.

Conservation Highlights:

Road crossings act as major barriers to the movement of stream fishes. Movement between habitats can be essential for the survival and viability of stream fish populations. A project to survey and identify road stream crossings as barriers to fish is underway. Additionally identified fish migration barriers are being retrofitted with fish ladders to provide access to critical habitat & reestablish connectivity in priority locations.

BLACK SANDSHELL - BLSA

(Ligumia recta)



Conservation Profile

TSN #	80196
Global Rank	G4 (Apparently Secure)
State Rank	S2 (Imperiled)
RSGCN	

Description:

Black sandshell are elongate up to 8 inches with moderately thick valves. Periostracum smooth & shiny, greenish or black, often rayed. Sexually dimorphic, females with more truncate posterior, males pointed posteriorly. Pseudocardinal and lateral teeth well developed, white, purple in color.

Distribution & Habitat:

Black Sandshell occur in southeastern Canada, across the Great Plains, from ND to VT, south to AL & west to OK. In SD, they occur in the James, Big Sioux, & Bois de Sioux River basins.

Inhabit medium or large rivers in soft or coarse substrate with flowing water.

Threats:

The species has been affected by habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. Pollution from agricultural runoff and concentrated animal feedlot operations have led to nutrient loading. Exotic and introduced species have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Life history characteristics
- Identify critical habitats & limiting factors
- Utilize habitat suitability modeling to focus surveys
- Explore the use of eDNA for monitoring & focused surveys

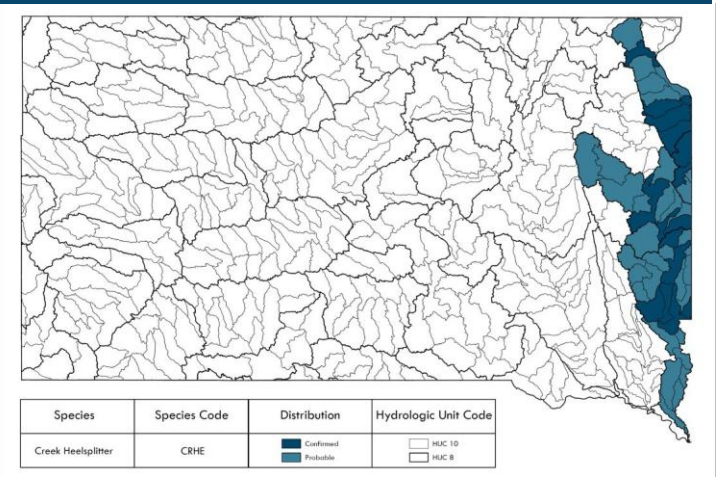
Management
- Explore propagation techniques for native mussels

Conservation Highlights:

A comprehensive statewide mussel survey conducted from 2014-2016, 13 total species were collected, which is a potential 64% decline from the 36 mussels historically sampled in SD. Of the 202 wadeable stream sites surveyed, 91 (45%) showed evidence of unionids and 44 sites had live mussels. Currently an eDNA and habitat suitability study is being conducted for mussels in SD.

CREEK HEELSPLITTER - CRHE

(Lasmigona compressa)



Conservation Profile

TSN #	80138
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
RSGCN	

Description:

Creek Heelsplitter are a small to medium sized mussel under 5 inches. They have a relatively thin, elongate shell with lateral teeth. Outer shell is greenish (young) to greenish-black (adults) sometimes with fine green rays in young mussels. Pseudocardinal teeth present but somewhat reduced, lateral teeth somewhat developed, white sometimes cream or salmon colored.

Distribution & Habitat:

Creek Heelsplitter occur in the Canadian Interior, upper Mississippi, Ohio, St. Lawrence, & Hudson Bay River basins extending from Canada to NE, east to VT, & south to WV. In SD, they occur in the Big Sioux & Minnesota Sioux River basins.

Inhabit headwater streams of small to medium sized rivers with mud or sand substrates.

Threats:

The species has been affected by habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. Pollution from agricultural runoff and concentrated animal feedlot operations have led to nutrient loading. Exotic and introduced species have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Life history characteristics
- Identify critical habitats & limiting factors
- Utilize habitat suitability modeling to focus surveys
- Explore the use of eDNA for monitoring & focused surveys

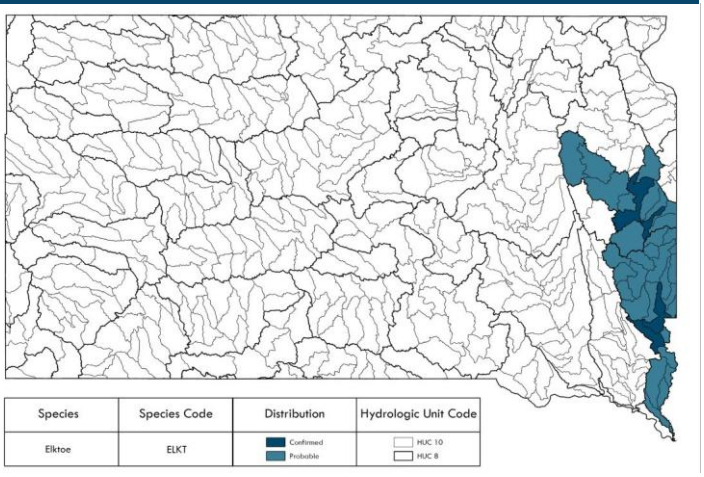
Management
- Explore propagation techniques for native mussels

Conservation Highlights:

A comprehensive statewide mussel survey conducted from 2014-2016, 13 total species were collected, which is a potential 64% decline from the 36 mussels historically sampled in SD. Of the 202 wadeable stream sites surveyed, 91 (45%) showed evidence of unionids and 44 sites had live mussels. Currently an eDNA and habitat suitability study is being conducted for mussels in SD.

ELKTOE - ELKT

(Alasmidonta marginata)



Conservation Profile

TSN #	79918
Global Rank	G4 (Apparently Secure)
State Rank	S1 (Critically Imperiled)
RSGCN	

Description:

Elktoe are a small to medium sized mussel under 5 inches. They are elongate, triangular, inflated & relatively thin, smooth shell. Outer shell is yellowish-green with numerous dark green rays & spots. Sharp angled posterior ridge, poorly developed teeth & heavy beak sculpture.

Distribution & Habitat:

Elktoe occur in the eastern United States, from MN & SD, east to VT and south to AL and AR as well as in Canada. In SD, they are limited to the Big Sioux River basin.

Inhabit small streams to medium rivers with swift current & sand or gravel substrates.

Threats:

This species is threatened by sedimentation, nutrient, & chemical pollution from land conversion activities, including urban development & agriculture. Physical barriers such as dams alter flows create water diversions that change hydrological conditions & prevent habitat connectivity & recolonization. Habitat alteration due to climate change, including increased water temperatures & drought as well as invasive species including the rusty crayfish & zebra mussels also threaten this species.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

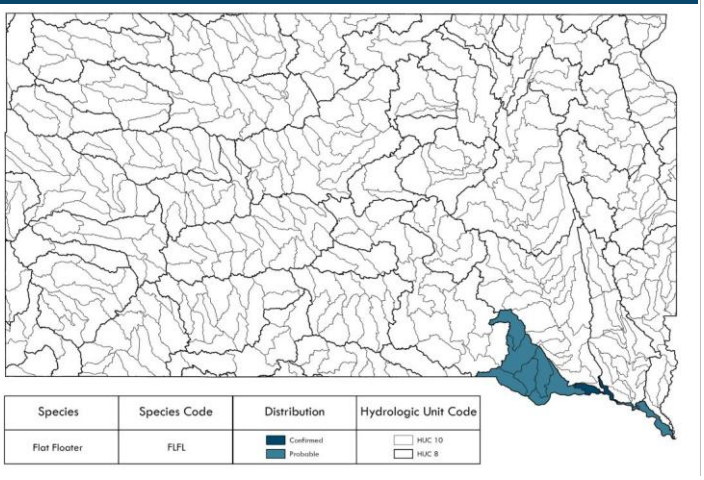
Research
- Life history characteristics
- Identify critical habitats & limiting factors
- Utilize habitat suitability modeling to focus surveys
- Explore the use of eDNA for monitoring & focused surveys

Management
- Explore propagation techniques for native mussels

FLAT FLOATER – FLFL

(Utterbackiana suborbiculata)

© Karen Little



Conservation Profile

TSN #	79945
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)

Description:

Flat Floater rounded, valves thin, compressed under 7 inches. Umbo not raised above hinge line. Outside shell smooth and glossy, yellowish, golden or brown with light green rays sometimes present. Beak sculpture with two rows of irregular or broken ridges resembling double loops. Teeth absent, inside of shell silvery, salmon or orange in color.

Distribution & Habitat:

Flat floater occur in SD & MN east to NY, south to TX and east to AL. In SD, they are limited to the lower James and Missouri River basins.

Inhabit large rivers, backwaters or sloughs with soft substates.

Threats:

The species has been affected by habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. Pollution from agricultural runoff and concentrated animal feedlot operations have led to nutrient loading. Exotic and introduced species have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Life history characteristics
- Identify critical habitats & limiting factors
- Utilize habitat suitability modeling to focus surveys
- Explore the use of eDNA for monitoring & focused surveys

Management
- Explore propagation techniques for native mussels

Conservation Highlights:

A comprehensive statewide mussel survey conducted from 2014-2016, 13 total species were collected, which is a potential 64% decline from the 36 mussels historically sampled in SD. Of the 202 wadeable stream sites surveyed, 91 (45%) showed evidence of unionids and 44 sites had live mussels. Currently an eDNA and habitat suitability study is being conducted for mussels in SD.

HICKORYNUT - HICK

(Obovaria olivaria)

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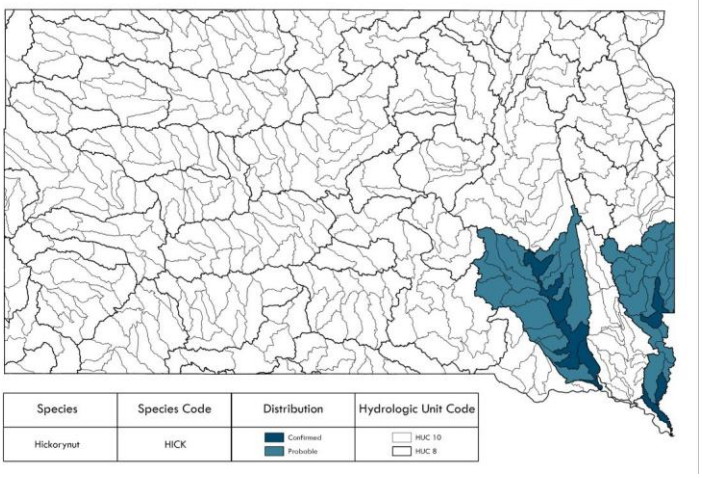

Conservation Profile

TSN #	80173
Global Rank	G4 (Apparently Secure)
State Rank	S1 (Critically Imperiled)

Description:

Hickorynut are small to medium sized, less than 3.5 inches, with a thick, round or oval shell. Outer shell is smooth, greenish, tan or brown, with fin green rays often present. Beak sculpture with a few very fine double looped lines visible only in young. Pseudocardinal and lateral teeth well developed. Inside of the shell is white, with a shallow beak.

Distribution & Habitat:

Hickorynut occur eastern Canada & SD to KS east to NY, south to LA and east to AL. In SD, they are limited to the lower James and Big Sioux River basins.

Inhabit large to medium sized rivers with strong current with sand & gravel substrates. Typically found in water 6-8 feet deep.

Threats:

The species has been affected by habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. Pollution from agricultural runoff and concentrated animal feedlot operations have led to nutrient loading. Exotic and introduced species including zebra mussels have also impacted native freshwater mussels. This species has one known host fish, Lake Sturgeon, which also has documented declines.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Life history characteristics
- Identify critical habitats & limiting factors
- Utilize habitat suitability modeling to focus surveys
- Explore the use of eDNA for monitoring & focused surveys

Management
- Explore propagation techniques for native mussels

Conservation Highlights:

A comprehensive statewide mussel survey conducted from 2014-2016, 13 total species were collected, which is a potential 64% decline from the 36 mussels historically sampled in SD. Of the 202 wadeable stream sites surveyed, 91 (45%) showed evidence of unionids and 44 sites had live mussels. Currently an eDNA and habitat suitability study is being conducted for mussels in SD.

HIGGINS EYE - HIEY

(Lampsillis higginsii)

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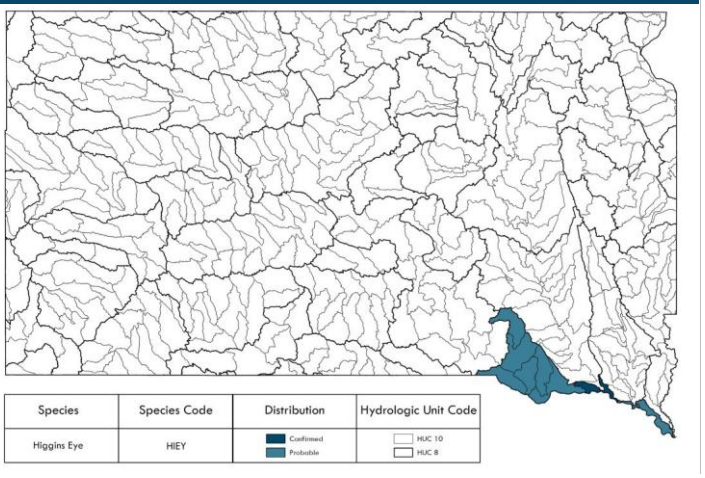


Conservation Profile

TSN #	80018
Global Rank	G1 (Critically Imperiled)
State Rank	S1 (Critically Imperiled)

Federally Endangered, RSGCN

Description:

Higgins Eye are small to medium sized, less than 6 inches, with a slightly elongate, thick, inflated shell. Outer shell is smooth, yellowish-brown color with green rays often present. Beak sculpture with a few very fine double looped lines visible only in young. Pseudocardinal and lateral teeth well developed. Inside of the shell is white, sometimes pink or salmon. Males with bluntly pointed posterior end.

Distribution & Habitat:

Higgins Eye occur within the Mississippi River drainage from MN, WI, IL, SD, IA, & MO. In SD, they are limited to the lower Missouri River basin.

Inhabit medium to large rivers with stable sand or mud substrates & moderate currents. Usually found in deep water where they bury themselves, being only partially exposed.

Threats:

The species has been affected by habitat degradation, loss, & invasive species. Impounded river systems have altered the water flow patterns, substrate characteristics & host fish habitat. Municipal, industrial and agricultural run-off degrade water quality. Exotic and introduced species including zebra mussels have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Life history characteristics
- Identify critical habitats & limiting factors
- Utilize habitat suitability modeling to focus surveys
- Explore the use of eDNA for monitoring & focused surveys

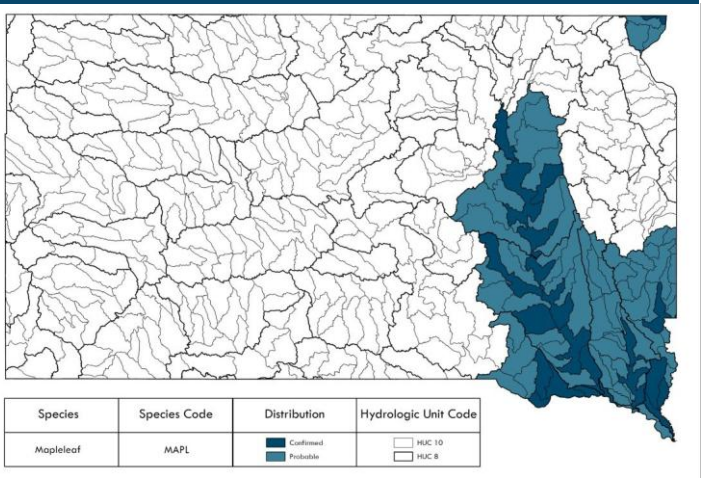
Management
- Explore propagation techniques for native mussels

Conservation Highlights:

A comprehensive statewide mussel survey conducted from 2014-2016, 13 total species were collected, which is a potential 64% decline from the 36 mussels historically sampled in SD. Of the 202 wadeable stream sites surveyed, 91 (45%) showed evidence of unionids and 44 sites had live mussels. Currently an eDNA and habitat suitability study is being conducted for mussels in SD.

MAPLELEAF - MAPL

(Quadrula quadrula)



Conservation Profile

TSN #	80074
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Mapleleaf are squarish up to 4 inches with moderately thick valves. Outer shell is yellowish-green to brown with two rows of raised bumps extending in a V-shape from the beak to ventral margin, often with faint green rays. Pseudocardinal and lateral teeth well developed, inside of shell is white.

Distribution & Habitat:

Mapleleaf occur throughout the Ohio-Mississippi River, Red River & Great Lakes basins from MT to PA, south to AL & west to TX, as well as in Canada. In SD, they occur in the James, Vermillion, Big Sioux, & Bois de Sioux River basins.

Inhabit shallow lakes, large rivers or deep reservoirs with mud, sand or fine gravel substrates.

Threats:

The species has been affected by habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. Pollution from agricultural runoff and concentrated animal feedlot operations have led to nutrient loading. Exotic and introduced species, including zebra mussels have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
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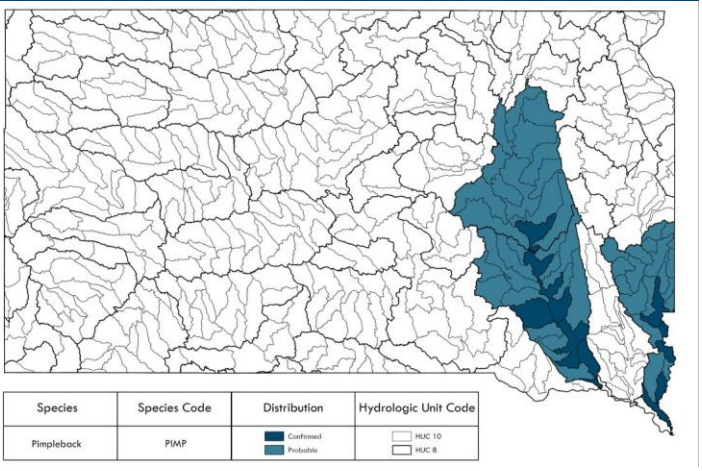
Management
- Explore propagation techniques for native mussels

PIMPLEBACK - PIMP

(Cyclonaias pustulosa)



Conservation Profile

TSN #	80063
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Pimpleback are small to medium sized mussels up to 3.5 inches with thick, rounded & compressed to moderately inflated shells. Outer shell is smooth on the anterior half & covered with bumps on the other half to 2/3. Yellowish-green to light brown in younger mussels & chestnut to dark brown in older mussels. Pseudocardinal and lateral teeth well developed, inside of shell is white.

Distribution & Habitat:

Pimpleback occur in the Great Lakes & are widespread throughout the Mississippi Basin from southern MN to LA from western NW west to SD. In SD, they occur in the James & Big Sioux River basins.

Inhabit medium to large rivers or deep reservoirs with mud, sand or gravel substrates.

Threats:

The species has been affected by habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. Pollution from agricultural runoff and concentrated animal feedlot operations have led to nutrient loading. Exotic and introduced species, including zebra mussels have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

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South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Monitoring
- Continue monitoring efforts

Research
- Life history characteristics
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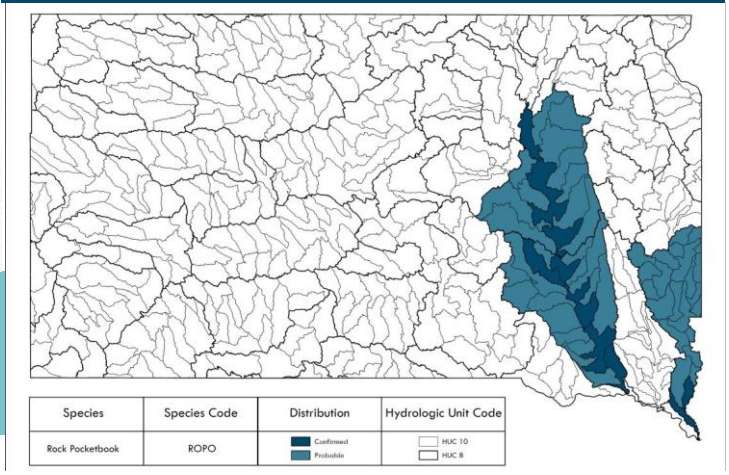
Management
- Explore propagation techniques for native mussels

ROCK POCKETBOOK - ROPO

(Arcidens confragosus)

Conservation Profile

TSN #	80239
Global Rank	G4 (Apparently Secure)
State Rank	S1 (Critically Imperiled)



Description:

Rock Pocketbook are medium to large sized mussels up to 6 inches with thick, inflated & elongate shells. Outer shell is smooth, extremely shiny in young mussels becoming dull with age. Yellowish in color and lacking rays. Pseudocardinal and lateral teeth well developed, inside of shell is white, sometimes salmon colored near the beak cavity.

Distribution & Habitat:

Rock Pocketbook occur from WI, MN, SD, south through IA, & KS to the Gulf states, TX, LA, east to AL, TN, KY & IN & OK. It is apparently extirpated from OH. In SD, they occur in the James & Big Sioux River basins.

Inhabit medium to large rivers with standing or slow flowing water with mud or sand substrates.

Threats:

The species has been affected by habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. Pollution from agricultural runoff and concentrated animal feedlot operations have led to nutrient loading. Exotic and introduced species, including zebra mussels have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
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Monitoring
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Research
- Life history characteristics
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Management
- Explore propagation techniques for native mussels

Conservation Highlights:

A comprehensive statewide mussel survey conducted from 2014-2016, 13 total species were collected, which is a potential 64% decline from the 36 mussels historically sampled in SD. Of the 202 wadeable stream sites surveyed, 91 (45%) showed evidence of unionids and 44 sites had live mussels. Currently an eDNA and habitat suitability study is being conducted for mussels in SD.

SCALESHELL - SCAL

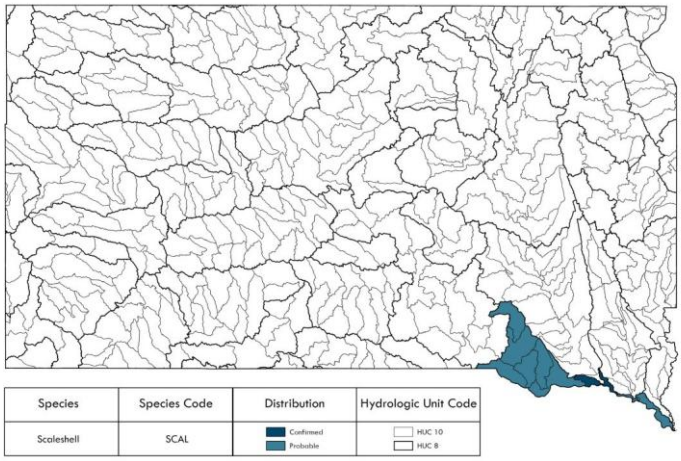
(Potamilus leptodon)

© Chris Barnhart

Conservation Profile

TSN #	80185
Global Rank	G1 (Critically Imperiled)
State Rank	S1 (Critically Imperiled)

Federally Endangered, RSGCN



Description:

Scaleshell are small to medium sized, less than 6 inches, with a slightly elongate, thin shell. Outer shell is shiny & smooth, yellowish-brown color with green rays often present. Beak sculpture has 4-5 double looped ridges that are sometimes eroded. Pseudocardinal and lateral teeth well developed. Inside of the shell is white, sometimes salmon near the beak cavity.

Distribution & Habitat:

Scaleshell occur in SD, NE, OK, AR, MO, & IL. In SD, they are limited to the lower Missouri River basin.

Inhabit medium to large rivers with clear, fast moving water with gran or sand substrates. Typically found in riffles or fast flowing currents.

Threats:

The species has been affected by habitat degradation, loss, & invasive species. Impounded river systems have altered the water flow patterns, substrate characteristics & host fish habitat. Municipal, industrial and agricultural run-off degrade water quality. Exotic and introduced species including zebra mussels have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
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- Explore propagation techniques for native mussels

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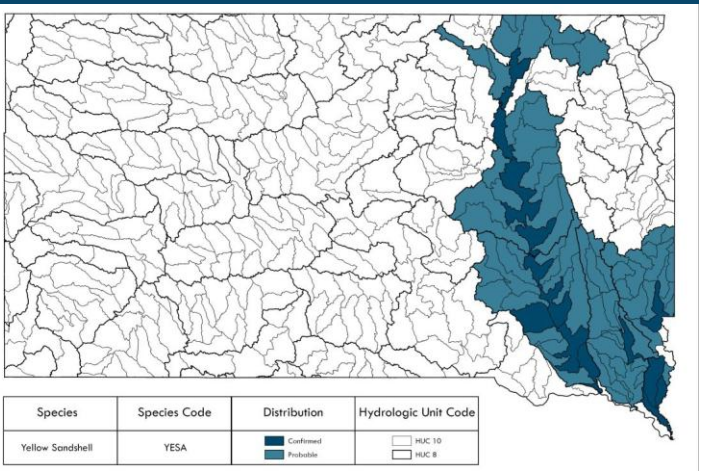
YELLOW SANDSHELL - YESA

(Quadrula pustulosa)



Conservation Profile

TSN #	80006
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
RSGCN	

Description:

Yellow Sandshell are medium sized mussels up to 6 inches with thick, inflated & elongate shells. Outer shell is smooth, extremely shiny in young mussels becoming dull with age. Yellowish in color and lacking rays. Pseudocardinal and lateral teeth well developed, inside of shell is white, sometimes salmon colored near the beak cavity.

Distribution & Habitat:

Yellow Sandshell occur throughout the Mississippi River basin from SD to WV, south to GA & FL, & west to TX. In SD, they occur in the James, Vermillion & Big Sioux River basins.

Inhabit medium to large rivers with low to medium flow & mud or sand substrates.

Threats:

The species has been affected by habitat degradation, habitat loss, & pollution. Physical barriers such as dams & drop culverts, which block upstream migrations, alter flows and water levels, channelize streams all degrade habitat. Pollution from agricultural runoff and concentrated animal feedlot operations have led to nutrient loading. Exotic and introduced species, including zebra mussels have also impacted native freshwater mussels.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on increasing partnerships & cooperative arrangements, increasing educational efforts, promoting best management practices that reduce/limit soil erosion & nutrient/pesticide runoff, promoting habitat improvement projects that maintain/restore natural hydrology & stream connectivity when possible.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

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- Life history characteristics
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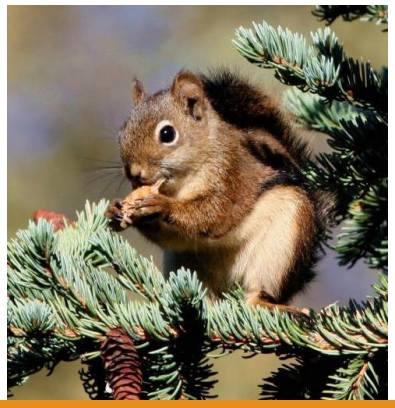
- Explore propagation techniques for native mussels

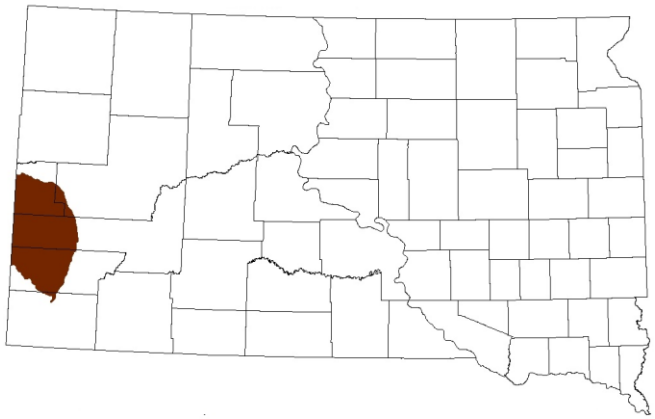
Conservation Highlights:

A comprehensive statewide mussel survey conducted from 2014-2016, 13 total species were collected, which is a potential 64% decline from the 36 mussels historically sampled in SD. Of the 202 wadeable stream sites surveyed, 91 (45%) showed evidence of unionids and 44 sites had live mussels. Currently an eDNA and habitat suitability study is being conducted for mussels in SD.

BLACK HILLS RED SQUIRREL

(*Tamasciurus hudsonicus dakotensis*) **BHSQ**





Year-round distribution

Conservation Profile

TSN	930554
Global Rank	G5TNR (Species Secure, Subspecies Not Ranked)
State Rank	SNR (State Not Ranked)

Description:

Reddish brown with white to buffy underparts, white eye rings, ear tufts, and dark fluffy tail that is 4-6" (10-15 cm) long. Body length 7-8" (18-20 cm).

Distribution & Habitat:

Species is widely distributed in boreal and coniferous forests of North America as far south as Arizona and New Mexico in the West and Appalachians in the Southeast. Forest types include coniferous, mixed deciduous-coniferous, or deciduous.

Subspecies is found in the Black Hills of SD and WY and the Bear Lodge Mountains in WY. It prefers coniferous forests in later seral stages and dens in large, old snags.

Conservation Threats:

- Impacted by timber harvest and mountain pine beetles

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Listed as a state SGCN as a regionally or globally secure subspecies for which South Dakota represents an important portion of the range

- Provide native ecosystem diversity with historical disturbance regimes

Monitoring

- Monitor long-term population trends

Research

- Evaluate effects of timber harvest and mountain pine beetles to population dynamics and movements

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Donna A. Dewhurst, USFWS

Conservation Highlights: Winter strategies

Wildlife species have varying strategies to survive winter weather in northern states. Red squirrels do not hibernate. Rather than collecting and burying single acorns as fox and gray squirrels do, red squirrels gather unripened conifer seed cones and cache them in a midden. Middens can become large enough that their cool, moist microclimate helps stored cones remain viable for several years. Red squirrels will tunnel through deep snow to reach these stored food caches.

BLACK-FOOTED FERRET BFFE

(Mustela nigripes)

Conservation Profile:

TSN	180557
Global Rank	G1 (Critically Imperiled)
State Rank	S1 (Critically Imperiled)

Federal Endangered (FE); State Endangered (SE)

Description:

This weasel species is 20-24" (51-61 cm) long, including the tail. Identifying features include a black mask, black legs and feet, a black tip on the tail, and buff-colored fur on the rest of its body.

Distribution & Habitat:

Formerly ranged in central North America in association with burrowing rodents. Prairie dogs are its main prey. Their burrow systems provide ferrets with denning habitat and escape cover.

Elimination of prairie dogs with settlement reduced ferret populations nearly to extinction. Captive rearing and reintroductions saved the species, although its future remains precarious.

Conservation Threats:

- Prairie dog control and reduction in colony acreage where prairie dogs are tolerated
- Diseases, such as canine distemper and sylvatic plague. Plague can impact prairie dogs and ferrets.
- Predation by coyotes and badgers

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

South Dakota reintroduction sites

Map source: https://www.fws.gov/species/black-footed-ferret-mustela-nigripes

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Continue documenting and sharing information about diversity and benefits of the prairie dog ecosystem

Monitoring

- Fall population monitoring critical to evaluate annual production at occupied sites

Management

- Rarity of species makes intensive management necessary to maintain populations at critical reintroduction sites, such as Conata Basin/Badlands in South Dakota

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Ryan Hagerty, USFWS

Conservation Highlights: South Dakota connections

Captive rearing and preconditioning of black-footed ferrets for release into the wild were important steps in the complex recovery of this species. The success of reintroduction at the Conata Basin/Badlands site in southwestern South Dakota has allowed sharing of wild-born animals to other experimental sites in North America. Reintroduction in the Conata Basin spanned several years during the late 1990s, with 2008 bringing a new challenge – the discovery of sylvatic plague in the area. This disease impacts both prairie dogs and ferrets. Subsequent research on vaccines for ferrets and methods to reduce plague spread and impact on prairie dog towns allowed the ferrets to survive, but at lower numbers. The black-footed ferret example shows the value of partner cooperation and long-term commitment, but also the challenge of recovery once a species has declined to near extinction. Wildlife Action Plans prioritize preventive actions.

Conservation Profile

TSN 180016

Global Rank

G3 (Vulnerable)

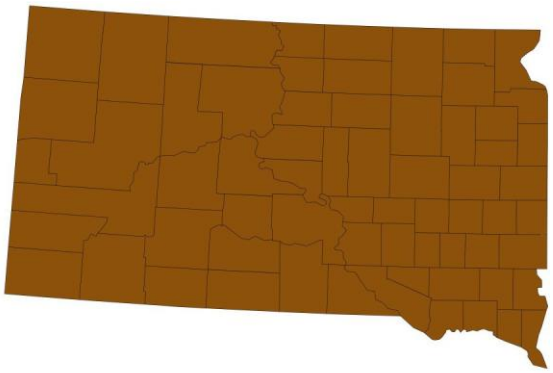
State Rank

S3 (Vulnerable)

RSGCN

EASTERN RED BAT ERBA

(*Lasiurus borealis*)



Breeding and migration

Description:

Reddish fur with whitish patch on each shoulder. Hair is tipped with gray or white, giving a frosted appearance. Short ears with rounded tips. Total length 3.75-4.5" (9.5-11.5 cm). Average forearm length is 40 mm.

Distribution & Habitat:

Ranges in eastern and central U.S., southern Canada, and northeastern Mexico. Uses intact and managed forests and urban areas with large trees.

This solitary, tree-roosting bat potentially occurs throughout the state in suitable habitats during breeding and migration seasons. It does not overwinter in South Dakota.

Conservation Threats:

- Mortality from wind turbines. The eastern red bat and northern hoary bat are believed to be the bat species most commonly killed by wind turbines. As use of this energy source continues to increase in North America, the impact of these losses is likely to increase in severity.
- Because this species is solitary and not cave-dependent, WNS is not considered a threat

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide a variety of riparian woodland and forests for this and other species dependent on those habitats
- Determine and implement methods to avoid or lessen mortalities from wind turbines

Monitoring:

- Participate in NABat

Research

- Investigate how wind energy, pesticide use, and forest management practices in the Black Hills affect populations

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

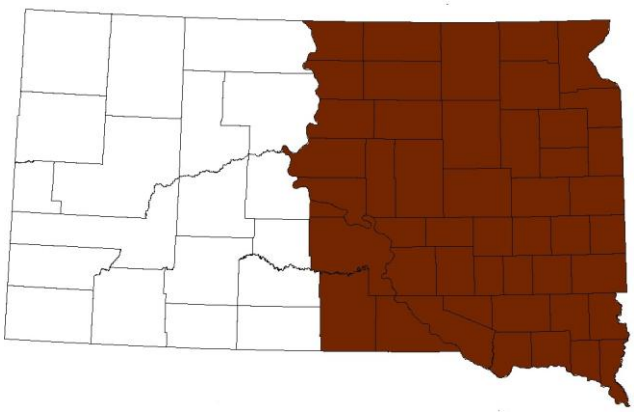
Image Anita Gould, USGS, public domain

Conservation Highlights: North American Bat Monitoring Program (NABat)

Among the challenges of monitoring wildlife is the importance of a well-designed data collection system that can be repeated and conducted in many places to allow comparison of data throughout all or portions of a species' range. NABat is a monitoring program to guide collection of data on bats at multiple scales to use this information for conservation planning and species management and recovery. Monitoring data may be collected at winter hibernacula, maternity colonies, along mobile acoustic survey transects, and at stationary acoustic survey stations.

FRANKLIN'S GROUND SQUIRREL

(Poliocitellus franklinii) **FGSQ**



Year-round distribution

Conservation Profile

TSN	930309
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
RSGCN	

Description:

Nicknamed the gray gopher. Gray head and grayish-brown back with speckled appearance. A 5-6" (13-15 cm) tail is bordered with white. Length including tail is 14 -16" (36-41 cm).

Distribution & Habitat:

Found in prairies of northcentral U.S. and southcentral Canada, ranging southeastward to portions of the Midwest, where it has experienced population declines.

This burrowing rodent inhabits dense grass cover of tallgrass or mixed-grass prairies of eastern South Dakota. More solitary and secretive than many ground squirrel species.

Conservation Threats:

- Conversion of prairies for cropland
- Poisoning of colonies to reduce impacts to agriculture and other land uses

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Generally not considered rare in the state, although detailed studies would improve understanding of this species' status. Included as a state SGCN because it represents wildlife species dependent on prairie habitats that are declining in quality and quantity

Monitoring

- Difficult to monitor because of its secretive nature. Long-term monitoring needed.

Research

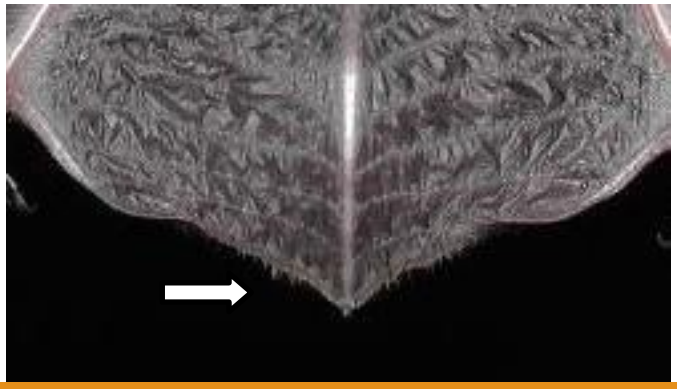
- Investigate populations within the state where species is abundant to learn about habitat characteristics and other features that may be relevant in areas where it is no longer found

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Illinois Department of Natural Resources

Conservation Highlights:

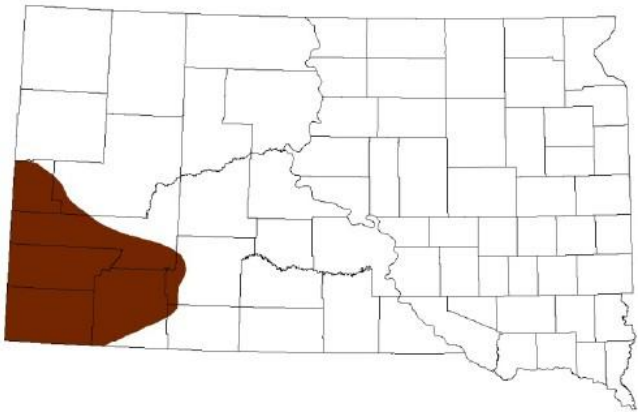
SWG project T-53 investigated the status and distribution of Franklin's and Richardson's ground squirrels in eastern South Dakota by surveying along transects through various habitat types. Frank- lin's ground squirrels were detected in tame grasses (72%), reseeded native grassland (21%), remnant na- tive grassland (6%) and forbs (1%).



FRINGED MYOTIS FRMY

(Myotis thysanodes pahasapensis)

aka Fringe-tailed Myotis



Year-round distribution

Conservation Profile

TSN	948622
Global Rank	G4T3 (Species Secure, Subspecies Vulnerable)
State Rank	S3 (Vulnerable); RSGCN

Description:

A medium-sized bat (average forearm length 41 mm) with darker fur on back than on belly. Dark wing and tail membranes. Blackish-brown ears are smaller and shorter than those of the long-eared myotis. Named for the fringe hairs along the border of the tail membrane.

Distribution & Habitat:

Species has a patchy distribution in a variety of habitats in western U.S. and less commonly in western Canada.

Subspecies limited to the Black Hills of SD and WY and panhandle of western NE. Roosts in caves, mines, and abandoned buildings. Hibernates in groups within caves or mines.

Conservation Threats:

- Loss of roosts, both natural (trees) and human-made (buildings and bridges)
- Disturbance at maternity roosts from recreational cavers and due to mine exploration
- Lack of protection of caves; closures of abandoned mines without evaluation of bat use
- Timber harvest that removes snags used as roost sites

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Protect known roost sites
- Investigate bat use of abandoned mines before closure; install bat-friendly, vandal-resistant gates at important sites; manage habitat around protected sites to maintain access and microclimate
- Engage with recreational cavers to foster stewardship of cave resources and discourage visits to caves used by bats

Monitoring:

- Locate and protect maternity site locations
- Develop survey protocols to determine long-term population trends
- Conduct hibernation surveys using experienced personnel and following protocols that cause the least amount of disturbance possible; conduct biennial rather than annual surveys

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image cropped from USGS photo

Conservation Highlights: Bat Gates

The cave in this image is on the BHNF. Many bat species living in the Black Hills use caves and abandoned mines as maternity and hibernation sites. Bats need protection from disturbance during these critical periods. A bat gate allows bat access without altering the movement of air and other aspects of the microclimate. Such gates have been used in many areas to protect these sensitive sites and discourage intentional or accidental disturbance.

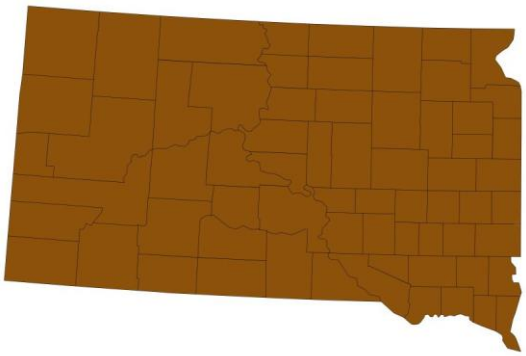
Image by Brad Phillips, BHNF

LITTLE BROWN MYOTIS LBMY

(*Myotis lucifugus*) aka Little Brown Bat

Conservation Profile

TSN	179988
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)
RSGCN	



Year-round distribution

Description:

Glossy brown fur on the back becomes paler on the belly. This bat is 3-3.75" (7.6-9.5 cm) long. Average forearm length is 37.5 mm. Ears are round and without fur.

Distribution & Habitat:

Widespread distribution in forested areas of North America. Reduced in the Northeast and Midwest from White-nose Syndrome (WNS). Uses a variety of habitats with adequate areas for nursery colonies, male roosting groups, and hibernation.

Occurs throughout most of South Dakota. This species has large maternity and wintering colonies, making it susceptible to WNS.

Conservation Threats:

- WNS
- Climate change impacts (drought) on insect prey and extreme temperatures that intensify colony mortality
- Injuries and mortalities from wind turbines, including direct strikes and barotrauma, an injury to ears or lungs due to air pressure changes
- Destruction of colonies within buildings

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Use of human structures makes it important to help the public deal with occupied spaces. Provide information on options for humane exclusion of bats. Promote maintenance of maternity colonies in structures with minimal human disease risks.
- Continue sharing information about association of bats with rabies and promote proper handling precautions and follow up measures if any possibility of rabies exposure to people. Encourage regular rabies vaccinations for pets.

Monitoring:

- Develop and implement monitoring programs

Management

- Protect known maternity and hibernation roosts from destruction and disturbance

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image NPS/Erickson Smith

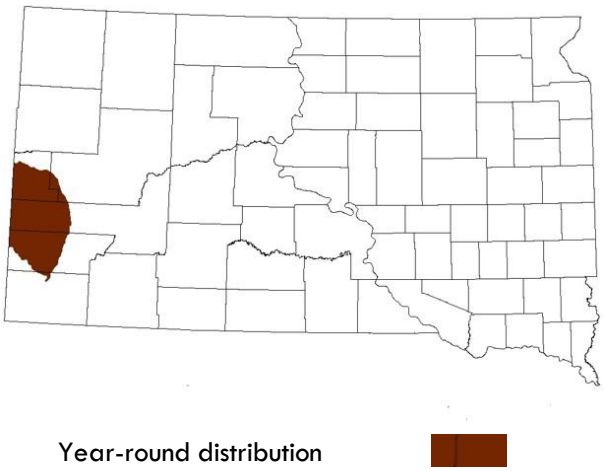
Conservation Highlights: WNS

This little brown bat shows evidence of WNS, a fungal disease from Eurasia that has decimated North American bats. First observed in New York State in 2006, WNS has caused 90% population declines in some populations of 3 species, in particular—little brown bat, northern myotis, and tricolored bat. This cold-loving fungus impacts hibernating bats when they have reduced metabolic rates and lowered body temperatures. Strongly-impacted species are now listed or likely to be by the US Fish and Wildlife Service under the ESA.

Image NPS/von Linden

LONG-EARED MYOTIS LEMY

(*Myotis evotis*)



Year-round distribution

Conservation Profile

TSN	179995
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)

Description:

A medium-sized bat (average forearm length 38 mm) with longer ears than those of the northern myotis. Brown fur contrasts with black ears and wing membranes.

Distribution & Habitat:

Occupies portions of western North America, with SD forming part of eastern edge of range.

Occupies a variety of habitats in the Black Hills, but most often forested areas. May use buildings as nursery roosts. Some historical records from SD misidentified as fringed myotis. Believed to hibernate in caves and mine crevices.

Conservation Threats:

- No serious rangewide threats known. Locally vulnerable to closing of abandoned mines without bat use evaluation, disturbance from cavers, and activities that impact cliff faces or rock outcrops.
- WNS documented, but minor popu- lation impacts to date.
- Documented losses to wind turbine strikes. Impact could increase as use of this energy source expands.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Little is known about hibernation sites. In some parts of its range, biologists speculate the species is migratory, moving relatively short distances between summer and winter areas.

Monitoring

- More information needed about hibernation site habitats and important concentration areas
- Conduct hibernation surveys using experienced personnel and following protocols that cause the least amount of disturbance possible; conduct biennial rather than annual surveys

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Alaska Department of Fish and Game

Conservation Highlights: Foraging Strategies

We often hear about the unbelievable quantity of mosquitoes eaten by single bats each night. The long-eared myotis mainly preys on moths and beetles. The bat uses low-frequency echolocation calls that are undetected by its desired prey. This bat can also detect prey on an object, such as a leaf. Two foraging techniques are called aerial hawking and substrate gleaning. The long-eared myotis may forage throughout the night, potentially hunting during various pulses of insect activity. It will adjust its foraging height above the ground, depending on temperature (*Buseck and Keinath. 2004*).

Conservation Profile

TSN 179990

Global Rank G4

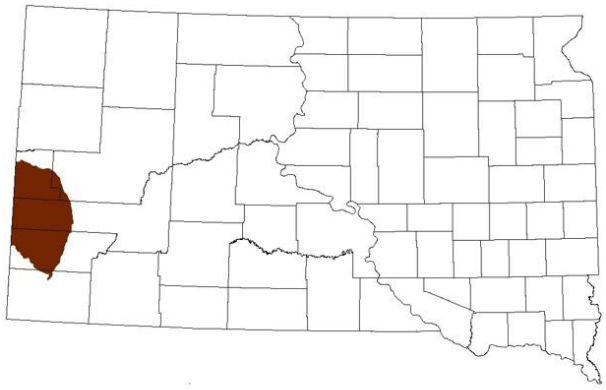
(Apparently Secure)

State Rank S4

(Apparently Secure)

LONG-LEGGED MYOTIS LLMY

(Myotis volans)



Year-round distribution

Description:

Medium-sized bat (forearm length 38 mm). Similar in appearance to little brown myotis, but with more dense furring from elbow to knee on underside of wing membrane. Nicknamed hairy-winged myotis.

Distribution & Habitat:

Distributed widely in western North America. A common *Myotis* species in the region.

Occurs in the Black Hills in a variety of forest habitats. Roosts in snags, rock crevices, and abandoned buildings and mines. Hibernates in clusters, often in cracks and crevices of caves and abandoned mines.

Conservation Threats:

- Serious rangewide threats unknown. Localized threats include closure of abandoned mines without evaluation of bat use, human disturbance, and forest practices that reduce foraging habitats or remove snags needed for roosting.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Monitoring:

- Participate in NABat
- Conduct hibernation surveys using experienced personnel and following protocols that cause the least amount of disturbance possible; conduct biennial rather than annual surveys

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image of bat in mist net by Paul Cryan, USGS, public domain (above)

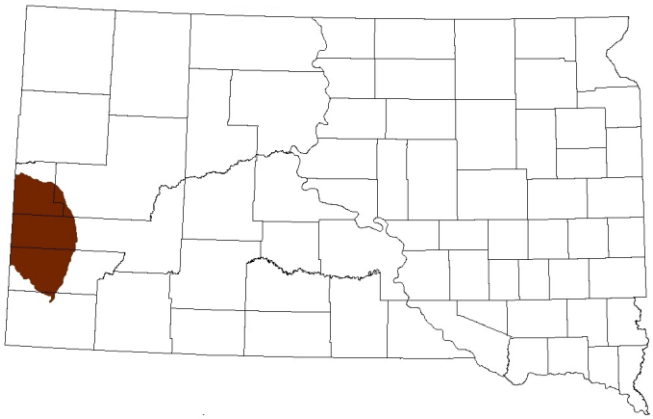
Image of banded hibernating little brown myotis, public domain (left)

Conservation Highlights: Bat Banding Purposes

The long-legged myotis pictured at the top of the page was captured by a USGS biologist in a mist net. Mist nets are also used to capture and band birds for research and monitoring. Mist net placement and use require extensive experience and a strong commitment to use this technique as safely responsibly as possible. Unlike most birds, bats are banded on the forearm (see image directly above). All wildlife techniques have pros and cons. Researchers must objectively evaluate the value gained from a technique compared to the impact to individual animals.

NORTHERN FLYING SQUIRREL

(Glaucomys sabrinus) **NFSQ**



Year-round distribution

Conservation Profile

TSN	180169
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)

Description:

This gliding squirrel has loose skin folds (gliding membranes) from the outside of its wrist to the ankle. Large ears and eyes are adaptations to its mostly nocturnal habits. Total length, including its long flattened tail, is 10-12" (25-30 cm).

Distribution & Habitat:

Widely distributed in much of Canada and western U.S., ranging eastward through portions of the NGPs, Great Lakes, and southern Appalachians.

The Black Hills population in SD and WY is disjunct, meaning it is separate from the species' main range. Prefers coniferous forests of spruce, fir, or pine or forests with a coniferous-deciduous mixture. Dens in cavities of mature trees.

Conservation Threats:

- Threats to this species in South Dakota are unknown

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Monitoring
- Monitor long-term population trends

Research
- Investigate use of spruce-dominated and bur oak habitats to determine importance to this species in the Black Hills

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Larry Master, USFWS

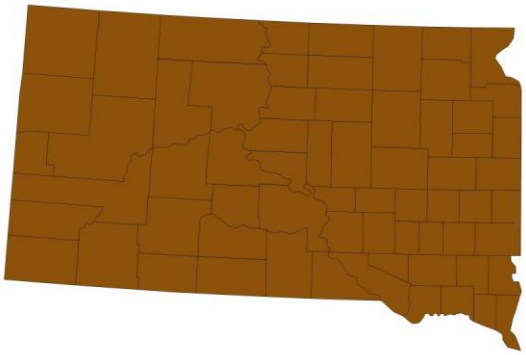
Conservation Highlights:

SWG project T-14 investigated the natural history and genetics of this population in the Black Hills and northeastern South Dakota. Study highlights for habitat selection in the Black Hills:

- 59 squirrels were radio-collared and monitored
- Ponderosa pine habitats were the only habitat type used more than available
- Squirrels selected larger trees and more canopy cover, more live trees greater than 12.7 dbh, higher basal area of live trees, and fewer snags

NORTHERN HOARY BAT

(*Lasiurus cinereus*) **NHBA**



Breeding or migration areas

Conservation Profile

TSN	180017
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)
RSGCN	

Description:

A large, colorful bat (average forearm length 53 mm). Fur is a mixture of yellow, brown, and black with frosted white tips. Short, round ears are outlined in black. Largest bat in the Black Hills. Solitary during much of the year.

Distribution & Habitat:

A widely distributed North American tree-roosting bat. Will use natural and managed forests and urban areas with large trees.

Uses both deciduous and coniferous forests in SD. Breeds in the Black Hills, but can occur elsewhere during migration. Often roosts alone in trees, hanging by its feet in a well concealed area 10-15' above the ground.

Conservation Threats:

- Mortality at wind energy facilities during migration; impact is more serious because of low reproductive rate (female typically bears only 2 pups per season). Unknown if losses can be sustained long term.
- Not impacted by WNS due to solitary habits and tree-roosting habitats, although species has a high incidence of rabies

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Work with wind energy companies and regulators to mitigate losses to wind turbines. Canadian researchers found that carcass counts of northern hoary bats at wind farms suggested declines of greater than 50% over three generations.

Research

- Monitor mitigation strategies at wind farms to provide better management practices for reducing losses of migrating bats, particularly northern hoary and eastern red bats.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image NPS

Conservation Highlights: Wind turbines and bats

Why are wind turbines so deadly to the eastern red and northern hoary bats? Fatal collisions with wind turbine blades kill millions of bats each year in Europe and North America. The most vulnerable species are those that migrate long distances. The most deadly circumstances are during autumn and nightly operations with low wind speeds. To mitigate bat losses, it's critical to investigate potential tools, such as acoustic deterrents to reduce bat deaths, learn why some bats may be attracted to wind turbines, and better understand bats' flight behavior around wind turbines. Bat Conservation International founded the Bats and Wind Energy Cooperative and works with diverse partners to use sound science to reduce wind turbine impacts to bats.

NORTHERN MYOTIS NOMY

(*Myotis septentrionalis*) aka Northern Long-eared Bat

Conservation Profile

TSN	180000
Global Rank	G2 (Imperiled)
State Rank	S2 (Imperiled)
Federal Endangered (FE); RSGCN	

Description:

Similar in size to little brown myotis, but with longer ears. Average forearm length 36 mm. Facial mask, ears, and wing membranes are medium to dark brown.

Distribution & Habitat:

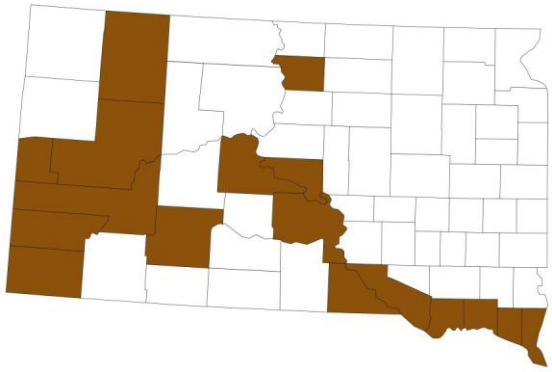
Has a wide but patchy distribution in much of Canada and the central and eastern U.S.

SD habitats include deciduous and coniferous forests along waterways, with a variety of habitats used for roost sites. Hibernates in caves and abandoned mines. Black Hills hibernacula have high relative humidity and availability of protected crevices.

Conservation Threats:

- Listed as a federal endangered species in March 2023, largely due to current and anticipated impacts of White -nose Syndrome (WNS)
- Threats not previously considered serious may now have significant implications to populations reduced by WNS. These include wind energy development, habitat loss and alteration, disturbance of hibernating bats, climate change, and contaminants.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx



Year-round distribution

Conservation Actions & Needs:

- Protect known populations from disturbance during critical breeding and wintering periods
- Identify cave and abandoned mine hibernation sites; install bat-friendly, vandal-resistant gates and maintain access and habitat conditions in the vicinity
- Conduct hibernation surveys using experienced personnel and following protocols that cause the least amount of disturbance possible; conduct biennial rather than annual surveys
- Discourage cavers from exploring sites with any possibility of WNS exposure to avoid inadvertently spreading the disease
- Continue to link research and monitoring permits with strict WNS decontamination or single-use protocols for equipment and clothing

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

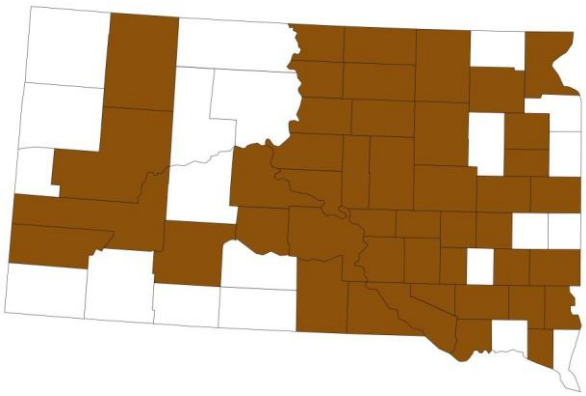
Image NPS, public domain

Conservation Highlights: Bats and rabies awareness

The little brown myotis and big brown bat are the most common North American bat species that may use buildings, but the northern myotis may also roost in human-made structures, such as barns and sheds. The possibility that you, your family members, or pets may encounter bats makes it critical that you know how to react to avoid the possibility of contracting rabies. Bats are the most common animal to have rabies in the U.S., and most people who die of the disease were exposed to an infected bat. Be wary of bats active during the day, bats found in a home or on the ground, and bats that are unable to fly or can be approached easily. Do not touch bats without wearing leather gloves. Seek medical attention even if you only suspect you have been bitten or if bat saliva has entered your eyes, nose, mouth, or an open wound. Retain a bat caught in the house to have it tested for rabies. Keep your pets current on vaccinations. Take the threat of rabies very seriously. CDC website.

PLAINS SPOTTED SKUNK

(Spilogale interrupta) **PSSK**



Year-round distribution

Conservation Profile:

TSN	1192482
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)
RSGCN	

Description:

Fur is black with white spots and 4-6 whitish broken stripes. Body is 9-13.5" (23-34 cm) long, not including its 5-9" (13-23 cm) tail. The more common striped skunk can be 20-28" (52-71 cm) long.

Distribution & Habitat:

Ranges in central U.S. and northern Mexico, but with a discontinuous distribution within that range.

A habitat generalist, but often associated with farmyards and adjacent agricultural fields. Dens in farm structures or associated features, such as outbuildings and woodpiles. Buildings spotted skunks occupy are typically not heavily used by people.

Conservation Threats:

- Habitat loss to agriculture and residential development; localized loss of small, diverse farms and tendency toward "clean," intensively-farmed areas
- Persecution and shooting due to intolerance
- Take by hunters and trappers legal in many states; population impacts of these activities unknown

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Promote low-intensity agricultural practices and habitat diversity
- Share information about ecological benefits of this species and its need for patches of uncultivated areas within farmsteads for sources of prey and cover

Monitoring

- Continue gathering reports of spotted skunk occurrence to update known distribution; target additional stable populations for more intensive study of habitat associations and population status

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Grayson Smith, USFWS

Map source: White et al. 2021

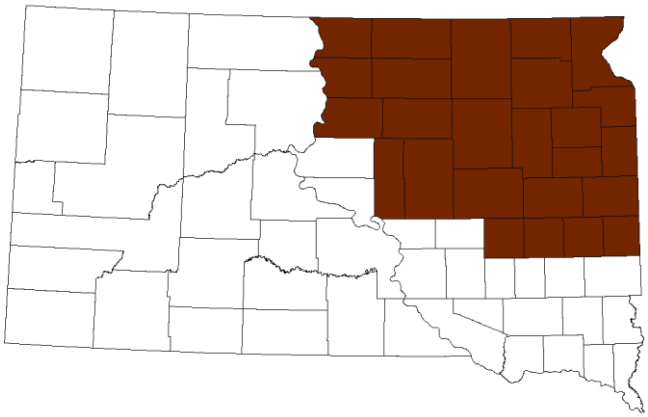
Conservation Highlights:

SWG project T-82 investigated distribution and habitat selection by this species, with an emphasis on an area in eastcentral South Dakota known to have a stable population. Study highlights: related to habitat selection:

- Positive association with pasture, developed vegetation, and herbaceous landcover; negative association with crop cover
- Data from 14 radio-collared animals showed selection of areas with permanent agricultural features that provided cover and prey and avoidance of wetlands during spring and areas near hay bales during summer
- Spotted skunk populations could be enhanced with promotion or maintenance of low-intensity agricultural practices and landscape diversity

RICHARDSON'S GROUND SQUIRREL

(Urocitellus richardsonii) **RGSQ**



Year-round distribution

Conservation Profile

TSN	930322
Global Rank	G5 (Secure)
State Rank	S5 (Secure)

Description:

Nicknamed flickertail. Body length 8-10" (20-25 cm), not including 2-4" (5-10 cm). Can be confused with Franklin's ground squirrel; this species' fur is more grayish-buffy colored and less speckled, and tail is shorter.

Distribution & Habitat:

Found in the NGPs from Prairie Canada south to Montana and the Dakotas and eastward to Minnesota and Iowa.

Favors open grasslands and croplands with flat to gently rolling terrain in eastern South Dakota, with the exception of southeastern counties. May burrow in cultivated fields.

Conservation Threats:

- Not considered rare in South Dakota. Individual colonies are poisoned when they conflict with other land uses.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Considered vulnerable (S3) in Minnesota and Iowa.

Monitoring

- Monitor long-term population trends

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image of Richardson's ground squirrel near burrow from NPS, public domain

Conservation Highlights: SGCN Criteria 2a and 2b

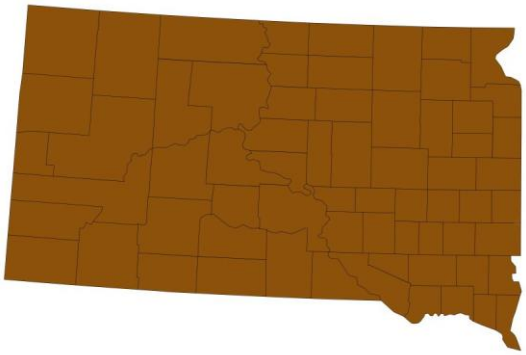
Many agency plans focus on restoring rare species or enhancing game species. Wildlife Action Plans are unique in their intent to plan for the needs of all fish and wildlife species and the habitats they need. South Dakota's plan uses a set of criteria (2a and 2b) that focuses on the importance of the state for a species' long-term viability. For a species listed as an SGCN under these criteria, imagine that the species has vanished from the state. That change could tip the balance against the future of that species throughout its range. State agencies increasingly work across state boundaries for the good of flora and fauna. South Dakota's SGCN criteria 2a and 2b reflect that commitment.

SILVER-HAIRED BAT SHBA

(*Lasionycteris noctivagans*)

Conservation Profile:

TSN	180014
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)
RSGCN	



Breeding and migration

Description:

A medium-sized bat (average forearm length 41 mm) with silver-tipped dark brown fur, especially on back. Fur on the face lacks the frosted tips. Ears are round and hairless. Black ears and wing membranes.

Distribution & Habitat:

A migratory tree bat with a widespread distribution across much of North America.

Found in the Black Hills during breeding season and considered a rare hibernating species there. Migrates elsewhere through the state. Favors coniferous and deciduous forests and forest edges along waterways. Roosts in hollow trees, under loose tree bark, or in tree crevices.

Conservation Threats:

- Loss and degradation of forest habitats, especially practices that reduce snags
- Commonly killed by wind turbines. Low reproductive rate (female bears only 2 pups per breeding season) makes it doubtful this species can sustain these losses long term
- Declines in insect abundance due to broadscale pesticide applications

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Implement measures to reduce deadly collisions with wind turbines
- Provide diverse forests with abundant snags, which are important roosting sites for this species in the Black Hills and elsewhere. Females in the Black Hills use ponderosa pine snags, often old woodpecker cavities, as maternity and nursery roosts.

Monitoring

- Conduct summer surveys to assess population trends
- Survey species along riparian corridors to assess habitat value for foraging, roosting, and migration areas

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image (cropped) of male silver-haired bat; Larisa Bishop-Boros; Creative Commons, https://creativecommons.org/licenses/by-sa/3.0/deed.en

Conservation Highlights: Reproductive Strategies

Some furbearers use a reproductive strategy called delayed implantation. Following breeding during the fall, the fertilized eggs do not implant in the uterine wall until conditions are most favorable, such as during the following spring when food is more abundant and the mother has sufficient fat stores to support the growing fetuses.

Bat species found in South Dakota use a strategy called delayed fertilization. During fall, bats may swarm near potential hibernation sites. They also mate during this time. The female bat stores the sperm in the uterus, but eggs are not fertilized until the following spring. This allows females to hibernate without the added stress of being pregnant. Spring weather brings out insect prey to support the female and her fetuses until summer births.

SWIFT FOX SWFO

(Vulpes velox)

Conservation Profile

TSN	180607
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)
State Threatened (ST)	

Description:

Approximately the size of a housecat; about 12" (30 cm) high at the shoulder. Tawny fur with white undersides. Total length of 2-3' (61-91 cm) includes long, bushy, black-tipped tail. Black markings on sides of muzzle help distinguish it from a young coyote.

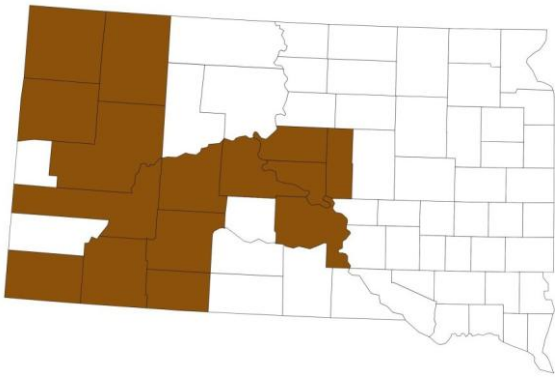
Distribution & Habitat:

Currently ranges in central and northern plains of U.S. and southcentral Canada (reintroduced). Current distribution reduced from historical area, but can be locally common. Historical distribution in state likely included much of western South Dakota, excluding the Black Hills. Current distribution includes a remnant native population in southwestern SD and several additional areas resulting from reintroductions.

Conservation Threats:

- Loss of prairie habitats
- Interspecific competition with and predation from red fox and coyotes, respectively
- Vehicle collisions due to animals scavenging along roadsides or using these areas to avoid coyotes
- Accidental or intentional poisoning

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx



Year-round distribution

Conservation Actions & Needs:

Information on South Dakota's population collected opportunistically or during localized surveys or studies. Survey designs in areas with established populations are not necessarily useful in areas where a species is rare or has an unpredictable distribution.

- Many populations are on private land. Foster relationships with landowners who willingly host swift fox

Monitoring

- Develop and implement repeatable surveys of swift fox and other furbearers at occupied sites and additional likely habitats throughout potentially occupied range in the state.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image © Gary Kramer, NRCS

Conservation Highlights: Swift Fox Conservation Team (SFCT)

In response to a finding by the USFWS that this species may warrant listing under the Endan- gered Species Act, state wildlife agency directors within the species' range formed the SFCT in 1994 to work to- gether. The swift fox was removed from the federal candidate list in 2001, but SFCT activities have continued.

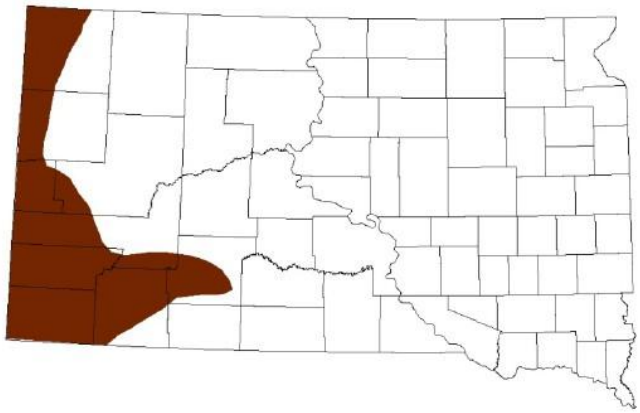
Regular meetings, networking, cooperative surveys and sampling designs, publication of peer-reviewed papers on swift fox occurrence and habitat associations, and work with Association of Zoos & Aquariums facilities are some of the SFCT's accomplishments over 30 years and counting. Such an extensive effort is not always possible, but serves as an example of what a multi-partner coordination effort can accomplish for the good of wildlife.

TOWNSEND'S BIG-EARED BAT

(Corynorhinus townsendii) **TBBA**

Conservation Profile

TSN	203452
Global Rank	G4 (Apparently Secure)
State Rank	S2 (Imperiled)



Year-round distribution

Description:

A medium-sized bat (average forearm length 44 mm) with large ears and bulbous nose lumps or glands. Ears may be laid back during hibernation. Fur color can be various shades of brown, but is often buffy.

Distribution & Habitat:

Ranges in western North America, extending through central U.S. east to the Appalachians. Two subspecies, Ozark big-eared bat (C. *t. ingens*) and Virginia big-eared bat (C. *t. virginianus*), are listed as federal endangered species.

Very faithful to the caves and abandoned mines used for maternity and hibernation roosts and day roosts.

Conservation Threats:

- Destruction and disturbance of roosts by recreational cavers and mine exploration activities
- Two common threats for many bat species, White-nose Syndrome and wind turbine mortalities, not currently believed to pose serious risks to populations

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Work with cavers and other outdoor recreationists to develop and distribute information on ways to reduce disturbance of roosts

Monitoring

- Relatively few locations known for this species; additional surveys needed
- Conduct hibernation surveys using experienced personnel and following protocols that cause the least amount of disturbance possible; conduct biennial rather than annual surveys

Research

- More information needed on requirements for maternity and nursery roosts

Management

- Install and maintain bat-friendly, vandal-resistant gates at critical sites

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image NPS, public domain

Conservation Highlights: When to install a bat gate

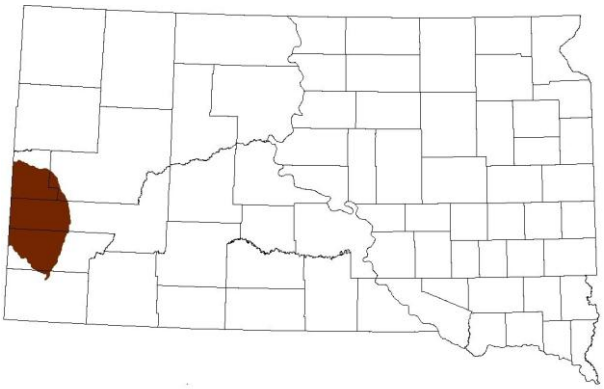
Bat biologist Joel Tigner and Forest Service biologist Brad Phillips worked extensively in the Black Hills to identify caves or abandoned mines that merited installation of bat gates. Such gates allow bats to safely use the site, but hopefully deter unauthorized human entry and potential disturbance and destruction. The following factors are among those considered:

- Do bats currently use the site? How many, and for what purpose?
- Do interior features favor bat usage?
- Is the site easily accessed by people or is it remote?
- Is the site's microclimate stable?
- Is the site structurally stable or will it pose long-term safety issues for bats?
- Who owns the property? Is there a commitment to long-term protection/management of the site and the area around it?

TRICOLORED BAT TRBA

(Perimyotis subflavus)

previous common name eastern pipistrelle



Year-round distribution

Conservation Profile

TSN	947299
Global Rank	G3 (Vulnerable)
State Rank	SNR (State Not Ranked)
RSGCN	

Description:

One of North America's smallest bat species (forearm length 31-35 mm). Named for fur that is black at base, lighter brown in the middle, and dark on the tips. Orange forearm may be visible on hibernating bats.

Distribution & Habitat:

Found in eastern and central U.S. and northeastern Canada. Spends significant part of the year in hibernation. One of the earliest species to begin hibernating in the fall and one of the latest to emerge during spring. Forages along forest edges and over waterways for small insect prey. This eastern species was documented for the first time in South Dakota in 2003 (see more below).

Conservation Threats:

- Severely impacted by WNS
- Substantial losses to wind turbine collisions; unknown if species can sustain these losses long term.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Proposed for listing as federal endangered species in 2022. Factors affecting its viability include impacts of WNS, wind-related mortality, habitat loss, and climate change; and ongoing efforts to reduce WNS impacts and potential impact of wind facilities' curtailment strategies to reduce fatalities.

- Install bat-friendly, vandal-resistant bat gates at hibernation sites; maintain access for bats to the gate and avoid habitat practices that alter the microclimate around the entrance
- Conduct hibernation surveys using experienced personnel and following protocols that cause the least amount of disturbance possible; conduct biennial rather than annual surveys
- Develop and implement strategies to reduce wind turbine strikes

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image NPS, public domain

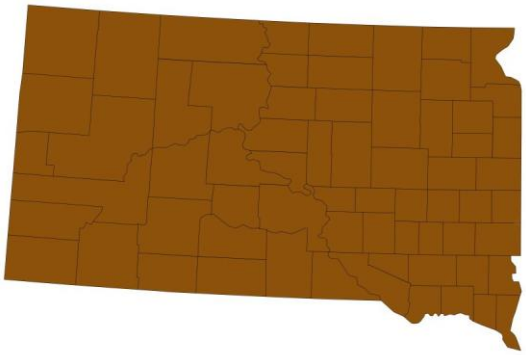
Conservation Highlights: South Dakota Discovery

South Dakota bat biologist Joel Tigner found a single tricolored bat hibernating in a gated abandoned mine in January 2003, the first documented state record for this species. Joel found a single individual hibernating in this site a year later. He also found single individuals hibernating in two additional abandoned mines during January 2004. In all cases, the tricolored bat was hibernating with other bat species and in sites that had been gated. Geluso et al. 2005 reported on 16 records in 8 states as evidence of westward expansion of the tricolored bat. This species typically moves short distances between summer and winter roosts, supporting the assumption that these records represent year-round residency, rather than accidental records of wandering individuals.

Geluso, K., T.R. Mollhagen, J.M. Tigner, and M.A. Bogan. 2005. Westward expansion of the eastern pipistrelle (Pipistrellus subflavus) *in the United States, including new records from New Mexico, South Dakota, and Texas. Western NA Naturalist 65:405-409.*

WHITE-TAILED JACKRABBIT

(Lepus townsendii) **WTJA**



Year-round distribution

Conservation Profile

TSN	180118
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)
RSGCN	

Description:

This hare is 23-26" (58-66 cm) long. The only jackrabbit with 2 distinct coats. In northern parts of the range, the summer coat (above left) changes to a winter coat of thick, white fur, except for the black-tipped ears (above right).

Distribution & Habitat:

Ranges widely in western and central North America. Thought to have always been less common than black-tailed jackrabbit.

Can occupy a variety of habitats, but favors grasslands and grassy forest openings. Potentially occurs throughout the state.

Conservation Threats:

- Loss of prairie habitats to agricultural uses
- Loss of habitat from warming temperatures and overgrazing
- Climate change

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

This species has declined or been extirpated in the neighboring states of Nebraska and Iowa and is considered extirpated in Kansas, Missouri, and Illinois. Because of these declines and its suspected sensitivity to climate change, the white-tailed jackrabbit is included as a Midwest RSGCN.

Monitoring:

- Repeating the transect survey methodology described below will allow a second look at the distribution and abundance of South Dakota's 2 jackrabbit species

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Summer coat image © Tom Koerner, USFWS; winter coat image © Lori Iverson, USFWS

Conservation Highlights:

Researchers from SDSU studied the distribution, range, abundance, and habitats of South Dakota's 2 jackrabbit species. Study highlights:

- WTJA were found throughout the state with highest densities in northwestern SD, likely because of availability of sagebrush; BTJA were found at low densities and limited to southcentral SD
- WTJA females had the potential to produce 3.3 litters/year with an average litter size of 4.6/female

AUTUMN WILLOW AUWI

(Salix serissima)

Conservation Profile

TSN #	22581
Global Rank	G5 (Secure)
State Rank	S1 (Critically imperiled)

Description:

A deciduous shrub that can reach 10 feet (3 m) in height. The bark on younger branches is lighter colored than the gray color of older bark. Buds and leaves are alternately arranged on the stems. Distinguishing features include glands at petiole summits, glandular teeth on leaves, and late flowing and fruiting periods. Flowers in June; fruiting from July to September. Catkins emerge after leaves. Can be confused with extremely rare species in the Black Hills, shining willow (*S. lucida*), which has not been documented recently.

Distribution & Habitat:

Ranges throughout Canada and some northern and northeastern states. South Dakota's Black Hills hosts one of three disjunct populations, with others found in southeastern Wyoming and northcentral Colorado. South Dakota has four occurrences in the central Black Hills of small to medium-sized populations. These sites have elevated water tables, fen habitat, and saturated organic substrates (Hornbeck et al. 2003). Habitats include fens, boggy meadows, and riparian systems in valleys and foothills.

Threats:

This species is threatened by invasive non-native/alien species/diseases. Various pests include leaf galls, willow borer, and willow rust (*Melampsora ribesii-purpureae*)

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Provide habitat for pollinators and protect these areas against indiscriminate spraying and pesticide drift. Also, hydrology needs to be protected in areas that support this species.

Monitoring

- Survey known sites to assess population health and potential new threats

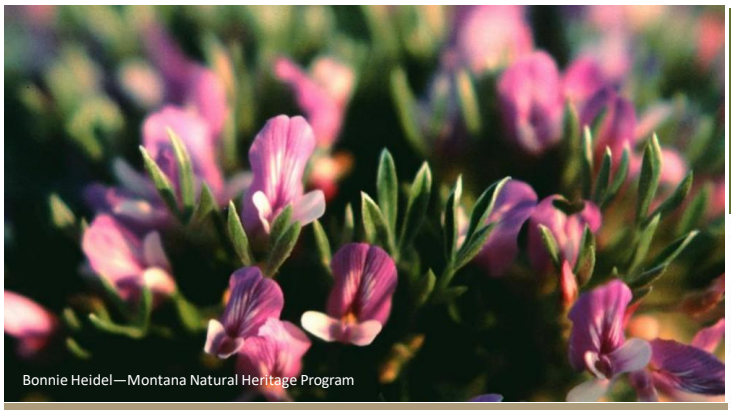
South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:

In 2003, the Forest Service conducted a conservation assessment for the Autumn Willow in the Black Hills National Forest, South Dakota and Wyoming. Only two populations of Autumn willow exist in the Black Hills on public lands due to their specific habitat requirements. Unknown populations may exist on private land. Https://www.fs.usda.gov/rm/pubs_other/rmrs_2003_hornbeck_j001.pdf.

BARR'S MILKVETCH BAMI

(Astragalus barii)



Conservation Profile

TSN #	25432
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)

Description:

A distinguishing feature of this and seven closely related species of *Astragalus* is their palmately trifoliate leaves. This low-growing perennial becomes elevated above the soil's surface in eroding habitats. Mats of the typical cushion-like growth form may reach nearly 18 inches (46 cm) across, but plants are rarely greater than 4 inches (10.2 cm) high. First collected in South Dakota in 1932; named for Claude Barr, a botanist and horticulturist from Smithwick, South Dakota.

Distribution & Habitat:

Regional endemic in southwestern South Dakota, northeastern Wyoming, southwestern Montana, and northwestern Nebraska. Many of the state's occurrences are found in Badlands National Park and Buffalo Gap National Grassland. Much of the land where this species occurs is managed for multiple uses. Occurs in the badlands, barren outcrops on buttes, hills, and ridges with fine parent materials, which may be derived from shale, sandstones, limestone, or silts. May occur with sparse shrub cover provided by *Artemisia tridentata* (big sagebrush) and a variety of other plant species (Ladyman 2006).

Threats:

This species is threatened by off-road vehicle use, energy development such as the potential impact of coalbed methane development, and invasive non-native/alien species.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Monitor known populations, particularly in areas subject to recreational ORV use. Consider land exchanges to consolidate known and potential habitat. Educate public and recreationists about vulnerability of populations to ORV impacts

Monitoring

- Continued surveys to assess population trends
- Assess impacts of energy development

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
In 2006, the Forest Service conducted a conservation assessment for the Barr's milkvetch in the badlands South Dakota. It is known from approximately 27 occurrences in South Dakota and must be surveyed when the plant is flowering due to similarities between other *Astragalus* species. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206823.pdf

BIG SAGEBRUSH BISA

(Artemisia tridentata & subspecies *A. t. wyomingensis)*

Conservation Profile

TSN #	35498 & 509174
Global Rank	G5T5 (Secure)
State Rank	SNR (Not ranked)

Description:

Stout branching shrub with a wide range of maximum heights, depending on the variety. Many small yellowish flowers on panicles above the foliage during late summer. Short leaves are three-lobed at tips and wedge-shaped at the base. Reproduces by seed.

Distribution & Habitat:

Widely ranging in western Canada and within the

Great Basin in the U.S.; occurs in all 17 western states, with South Dakota as one of the states on the eastern periphery of the species' range.
Rocky or fine soils in valleys and open grasslands. Found mainly on valley floors and upland plains of far western portion of the state. Speculation that subspecies found in South Dakota (*A. t. wyomingensis*) may be better able to cope with prolonged droughts and grazing disturbance than the subspecies associated with the Great Basin. Often associated with various bunchgrasses.

Threats:

This species is threatened by cheatgrass invasion and the intolerance of fire.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Opportunities to benefit from much recent study and implementation of sagebrush restoration techniques in association with conservation of various sage-grouse species.

Monitoring

- Explore opportunities to partner with other entities interested in the sage-steppe system in identifying research and monitoring needs

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

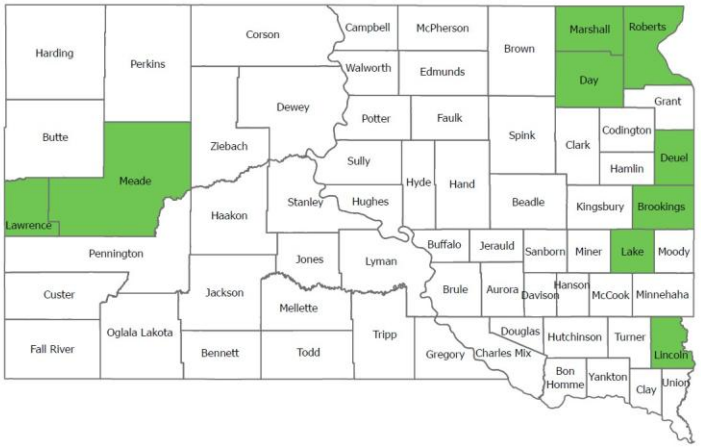
Conservation or Species Highlights:
Wildlife and Native American Associations: Critically important to Greater Sage-Grouse, a state animal species of greatest conservation need. Used for food and cover, especially during late fall, winter, and early spring and as nesting protective cover. Also, important habitat for pronghorn and other native ungulates. This plant has been used by Native Americans as medicine, a source of yellow dye, and fuel.

BLOODROOT BLRT

(Sanguinaria canadensis)

Conservation Profile

TSN #	18990
Global Rank	G5 (Secure)
State Rank	S4 (Apparently secure)



Description:

A native perennial forb that has lobed leaves with 3-9 parts, generally round. The leaf edges have well rounded teeth and the edges are scalloped. The leaf and flowers stems are also round with a reddish tint. The plant typically grows one flower at the end of a naked stem that grows directly from the ground. The flower contains 8-10 white petals and have parallel veins. The center of the flower contains yellow tipped stamens and the flower usually lasts a few days before dying in early spring.

Distribution & Habitat:

Species are adapted to somewhat dry deciduous forests and is located mostly in the eastern South Dakota hardwood forests. This species is often located among sugar maples and bur oaks and can be found in fertile soils with basic soil PH levels. There is a disjunct population in the Black Hills. In the Black Hills of South Dakota this species occurs with *Betula occidentalis, Picea glauca*, and *Pinus ponderosa*.

Threats:

This species is threatened by collecting form wild populations for medicinal usages. Similar to many other species habitat conversion and rural and urban development are direct threats. Habitat fragmentation, displacement from non-native species, cattle grazing, and surface mining are other current threads to bloodroot.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Protect areas where bloodroot exists by proper habitat management to reduce overgrazing and non-native species. Protection of habitat from urban development and mining are also actions that can take place to protect their habitat.

Monitoring

- Some monitoring should focus on the documentation and of collection pressure for medicinal herb use
- Updated monitoring of Black Hills populations

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
In 2003, the National Forest Service conducted a conservation assessment on bloodroot in the Black Hills. During the survey, Biologists found 22 distinct populations of bloodroot and were associated with beaver dams, beaver floodplains, drainage bottoms, and north facing foot slopes. In 2003, the species was considered secure. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5226894.pdf

BLUE COHOSH BLCO

(Caulophyllum thalictroides)

Conservation Profile

TSN #	18840
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)

Description:

A perennial herb that can reach 1-4 feet (0.3–1.2 m) tall. Flowers are yellowish green, with 5 or more found in loose clusters at the top of the stem. Flowers are ½ inch (1.3 cm) across with six petal-like sepals and six yellow stamens surrounding a green center. Leaves are 2- or 3-lobed. Stems are erect, hairless, and typically light green. The fruit is a green, berry-like seed that is deep blue when ripe. Fruit is poisonous.

Distribution & Habitat:

Eastern North America; western periphery of range extends from North Dakota to Oklahoma. Found in rich forests of eastern South Dakota. Damp deciduous forests, shaded or partly shaded sites.

Threats:

This species is threatened by collecting form wild populations for medicinal usages. Habitat conversion, fragmentation, displacement from non-native species, and the lack of significant cultivation sources are other threats to blue cohosh.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Support development of propagation techniques to help protect wild populations and determine sustainable levels of collection

Monitoring

- Monitor populations to assess status and potential impacts of collection

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Used as a tea or decoction by Native American women to aid childbirth and regulate menstruation. Additional modern uses include addressing constipation, seizures, sort throat, and hiccups, although the traditional medical community has shared concerns about the safety of this supplement.

COLORADO BIRCHLEAF MOUNTAIN MAHOGANY **COMA**

(Cercocarpus montanus)

Conservation Profile

TSN #	25136
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)

Description:

This shrub or small tree can reach 1 foot (3 m) tall. Young twigs are pale green. By the second year, twigs are dark red, and bark is waxy gray. Alternate leaves are simple and about 1 inch (2-3 cm) long. Inconspicuous greenish flowers have an elongated floral tube for fruit development. Flowering occurs from June to early July, with fruiting from July to August. Fruit has a plumelike style, facilitating long, wind-borne movements. Also called alderleaf mountain mahogany.

Distribution & Habitat:

A species of the Southwest and northern Mexico, barely extending into the southern end of the Black Hills. Key habitat include, sunny sites; well drained sandy to clay loams. Within South Dakota, it occurs in chaparral habitats on limestone or limestone-derived soils.

Threats:

There are currently no threats at this time

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

There are no actions at this time.

Monitoring

- Continue to survey the chaparral habitats in the Black Hills.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Favored forage for cattle and domestic sheep. Also eaten by mule deer and porcupines, with deer and elk eating twigs during the winter. Strong durable wood makes it useful for campfires. Used by Native Americans for bows and spearheads. Bark and roots produce reddish dye.

COMPASS PLANT COPL

(Silphium laciniatum)

Conservation Profile

TSN #	38401
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)

Description:

This perennial species reaches 3-10 feet (1-3 m) in height. Single or clustered yellow flowers at the tops of the stems are 2½-4 inches (6.3-10 cm) across. Bracts and flower stalks are thickly covered in long, white hairs. Alternate leaves are deeply divided and covered in short hairs. Upper stem produces resin when plant is blooming. Named for the tendency of basal leaves to orient in a north-south direction to avoid full impact of the sun.

Distribution & Habitat:

Ranges through much of the Midwest, northeastern states, and Ontario. Occurs in remnant prairies in southeastern South Dakota. Found in tallgrass prairies, sand prairies, savannas, and glades.

Threats:

Compass plant depends on prairie habitats that are in continued decline and degradation. Young plants are palatable to livestock and will decrease and disappear if heavily grazed

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Propagation methods include seed processing and use of bareroot plant.

Monitoring

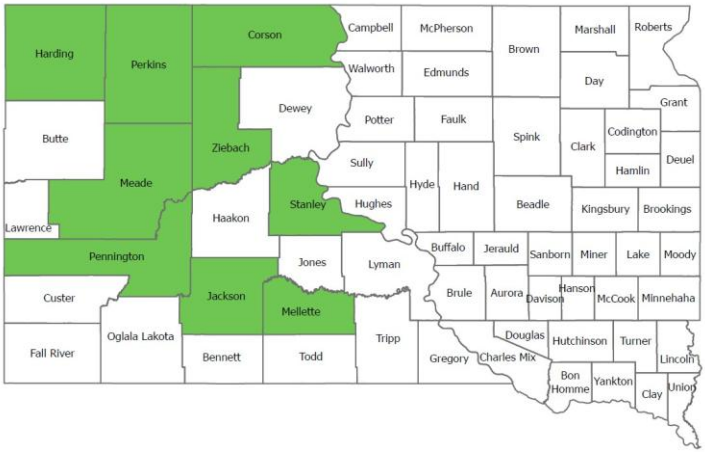
- Approximately a dozen relatively recent occurrences known in South Dakota; resurvey known areas to assess continued viability and extent.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Nectar may attract swallowtails, monarchs, and sulphurs. Mainly pollinated by long-tongued bees, such as bumble bees and miner bees. Finches eat remaining seed in the fall. Tall sturdy plant that provides perching sites for songbirds. Native American children used the stem resin as chewing gum. Pounded root was used to make a medicinal tea.

DAKOTA BUCKWHEAT DABU

(Eriogonum visheri)



Conservation Profile

TSN #	21275
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)

Description:

This annual herb reaches 4-14 inches (10-35 cm) tall. An erect widely branching form gives the plant a skeletal appearance. Leaves on the lower portion of the stem are smaller and more oblong than basal leaves. Plants flower from late June to July with very small, pale-yellow flowers.

Distribution & Habitat:

Great Plains regional endemic species occurring in North Dakota, South Dakota, and Montana. Occurs within unglaciated Missouri Plateau of the Great Plains physiographic province. Found in South Dakota on Grand River National Grassland in the northcentral part of the state and on Badlands National Park and Buffalo Gap National Grassland in southwestern South Dakota. Habitat types include barren shale and clay outcrops within badlands habitat. Sparsely vegetated grasslands.

Threats:

Livestock grazing and trampling; indirect threat that causes soil disturbance, allowing opportunities for invasive plant species. Invasive plant species include, *Kochia scoparia* and *Salsola iberica* (prickly Russian thistle). Other threats include climate change and genetic limitations of a regionally endemic species.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Practice modest cattle stocking rates and rotations and invasive exotic weed species control

Monitoring

- Establish permanent monitoring plots in a variety of habitats.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

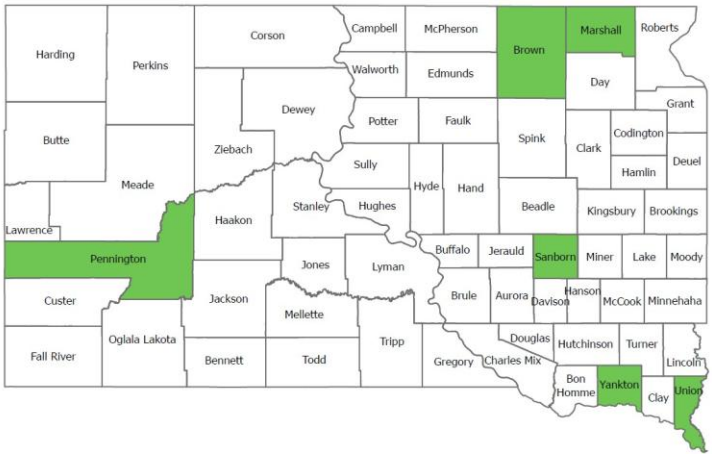
Conservation or Species Highlights:
In 2006, the Forest Service designated E. Visheri a sensitive species. Little information is known on the biological or ecological requirements of Dakota buckwheat. The seeds main dispersal mechanism is through runoff from heavy rain events. Find more information in the 2006 report. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206852.pdf

DOWNY GENTIAN DOGE

(Gentiana puberulenta)

Conservation Profile

TSN #	29984
Global Rank	G4 (Apparently secure)
State Rank	S4 (Apparently secure)



Description:

A native perennial that blooms late in the growing season on upland prairies and open woodlands. The plant reaches a moderate height of 8-18 inches and the flowers are bright blue with dark purple black tips. The leaves are simple and opposite and the stem often times has a reddish tinge and are covered in soft hairs.

Distribution & Habitat:

Most *Gentiana* species are found in moist environments , but *G. puberulenta* can be found in dry upland prairies and hillsides. The are more common in the tallgrass prairie range in eastern South Dakota. There is a disjunct population in the Black Hills and is an indicator species of sensitive grasslands.

Threats:

The largest threat is habitat loss in both the tallgrass prairie and Black Hills. Conversion of native prairie to row crop agriculture is ongoing. Livestock grazing, lack of fire, and chemical applications are other big threat to the remaining populations. Another ongoing threat is urbanization.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Proper management and care for the grasslands is an important action that can be achieved. Spot spraying instead of spraying entire fields will help protect these species.

Monitoring

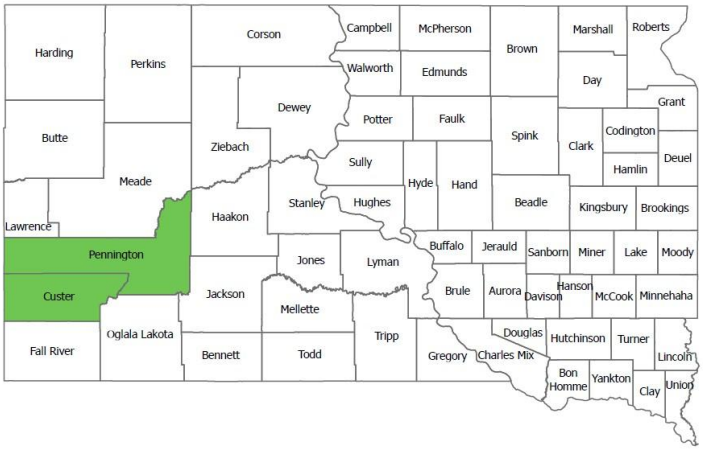
- Continue to evaluate populations in the Black Hills grasslands, but also in the tallgrass prairie in eastern South Dakota.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Downy Gentian is a eye catching species due to the deep blue color in the fall when most other species are yellow, brown, and orange. Native Americans used the roots for medicine to relieve stomach pain and clear up digestive issue. Roots were harvested and dried for later uses.

ELEGANT SEDGE ELSE

(Carex bella)



Conservation Profile

TSN #	39521
Global Rank	G5 (Secure)
State Rank	S1 (Imperiled)

Description:

This perennial plant reaches 2 feet (0.6 m) tall.

Blooms during late spring with inconspicuous green flowers. Fruiting/seed production lasts from spring to summer.

Distribution & Habitat:

This Southwestern species reaches its northeastern limit in South Dakota, where it is restricted to the area around Harney Peak in the Black Hills, within BHNF. Moist subalpine meadows
at elevations of approximately 9,200 - 13,000 feet (2800 – 3900 m). May occur along streams in moist woods and wet meadows in lower alpine region of spruce-fir communities.

Threats:

Overgrazing rangelands, the use of hiking trains, and the modification of hydrology.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Periodically conduct threats assessment.

Monitoring
- Revisit known sites periodically
- Determine if South Dakota's population is disjunct from the remainder of the species' range

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
There are no highlights at this time.

FENDLER'S WHITETHORN FEWH

(Ceanothus fendleri)

Conservation Profile

TSN #	28467
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Also called Fendler's buckbrush, this low, thorny shrub may reach 3 feet (0.9 m) tall but will not be as tall when growing at higher altitudes. Plant has low stems with a spreading growth form, smooth bark, and thorns up to 2 inches (5 cm) long. Flowers are white to light green in clusters at the ends of stems or branches.

Distribution & Habitat:

This flowering shrub ranges from Arizona to Texas and north, with South Dakota at the northeastern periphery of the range. Within South Dakota, common west of Boles Canyon in the southwestern Black Hills in both South Dakota and Wyoming. Two historical and one relatively recent occurrence (Pennington County). Occurs in the conifer forests and mixed woodlands, chaparral, and other open habitats, typically with rocky soils.

Threats:

In some parts of range, may be prone to overgrazing by large ungulates during forest restoration treatments

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Coordinate with U.S. Forest Service to plan management activities that avoid destroying habitat supporting this species.

Monitoring

- Periodically resurvey known site in the Black Hills. Previous survey indicated healthy plants but no fruits.
- Monitor for signs of overgrazing by native ungulates.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Provides browse for deer and livestock. Eaten by porcupines and rabbits. Bees and moths visit the flowers. Native Americans used this species for a variety of purposes, including brewing a tea from the dried leaves, using leaves and stems for medicinal purposes, and eating the sweetened berries.

GIANT HELLEBORINE GIHE

(Epipactis gigantea)

Conservation Profile

TSN #	43481
Global Rank	G4 (Apparently secure)
State Rank	S1 (Critically imperiled)

Description:

A perennial species of orchid that reaches 30 centimeters to one meter in height. The flowers have three sepals which appear to be brown/green colored. The top two petals are reddish colored with purple veins and the third petal is cup shaped that appears reddish brown and more starky veined. The fruit contains a hanging capsule that carries thousands of tiny seeds.

Distribution & Habitat:

The orchid species has a requirement for surface water and is typically seen in areas near meadows, riverbanks, and hot springs. In South Dakota the species occurs in the warm spring areas in the southern Black Hills.

Threats:

The main threat is the loss of habitat through water development projects or activity that lowers the water table. Other threats include recreation, exotic species, and livestock grazing.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Help inform landowners about proper livestock grazing and exotic species management.

Monitoring

- Periodically resurvey known sites in the Black Hills.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
In 2006, the USDA Forest Service put together a technical Conservation Assessment of *E. gigantea*. The species can be difficult to estimate the number of genetic individuals, so occurrence is typically reported as the number of aboveground stems. More information can be found in the report at, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206982.pdf


Scott Mincemoyer—Montana Natural Heritage Program

GROUSEBERRY GRBE

(Vaccinium scoparium)

Conservation Profile

TSN #	23613
Global Rank	G5 (Secure)
State Rank	SNR (Not ranked)

Description:

A dwarf perennial shrub that can grow to be 20 inches tall. The stems are broomlike with leaves that are oval shaped, serrated and up to 0.6 inches long. Flowers are pink and urn shaped. Berries are bright red and are edible for many species.

Distribution & Habitat:

Secure species that occurs in the western United States and Canada. Typically grows where there is higher elevations (above 5000 ft.) This understory species can form extensive colonies in alpine and subalpine meadows. Found in the northern Black Hills with spruce, birch or pine in areas similar to twinflower, but typically in drier sites.

Threats:

As fire severity increases, grouseberry tends to decrease.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Protect this habitat type and working together with surrounding partners.

Monitoring

- Work with the Forest Service on population status.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

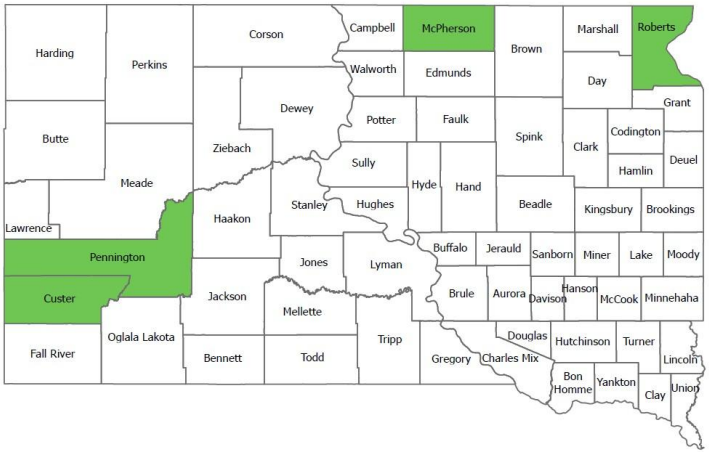
Conservation or Species Highlights:
Valuable food source for multiple species of wildlife including many birds and small mammals. The berries are also edible for humans.

KALM'S LOBELIA KALO

(Lobelia kalmii)

Conservation Profile

TSN #	34525
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)



Description:

This perennial plant reaches 4-16 inches (10-41 cm) in height. Small irregular blue to purple flowers on slender stalks may bloom from July to September. Narrow basal leaves are up to an inch (2.5 cm) long, with teeth along the edges. Leaves and stems are mostly hairless.

Distribution & Habitat:

Widely distributed through most of Canada and northern, upper Midwestern, and northeastern states. Within South Dakota, only 8 recent known occurrences, in northeastern portion of the state. It is a wetland-obligate of the Great Plains, this species inhabits springs, fens, and wet meadows. May occur in neutral or calcareous sites.

Threats:

Invasive plant species and wetland drainage and alterations.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Protect hydrology responsible for calcareous fen habitats.

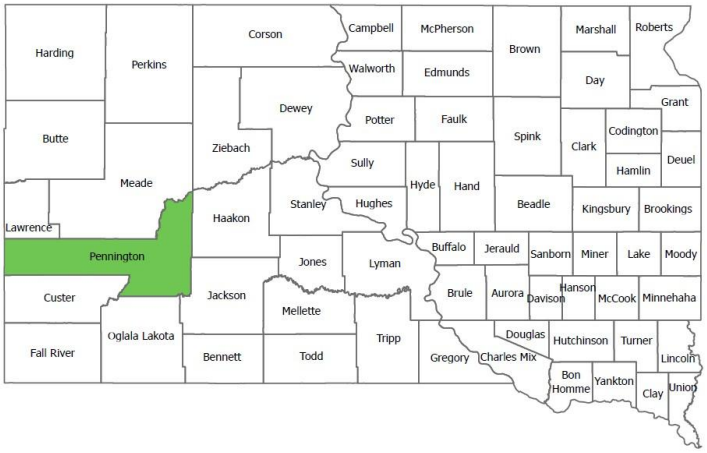
Monitoring
- Periodic monitoring of sites to assess sustainability and potential threats.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Attracts hummingbirds. Some Native Americans tribes used it internally to induce vomiting or topically for treating abscesses and earaches.

LEEDY'S ROSEROOT LERO

(Rhodiola integrifolia spp. leedyi)



Conservation Profile

TSN #	24120
Global Rank	G5T1(Listed in 1992)
State Rank	S1 (Secure species; critically imperiled subspecies)

Description:

Single or multiple stems from the base. These perennial plants are 6-18 inches (15-46 cm) high. Spreading rhizomes allow production of small colonies. Flowers are ¼-inch (0.6 cm) across with 4-5 red, oblong petals and shorter sepals. Flowers arranged in flat cluster up to 2 inches (5 cm) across at stem tip. Separate male and female flowers on separate plants. Alternate leaves are fleshy, succulent, and waxy coated.

Threats:

Narrow habitat requirements characterized by areas where ground water and cool air can seep through rocky substrate. There are small populations disjunct from each other.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Distribution & Habitat:

This subspecies is limited to western New York, southeastern Minnesota, and the Black Hills of South Dakota. Single occurrence in the central Black Hills. Considered a glacial relict species. South Dakota's single location is a mostly barren area of northerly-facing granite rock walls. This area is within the Black Elk Wilderness Area, managed by the U.S. Forest Service.

Conservation Actions & Needs:

Do not publicize the exact location of this population.

Monitoring

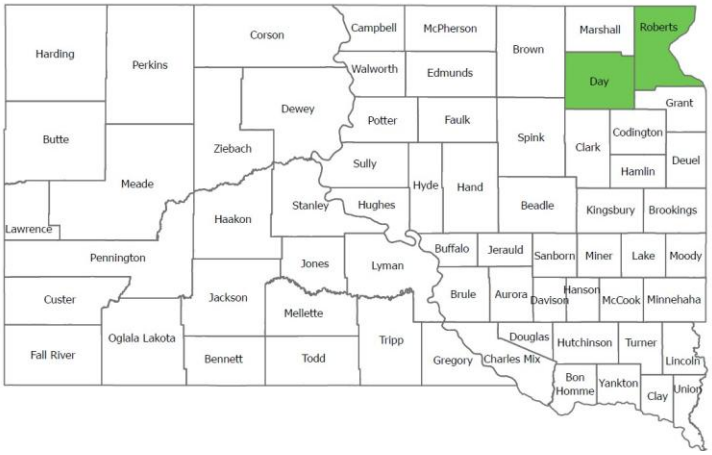
- Monitor the known population in state, including evaluation of direct threats of collection and trampling by recreationists
- Coordinate with USFWS and U.S. Forest Service to identify research, monitoring or recovery strategies

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
The USFWS wrote a recovery plan in 1998, but this species is looked at close- ly to protect its status. To find out more information on this species go to https://ecos.fws.gov/ecp/ species/285

LOESEL'S TWAYBLADE LOTW

(Liparia loeselii)



Conservation Profile

TSN #	43623
Global Rank	G5 (Secure)
State Rank	S1 (Critically imperiled)

Description:

An inconspicuous perennial orchid that reaches 3-10 inches (7.6-25.4 cm) in height. Greenish yellow flowers are less than ½ inch (1.3 cm) long and bloom from June to July. Two basal leaves are up to 1½ inches (3.8 cm) wide and sheathe the lower stem. Hairless leaves and stem. Sometimes called fen orchid.

Distribution & Habitat:

Widespread throughout much of Canada and eastern and midwestern states, but rare along southern/ southeastern periphery of species' range. Few known occurrences in South Dakota; all restricted to fens in the northeastern portion of the state. It is a wetland-obligate in the Great Plains, this species occurs mainly in fens and bogs in shady or sunny sites.

Threats:

Invasive plant species and it may be overgrazed by native ungulates. It also faces habitat degradation and disappearance. Within each intact habitat, the biggest threat is competition and ecological succession from wetland plants.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Protection of hydrology that sustains fen habitats.

Monitoring

- Periodic monitoring of known sites to assess viability and potential threats.
- Learn more about their reproductive strategies would help assist in conservation strategies.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
In 2007, the USDA Forest Service released a conservation assessment report on the fen orchid. Little is knows about this species and the plant maintains itself in small numbers in relatively undisturbed habitats. To find out more check the following report. Https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206990.pdf

LONG-LEAVED LOUSEWORT LOLO

(Pedicularis procera)

Conservation Profile

TSN #	504166
Global Rank	G4 (Apparently secure)
State Rank	S2 (Imperiled)

Description:

A large, tall perennial herb with a clumped growth form and long, fernlike basal leaves. The reproductive spike is several feet long, with hundreds of large pink flowers on a single, thick stalk. Sometimes called giant lousewort.

Distribution & Habitat:

Limited in distribution to six western states, with South Dakota on the northeastern periphery of the species' range. Mainly occurs in the Deerfield area of the Black Hills within the state. Appears in shaded mountain slopes, meadow edges, and valleys within aspen and spruce-fir plant communities. Within South Dakota, may be found in open forests and clearings above 6,000 feet (1,830 m).

Threats:

Unknown aside from rarity within the state and occurrences within a relatively small area.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Following visits to the known occurrences (see Research and Monitoring Needs section), provide updated information to the U.S. Forest Service to incorporate into their planning and land management needs.

Monitoring

- Aside from one record from 2001, the last observed dates for many of South Dakota's records are from the mid- to late 1990s. All sites should be visited to assess status of known sites

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:

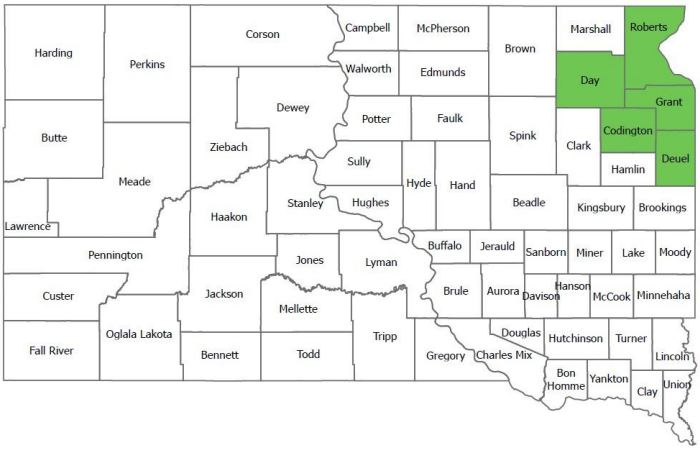
Deer and elk eat the flowers. It was used for ceremonial purpose by some tribes. This and other species in the genus are modern-day medicinal herbs used for a variety of conditions and ailments.

MARSH MARIGOLD MAMA

(Caltha palustris)

Conservation Profile

TSN #	18454
Global Rank	G5 (secure)
State Rank	SNR (No rank)



Description:

Bright yellow flowers grow in groups of 2-5 at the ends of branching stems. Flower has 5-9 petal-like sepals with veins radiating from the base. Many yellow stamens found in flower's center. Mostly basal leaves that are round or kidney-shaped; heart-shaped at the base. Leaf edges often scalloped. Hairless, branching stems. Plant often grows in clumps.

Distribution & Habitat:

Circumpolar distribution. Throughout Canada and Alaska, NGPs and upper Midwestern states, Great Lakes states, and northeastern states.
Disjunct population in southern British Columbia, Washington, and Oregon. Found in several counties in northeastern and east central South Dakota. A wetland-obligate in the Great Plains. Wet meadows and seasonal streams.

Threats:

Livestock management and unlimited access to streams along with hydrological alterations, shoreline development, and wetland drainages. Climate variations to temperature and precipitation patterns also could impact the species.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Protect intact wetland systems from drainage and diversion.

Monitoring

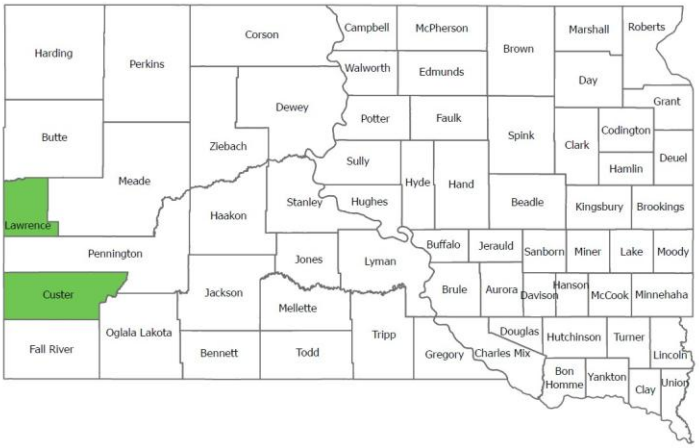
- Surveys needed to better understand distribution and abundance in areas at edges of distribution, such as South Dakota.
- May be suitable species to study climate change impacts.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
This early blooming plant provides nectar and pollen for bees and flies. Mature seeds are eaten by birds and rodents. Native Americans medicinally used it for treatment of skin inflammation, gastrointestinal problems, and general aches and pains. Some Native cultures believe the species to have magical effect on internal bleeding.

MOUNTAIN HUCKLEBERRY MOHU

(Vaccinium membranaceum)



Conservation Profile

TSN #	23601
Global Rank	G5 (secure)
State Rank	S2 (Imperiled)

Description:

This frost-tolerant shrub has stems ranging from 1-4 feet (0.3-1.2 m) high. Small, alternate leaves are 1-3 inches (2-7 cm) long. Reproduces by seed or from adventitious buds on rhizomes and root crown. Each stem can produce one berry. Roots can penetrate as deeply as 40 inches (100 cm).

Distribution & Habitat:

Occurs in western Canada and western U.S. Within South Dakota, found in the Lead-Deadwood area of the northern Black Hills above 5,000-foot (1,524 m) elevation. Although known from more than two dozen sites in the state, 90% of them are clustered in a township-sized area of private land. It is an understory species of coniferous woods, talus slopes, and subalpine fir forests. Can survive low severity fires.

Threats:

Observations of South Dakota populations indicate plants do not fruit in dry years, indicating a potential susceptibility to climate change impacts. The majority of state populations are found within an area of private land that could be subject to mining

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

There are no actions at this time.

Monitoring

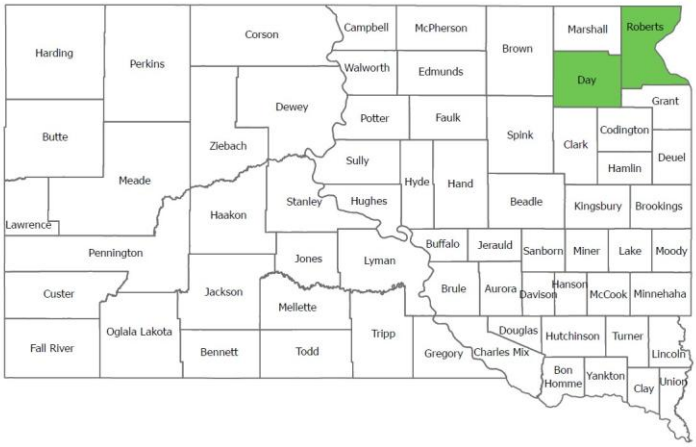
- A potential species for monitoring impacts of climate change in the northern Black Hills.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Ungulates browse this shrub. Berries eaten by ruffed grouse (an animal SGCN) and various songbirds. Dense thickets provide cover for small birds and mammals. In some parts of its range, Native Americans burned patches during the fall after harvesting berries, to reduce shrub and tree invasion.
An important food for Native Americans in the Pacific Northwest.

NODDING TRILLIUM NOTR

(Trillium cernuum)



Conservation Profile

TSN #	43065
Global Rank	G5 (secure)
State Rank	S2 (Imperiled)

Description:

A perennial herbaceous plant that reaches 6-24 inches (15-60 cm) tall. A single terminal flower has three white to cream-colored, strongly recurved petals and three sepals nearly as long as the petals. A whorl of three leaves tops the main stem. Named because flowers hang downwards, sometimes resulting in their concealment by the leaves.

Distribution & Habitat:

Ranges from central and eastern Canada and north-central and northeastern states south to the Great Lakes and mid-Atlantic states. Rarer along its southern periphery. Occurs in northeastern South Dakota, which is the southwestern periphery of the species' range. Within South Dakota, habitats include forested coulees in maple-basswood forests.

Threats:

Invasive plant species are a concern along with over browsing by native ungulates, such as white tailed deer. Loss and fragmentation of habitat from urban development and agriculture are also ongoing threats.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Help control invasive species to protect the native habitat.

Monitoring

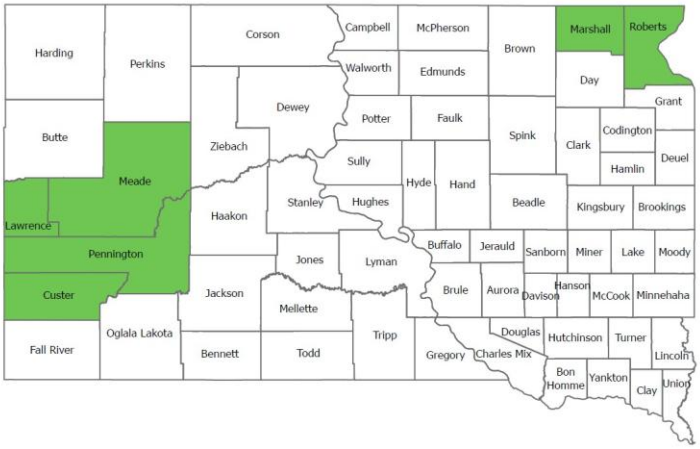
- Periodically revisit known sites to assess status and potential threats.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
As a group, trilliums have a variety of medicinal uses by both traditional and modern users. Native Americans used a trillium root tea for childbirth and menstrual issues. Secondary metabolites have been identified in this group with potential medicinal values.

BEAKED HAZEL BEHA

(Corylus cornuta)



Conservation Profile

TSN #	19507
Global Rank	G2 (Imperiled)
State Rank	SNR (Not ranked)

Description:

A perennial woody species that grows to be 12-20 ft tall. Leaves are simple, alternate and 2 1/4 to 4 1/2 inches long. Edges of the leaves are coarsely double toothed and have a few shallow lobes. New twigs appear greenish-yellow and hairless or might have minute hairs, but they become smooth after the second year of growth. The species strongly resembles the American hazelnut.

Threats:

Exotic species and fire are some common threats, but it is not well documented in South Dakota.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Distribution & Habitat:

A wide distribution across the United States. Typically are found in partly shaded areas, open woods, river banks, and thickets. In the Black Hills of South Dakota, beaked hazelnut can be found amongst paper birch and dominating the shrub layers.

Conservation Actions & Needs:

Help inform landowners about proper management with fire and grazing.

Monitoring

- Periodically revisit known sites to assess status and potential threats.

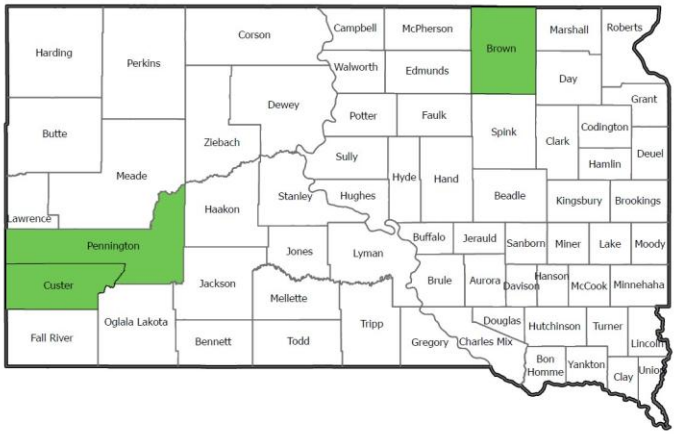
South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:

Native Americans used the nuts for food and would use the wood for arrows. They also used parts of the shrub medicinally.

PRAIRIE DUNEWORT PRDU

(Botrychium campestre)



Conservation Profile

TSN #	501018
Global Rank	G3 (Vulnerable)
State Rank	S2 (Imperiled)

Description:

A perennial ferns with a single frond that is 6-12 centimeters tall. The frond has two segments, one that is fertile and the other is not, but they both share a common stalk. The plant spores germinate underground and develop into small non-photosynthetic gametophytes.

Distribution & Habitat:

Occurs in the northern United States and southern parts of Canada. There is a wide range, but it generally occurs in prairie habitats including dry hill prairies and gravelly prairies. Sites that have relatively high ecological quality and no history of agriculture are good places to look. In South Dakota, it also occurs in the BHNF and in Wind Cave National Park.

Threats:

Habitat conversion and extreme drought are the ongoing threats.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

There are no actions at this time.

Monitoring

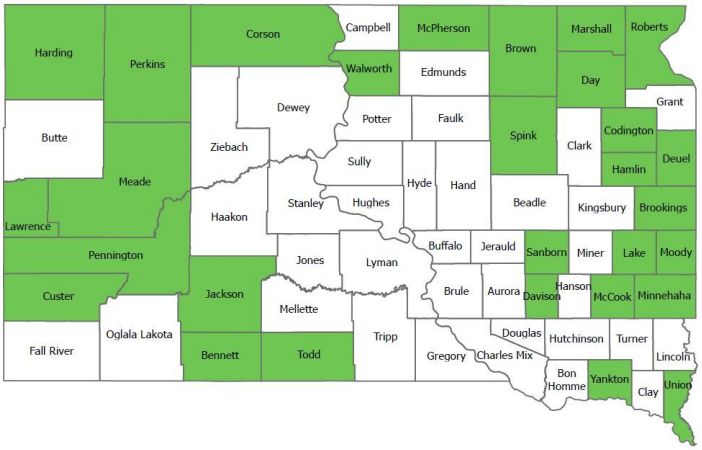
- Periodic monitoring of sites to assess sustainability and potential threats.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Research is ongoing looking at the actual sizes of populations, the amount of vegetative reproduction vs. sexual reproduction, and the anatomy of the underground gemmae (Farrar pers. Comm. 1995.)

PRAIRIE VIOLET PRVI

(Viola pedatifida)



Conservation Profile

TSN #	22131
Global Rank	G5 (Secure)
State Rank	SNR (Not ranked)

Description:

A perennial herbaceous plant that reaches about 12 inches (30 cm) tall. Five-petaled blue-violet flowers face outward and hang from leafless stalks. Green leaves are all basal and deeply palmately lobed.

Distribution & Habitat:

Ranges from Ontario and Alberta south through majority of central states. Dry prairie; open woods. Sunny sites with mesic to dry soils. Considered an indicator of high-quality prairie remnant habitats.

Threats:

Habitat conversion, chemical applications, and grazing management.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Help inform producers of proper grassland management techniques.

Monitoring

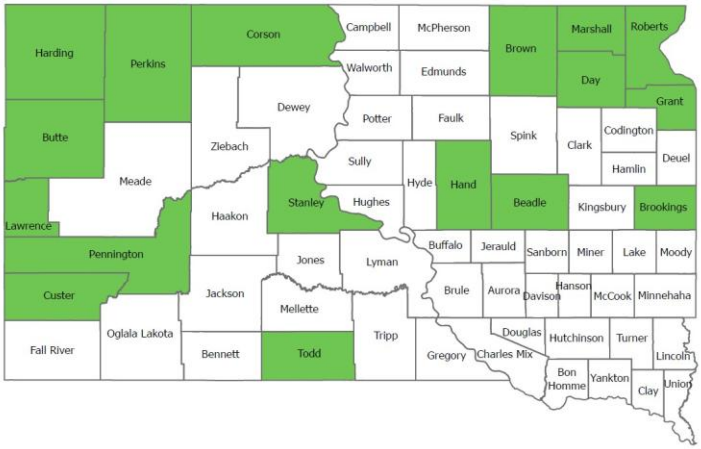
- There is no monitoring at this time.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Violets in general are important larval host plants for a variety of insects, including various types of bees and butterflies. This species is a larval host plant for the regal fritillary, a state animal species of greatest conservation need and likely other South Dakota fritillaries, such as variegated, great spangled, Aphrodite, and silver-bordered.

QUAKING ASPEN QUAS

(Poplus tremuloides)



Conservation Profile

TSN #	195773
Global Rank	G5 (Secure)
State Rank	SNR (Not ranked)

Description:

A dioecious tree that grows 60-100 ft tall. Leaves are simple and alternate with a flat leaved stalk. Twiggs appear reddish brown and shiny, while the bark is thin and smooth. The bark is whitish on the trunk and branches. It can spread easily through suckers producing what could be thousands of trees.

Distribution & Habitat:

Relatively abundant and widespread and is the most common *Populus* species in North America. This species represents an important habitat type in the Black Hills.

Threats:

In some areas it has been outcompeted by conifers through fire suppression.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Highlight the importance of prescribed fire and help with ecological restorations following fire.

Monitoring

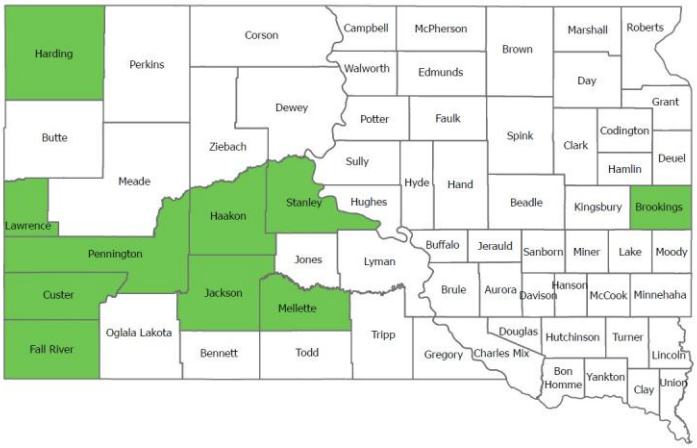
- There is no monitoring at this time.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Quaking aspens are also known as trembling aspens because of their leaves. They are attached to the branches with lengthy stems called petioles, which allow them to tremble in light breezes. Another interesting fact, quaking aspen conduct photosynthesis through their bark instead of their leaves.

RYDBERG'S TWINPOD RYTW

(Physaria brassicoides)



Conservation Profile

TSN #	23274
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)

Description:

This small, many-stemmed perennial herb reaches 6 inches (15 cm) high. Yellow flowers bloom in May and June. Many basal leaves in a rosettelike pattern. Leaves have silvery appearance with short, fine hairs. Also called Rydberg's double twinpod and double twinpod.

Distribution & Habitat:

A regional endemic of the NGPs.

Within the state, documented mainly in northwestern and southwestern South Dakota. Found in clay soils, dry gravel sites, and barren rock outcrops in badlands, barren habitats, and bare hillsides.

Threats:

Regional endemic of the NGPs. Not considered secure in its status in any of the 6 states within its range.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

There are no actions at this time.

Monitoring

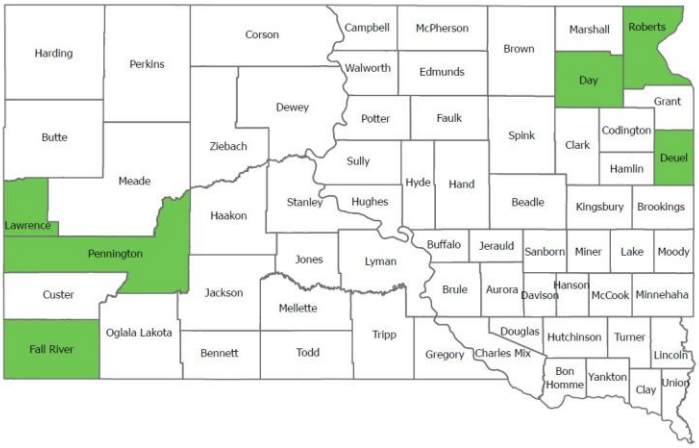
- Investigate whether all occurrences are this species or could be *P. didymocarpa*, which South Dakota plants were previously considered to

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
SD Wildlife Action Plan criterion: 2a – a species that is regionally or globally imperiled and for which South Dakota represents an important portion of their remaining range. Although NatureServe has assigned a global rank of G5, this rank has not been reviewed since 1986. Of the six states within this species' range, four have assigned state ranks of S3 (vulnerable) and two states have assigned ranks of S1 (critically imperiled).

SAGE WILLOW SAWI

(Salix candida)



Conservation Profile

TSN #	22514
Global Rank	G5 (Secure)
State Rank	S1 (Critically Imperiled)

Description:

A low-growing, deciduous, perennial shrub that can reach 5 feet (1.5 m) tall. Narrow leaves are densely white-woolly on the undersides. Woolly hairs on branches and leaves give the plant an overall appearance of a sage color. Catkins emerge with the leaves. Also called hoary willow.

Distribution & Habitat:

Broadly distributed across Canada, Alaska, and northern states from west to east coast. Within South Dakota, the most prominent site is McIntosh Fen in the Black Hills, which is adjacent to Castle Creek upstream from Deerfield. Additional smaller populations occur in northeastern South Dakota. Wetland obligate of the Great Plains. Calcareous seeps, bogs, and swamps. In South Dakota, all known occurrences are in small fens.

Threats:

Alteration of hydrology such as wetland drainage or diversion. Reduction in beaver populations, fire suppression, and livestock grazing.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Protect integrity of McIntosh Fen, a Forest Service Botanical Area, including continued protection from off-road vehicles and livestock use and continued use and assessment of prescribed burns. The isolated nature of this population may represent a source of genetic diversity for the species.

Monitoring

- Most of the 8 known occurrences were last visited and assessed in the mid-1980s. Revisit to update information on status and potential threats
- Investigate use of this species by insect pollinators
- Survey other areas, particularly on private lands, to locate additional populations.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

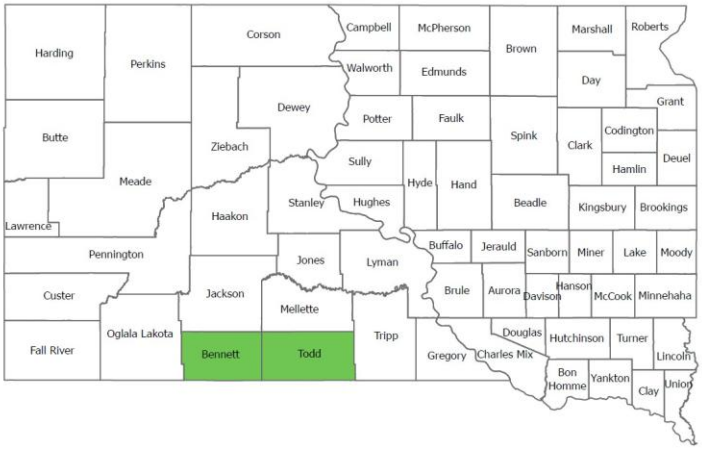
Conservation or Species Highlights:
Existing recovering plan: Decker, K. 2006. *Salix candida* Flueggé ex Wild. (sageleaf willow): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available: https://cnhp.colostate.edu/wp-content/uploads/download/documents/Spp_assessments/salixcandida.pdf [Accessed 12 Sep 2024].

SAND LOVEGRASS SALO

(Eragrostis trichodes)

Conservation Profile

TSN #	40768
Global Rank	G5 (Secure)
State Rank	S4 (Apparently secure)



Description:

A warm-season, clump-forming perennial grass that reaches 15-60 inches (38-150 cm) tall. Straight branches divide many times from the central stalk. The tip of each branchlet has a finely textured spikelet or flower cluster, usually purplish and slightly flattened. Mostly basal leaves that are hairless except for a few long hairs on lower ¼ of the upper surface.

Threats:

There are no threats at this time besides it is unique habitat type.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Distribution & Habitat:

Southern South Dakota to Texas; Midwestern and Great Lakes states; and a few northeastern and western states. Within the state, occurs in the Sandhills of southcentral South Dakota (and adjoining Nebraska) and in Missouri River-adjacent sand dunes in extreme southeastern portion of state. Likely under collected in the state. Specific habitat types include open sandy woods, sandy range sites, roadsides, sandy prairies, and rocky slopes.

Conservation Actions & Needs:

There are no actions at this time.

Monitoring

- Conduct more surveys in the sandhills of South Dakota to more accurately describe the status of this species.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Useful forage for wildlife and domestic livestock, particularly during the summer.

SAND SAGEBRUSH SASA

(Artemisia filifolia)

Conservation Profile

TSN #	35463
Global Rank	G5 (Secure)
State Rank	SNR (Not ranked)

Description:

A perennial warm season shrub that is freely branching and reaches about 4 feet in height. Flowers are numerous and small and appear in August and September. The leaves are alternate, in bundles, and appear to be bluish-green and hairy. The plant reproduces by seed.

Distribution & Habitat:

Found in the western states of the United States. The species is a good indicator of sandy soils and is typically found in sand dunes and hills. In south Dakota sand sagebrush represents Sand Sagebrush Steppe plant community type found primarily in southwestern counties

Threats:

Tree encroachment especially ERC and climate change are current threats. Fire suppression, over grazing, and herbicides are other threats.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Protect this habitat type especially by managing tree encroachment with the use of fire and mechanical methods. Proper grazing management can also enhance this habitat type.

Monitoring

- There is no monitoring efforts at this time.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Native Americans used sand sagebrush medicinally and for ritualistic cleansings. Northern bobwhites and the lesser prairie chicken can be depended on this species.

SILVER-MOUNDED CANDLEFLOWER SICA

(Cryptantha cana)

Conservation Profile

TSN #	31767
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

This perennial plant has a clumped or tufted growth form (cespitose) and can reach 6 inches (15 cm) high. Stems are erect, with mostly basal leaves. White flowers occur on the upper half of the stem with inconspicuous bracts below. Usually, single nutlets.

Distribution & Habitat:

A regional endemic limited to portions of Montana,

Wyoming, Colorado, Nebraska, and South Dakota. Occurs in southwestern South Dakota in Custer and Fall River counties. Also ranked S2 in Colorado; S3 in Wyoming; and S4 in Montana. Sandy, calcareous soils of slopes and rangelands, juniper woodlands, and sagebrush steppe.

Threats:

Threats include livestock grazing, trampling, and invasive species.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Help inform landowners on the importance of grazing management and invasive species control.

Monitoring

- Eight known occurrences in the state; none are current
- Former GFP botanist commented that he expected this species to be more common on Buffalo Gap National Grassland than has been documented. Additional surveys needed to better understand state distribution.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
There are no highlights at this time.

SMALL-FLOWER SAND VERBENA SMVE

(Tripterocalyx micranthus)

Conservation Profile

TSN #	19621
Global Rank	G4 (Apparently secure)
State Rank	S1 (Critically imperiled)

Description:

An annual herb that can reach up to 20 inches. A member of the four-o'clock family (*Nyctaginaceae*). The stems are pale and enlarged at the nodes. The leaves have prominent veins and are somewhat round. The flowers lack petals, but have 5 petal like lobes.

Distribution & Habitat:

Wide ranging species that occurs in sandy soils in sand prairies. Occurs from Saskatchewan and Alberta, Canada south to Kansas and New Mexico to California in the United States. In South Dakota, it occurs in the sand prairie/river valley of Missouri Plateau complexes within grasslands.

Threats:

Current threats including grazing, erosion, invasive species and recreational activities.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Help inform landowners about grazing and invasive species management that will help this species along with its associated habitat.

Monitoring

- Continue to monitor plan populations from previous locations.
- Survey in non-drought years.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
In 2002, The committee on the status of endangered wildlife in Canada put out a assessment report. There is no known commercial use or horticultural uses due to the preference for drifting sand. As of 2002, Little habitat still remains in Canada. Find more information here, https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/cosewic/sr_smallflowered_sandverbena_e.pdf

SMALL FRINGED GENTIAN SMGE

(Gentianopsis procera)

Conservation Profile

TSN #	30091
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Small annual plant with single blue to blue-violet blooms at the end of the main stem. Trumpet-shaped flowers are 1-2 inches (2.5-5 cm) long. Edges of the four rounded flower lobes have short fringe or fine serrations. A plant may have 1-6 flowers, with only one blooming at a time, from August to September. The narrow leaves are up to 1½ inches (3.8 cm) long, opposite, and hairless. Slender, erect stems are unbranched or with a few branches. The fruit capsule contains many seeds. Also called lesser fringed gentian.

Distribution & Habitat:

From the St. Lawrence Seaway in New York west to Ontario and Manitoba, upper Midwestern and Great Lakes states, and extreme northeastern states. Found in northeastern and northcentral South Dakota. Wetland obligate of the Great Plains. Inhabits moist soil sites of wet meadows, stream banks, thickets, and calcareous fens and springs. May be found in sunny or partially shaded sites.

Threats:

Activities that alter hydrology or threaten or destroy wetlands that support this species.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

There are no actions at this time.

Monitoring

- Periodically revisit known sites to assess status

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
SD Wildlife Action Plan criterion: 3 – species that is indicative of unique or declining habitats in South Dakota, wet meadows and calcareous fens and springs.

SMALL WHITE LADY'S SLIPPER SMSL

(Cypripedium candidum)

Conservation Profile

TSN #	43542
Global Rank	G4 (Apparently secure)
State Rank	S1 (Critically imperiled)

Description:

This perennial species may occur in clumps of dozens of stems emerging from a single root. One or rarely two flowers are present on a slender stem. The lower petal, or slipper, is up to 1 inch (2.5 cm) long and glossy white. Upper part of stem has 2-4 leaves that are 2-6 inches (5-15 cm) long and covered with short hairs.

Distribution & Habitat:

Manitoba and Ontario southward and southeastward through much of the Midwest and upper eastern states. Rare along periphery of its range, including in South Dakota, Nebraska, and Missouri. Occurs primarily in east-central South Dakota. Tallgrass and mixed-grass prairies; roadside ditches. Also in sedge meadows and calcareous fens. Pollinated by a variety of small andrenid and halictine bees. Its decline mirrors the loss of tallgrass prairie habitat.

Threats:

Habitat degradations, including the impacts of invasive plant species. Other challenges include alteration of hydrology, woody plant encroachment, illegal collecting, herbicide applications and the loss of pollinators.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Land management such as prescribed fire and maintaining hydrology can help conserve this species. Encouraging pollinator habitat throughout the range of the species.

Monitoring

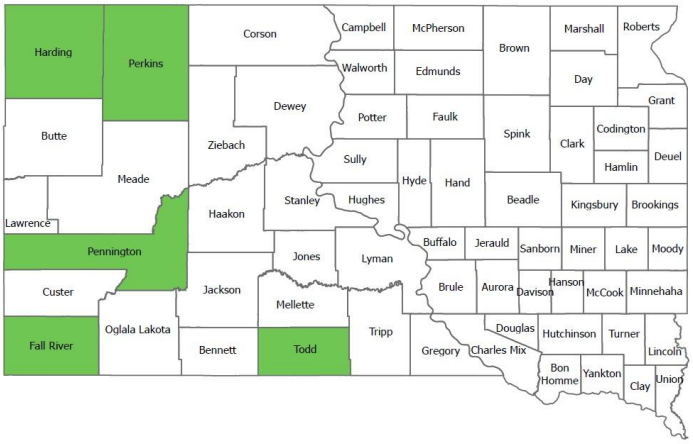
- Evaluate the effectiveness of early spring burns for habitat maintenance.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
This species depends on tallgrass prairie, a declining habitat in South Dakota and one that supports the Dakota Skipper, a federal threatened species and state SGCN. This plant relies on pollination by certain bee species. Pollinators in general are suffering dramatic declines.

SMOOTH GOOSEFOOT SMGO

(Chenopodium subglabrum)



Conservation Profile

TSN #	20635
Global Rank	G3 (Vulnerable)
State Rank	S2 (Imperiled)

Description:

An annual that is part of the pigweed family (*Amarathaceae*). The leaves are alternate and are single veined, glabrous, and up to 3cm long. Each flower lacks petals but has 5 glabrous sepals and 5 stamens. The flowers appear green and are grouped in remote clusters.

Distribution & Habitat:

Occurs in actively moving sand in the central to NGPs. Populations vary tremendously from year to year, but many occurrences are small in size. In South Dakota, it has been found near *Sporobolus cryptandrus, Chenopodium ambrosioides, Ambrosia acanthicarpa, Oryzopsis hymenoides,* and *Rumex venosus*

Threats:

Invasive species and management are two big threats to the habitat in which this species thrives. Sand stabilization and fire stabilization are also ongoing threats.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Find a balance of adequate fire and grazing management. Noxious weed control will help give space for this species.

Monitoring

- Revisit sites with known populations.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
Canada created an assessment and update status report in 2006 that covered many topics including threats and special significance of this species. https://wildlife-species.az.ec.gc.ca/species-risk-registry/virtual_sara/files//cosewic/sr_smooth_goosefoot_e.pdf

SNOW TRILLIUM SNTR

(Trillium nivale)

Conservation Profile

TSN #	43079
Global Rank	G4 (Vulnerable)
State Rank	S2 (Imperiled)

Description:

A small, early blooming perennial that reaches a height of 3-6 inches (8-15 cm). A single, three-petaled, white terminal flower. Three green sepals are shorter than the petals. Just below the flower is a single whorl of three leaflike bracts, approximately 2 inches (5 cm) long, with prominent parallel veins. Leaves and stem are hairless.

Distribution & Habitat:

Widespread across northeastern states and westward as far as South Dakota and Nebraska. Within South Dakota, occurs in southeastern portion of the state, including Newton Hills State Park and some surrounding areas and along bluffs of the Big Sioux River, with an historical record in Deuel County. Calcareous wooded habitats. Thrives in areas with little leaf litter and little competition with other herbaceous plants (Meredith et al. 2022).

Threats:

Impacted by invasive plant species. Depending on location, may be threatened by grazing, quarrying, logging, hydrological alterations, erosion from recreational land use, and habitat loss to development. Some analyses have found this species to have low levels of genetic variation.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Appears to have been successfully introduced to another site (Union County State Park). These results suggest this may be a potential conservation action in other areas with appropriate habitat.

Monitoring

- Of nine occurrences in South Dakota Natural Heritage Database, the 3 most recently surveyed were last observed in 2010 (2) and 2016. Revisit known sites to assess status.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
In 2022, multiple partners put together a conservation status report of all trillium species in North America. The species population is uncertain, but very large subpopulations occur and appears to be at low risk of extinction. https://issuu.com/mtcuba/docs/the_conservation_status_of_trillium_in_north_ameri?e=43224013/92008195

TRAILING CLUBMOSS TRCL

(Lycopodium complantum)

Conservation Profile

TSN #	17025
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)

Description:

Perennial evergreen fern-like species found in cooler temperate regions. It has slender creeping stems that spread along the forest floor with vertical leaves the appear in a spiral. IT has reproductive structures called strobili, which are cone shaped and produce spores for reproduction. It does well in low light conditions.

Distribution & Habitat:

Widespread across both Canada and the United States. Typically it appears in cool, shade environments and it is found in coniferous forests in the undergrowth of spruce, fire and pine trees. It can also be found in bogs and woodland clearing depending on the acidity of the soil. In South Dakota, it is indicative of moist woodlands within white spruce and paper birch/hazelnut plant communities.

Threats:

Habitat loss, climate change, and invasive species are potential threats to trailing clubmoss across its geographic area.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Continue to protect the habitat from deforestation and with proper management. Proper management will help with invasive species.

Monitoring

- Conduct regular surveys to monitor population health.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
In 2002, the Forest Service put out a conservation assessment of *L. complantum*. The status on private lands is unknown, but equally as important is the conservation of existing populations on National Forest land in South Dakota. Https://www.fs.usda.gov/rm/pubs_other/rmrs_2002_sieg_c001.pdf

TWO-FORM PUSSYTOES TWPU

(Antennaria dimorpha)

Conservation Profile

TSN #	36727
Global Rank	G5 (Secure)
State Rank	S1 (Critically imperiled)

Description:

A low growing perennial that forms dense mat-like rosettes of basal leaves. The leaves are lance shaped and covered in silvery fine hairs giving a soft texture. In the spring, the plant produces small pink flowers arranged in dense clusters. It is relatively short and grows to 2-6 inches in height.

Threats:

Habitat loss, climate change, and invasive species are potential threats.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Distribution & Habitat:

Occurring mostly in the western part of the United States and Canada. The plant thrives in dry, open and often rocky or sandy habitats. It can also be found in meadows and alpine slopes. The low stature allows the plant to be resilient to harsh conditions such as drought. In the Black Hills, it can be found in dry meadow habitats.

Conservation Actions & Needs:

Conservation efforts should focus on protecting and managing habitats, controlling invasive species, and proper grazing management.

Monitoring

- Conduct regular surveys to monitor population health.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
The unique texture and soft hairs allowed this plant to be used for crafts such as making decorations in the Native American culture.

WESTERN PRAIRIE FRINGED ORCHID WEOR

(Platanthera praecleara)

Conservation Profile

TSN #	196423
Global Rank	G3 (Vulnerable)
State Rank	SH (Historical)

Description:

Single stemmed perennial that stands up to 33 inches (85 cm) tall. Has a showy open raceme of up to 24 white to creamy white flowers, each with a long nectar spur. The lip, or lower petal of each flower, is deeply three-lobed and fringed. Flowering plants have three or more smooth, elongate leaves.

Distribution & Habitat:

Only known locations of this species in South Dakota are from Brookings and Minnehaha counties in eastern South Dakota. Last known state record is from 1916. Historically, this species was only found in the Big Sioux River watershed on the Prairie Coteau. Outside of South Dakota, this species prefers quality tallgrass prairie, especially wetter sites that drain well.

Threats:

Not been detected in the state since 1916. However, due to the proximity of known populations of this species in Minnesota and North Dakota, and the fact that it is a federally threatened species, this plant remains a conservation priority if it is detected again within the state.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Continue Cooperative Agreement with USFWS to assist with federal endangered species recovery in state. Monitor to detect occurrence of species in state and educate public and partners to increase likelihood of detection.

Monitoring

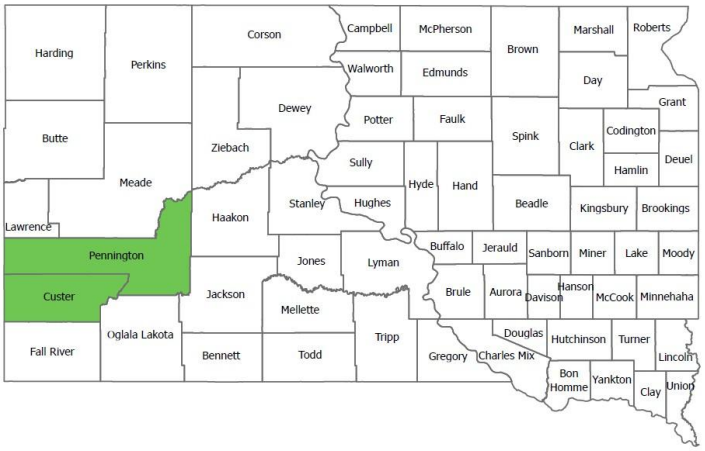
- Continue to interact with adjacent states regarding status of species.
- Habitat suitability modeling within South Dakota and across the region.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:
There are two plans that talk about the recovery of western prairie fringed orchid that can be found in these links. Https://files.dnr.state.mn.us/natural_resources/ets/fringed_orchid.pdf & https://puc.sd.gov/commission/dockets/HydrocarbonPipeline/2014/HP14-002/rstexhibit/24.pdf

WESTERN PORCUPINE GRASS WEGR

(Hesperostipa curtiseta)



Conservation Profile

TSN #	507975
Global Rank	G5 (Secure)
State Rank	SNR (Not ranked)

Description:

Cool season perennial clump forming grass that can grow up to 25 inches tall. Culms are sometimes hairy at the nodes with the leaf sheaths being smooth and shiny. Panicles can be between 6-24 cm with the glumes being subequal and 15-30 mm long. The awns can be anywhere between 50 and 105 cm and can attach to almost anything if it walks by.

Distribution & Habitat:

Fairly widespread across the western United States and Canada. South Dakota lies on the southern periphery of this species' range. Rare in the Black Hills and representative of the Black Hills Montane Grassland Plant Community, a community type endemic to the Hills of SD and WY and considered globally imperiled.

Threats:

Along with many other prairie driven species, habitat loss, invasive species, and habitat management are on going threats.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Continue to inform landowners about proper habitat management and how to control invasive species.

Monitoring

- Work with the Forest Service on population status.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Conservation or Species Highlights:

Hesperostipa curiseta is smaller than *Hesperostipa spartea* , another species of porcupine grass.

TWINFLOWER TWFL

(Linnaea borealis)

Conservation Profile

TSN #	35314
Global Rank	G5 (Secure)
State Rank	SNR (Not ranked)

Description:

A perennial species of the honeysuckle family (*Caprifoliaceae*). Reaches a height of 3-6 inches in the shaded understory. Leaves are opposite and generally oval in shape. The Stems are covered in a mix pf glandular and non-glandular hairs. Grows a pair of nodding flowers at the top of a slender hairy stem. Flowers appear to be pinkish purple and are about 1/2 long. Flowers bloom in the mid-summer. The fruit is a small one seeded capsule that is wrapped in small bracts.

Distribution & Habitat:

Widespread in North America in moist, often rocky woodlands, and occasionally in drier sites. In south Dakota, it is a component of dense coniferous forests from 6,000 – 10,000 feet in elevation. Occurs in moister stands of white spruce forest in the Black Hills.

Threats:

Fragmentation, invasive species, and climate change could cause local extinctions across its range.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Help informs landowners on how to control invasive species.

Monitoring

- Continue to monitor prior observations to update occurrence status.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

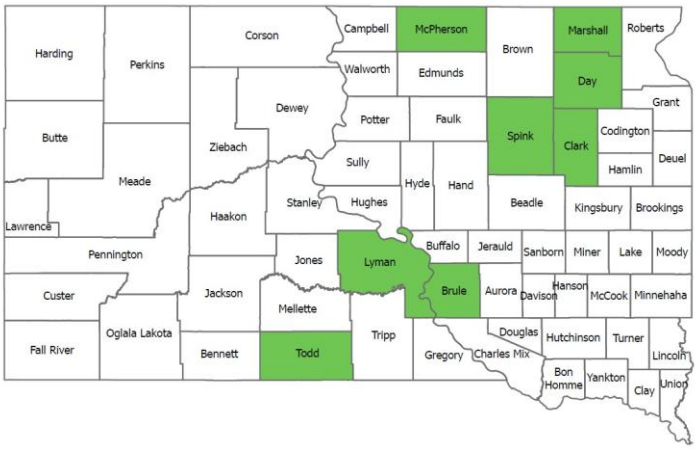
Conservation or Species Highlights:
This species was named after Carolus Linnaeus, who some refer to as the father of Botany. This is the only species in this genus, but there are three subspecies. https://www.fs.usda.gov/wildflowers/plant-of-the-week/linnaea_borealis.shtml#:~:text=Linnaea%20borealis%20was%20reported%20to,continents%20of%20the%20northern%20hemisphere. (Chris Mattrick— USFS, Accessed September 18, 2024).

WOOLY MILKWEED WOMI

(Asclepias lanuginosa)

Conservation Profile

TSN #	30277
Global Rank	G3 (Vulnerable)
State Rank	S2 (Imperiled)



Description:

A small, low-growing perennial species that may reach 10-12 inches (25-30 cm) in height. Blooms from late May through late June. One terminal convex or flat-topped flower head of small, pale, 5-petaled flowers. Seed pods have many fluffy seeds. Variable leaf shape, with fine woolly hairs on upper and lower surfaces. Two to three weakly erect stems covered with hairs.

Distribution & Habitat:

Manitoba and upper Midwest as far west as Montana and Wyoming and as far east as Wisconsin and Illinois. Locally rare within its eastern South Dakota distribution. The type specimen was collected in South Dakota by naturalist Thomas Nuttall in 1811 in the Missouri River breaks below the confluence with the White River. Relatively few historical collection sites in South Dakota have been relocated. Typically found in prairies, dry upland woods, or gravelly hillside prairies; sandy or rocky soils.

Threats:

Produces relatively few seeds per stem compared to other milkweed species. Other threats include the impacts of indiscriminate broadcast spraying, and destruction of prairie habitats.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Habitat maintenance or restoration through selective clearing and prescribed burns.

Monitoring

- Continue surveying known sites and manage as needed.
- Determine which invertebrate species are associated with this milkweed species.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

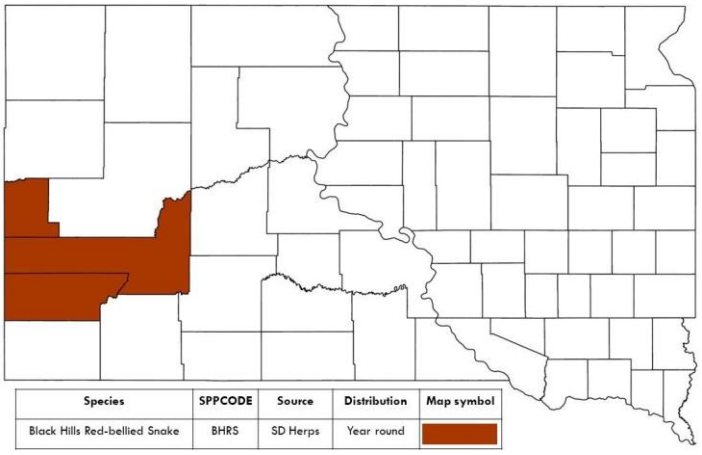
Conservation or Species Highlights:
Alike many other milkweed species, this one also supports the monarch butterfly which is in decline. It supports a wide range of insects alongside the monarch butterfly as well.

BLACK HILLS RED-BELLIED SNAKE - BHRS

(Storeria occipitomaculata pahasapae)

Conservation Profile

TSN #	209084
Global Rank	G5T4Q (Apparently secure subspecies, questionable taxonomy)
State Rank	S3 (Vulnerable)
Regional SGCN	Yes



Description:

The Black Hills red-bellied snake is a subspecies of the red-bellied snake. This is a smaller snake, adults are usually no more than 10-12 inches. It is easily identifiable by its bright red belly. A secretive snake, it commonly feeds on earthworms, slugs, and arthropods.

Distribution & Habitat:

This snake is found throughout the Black Hills, although it may be more common in moist and cool environments. It is semi-fossorial and is often found under rocks and logs.

Threats:

Black Hills red-bellied snakes are a genetically distinct, disjunct population. The next nearest red-bellied snakes are several hundred miles away. This makes Black Hills red-bellied snakes vulnerable to habitat fragmentation and extirpation. Snakes are also often killed on roads, especially as they are emerging and entering hibernacula. Black Hills red-bellied snakes are also projected to be negatively impacted by climate change.
South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Since this snake occurs almost entirely in the BHNF, management and conservation of this snake will largely depend on the US Forest Service.
This snake would benefit from more information on its distribution and abundance in the Black Hills.

Red-bellied snakes would likely benefit from minimal logging along riparian areas. Prescribed burns ideally should be performed outside the activity season (i.e., before emergence in the spring and after entering hibernacula in the fall). Hibernacula should be identified wherever possible and given protection. Education of the public on the benefits of red-bellied snakes (and snakes in general) could improve the public's perception of snakes and minimize road mortalities.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

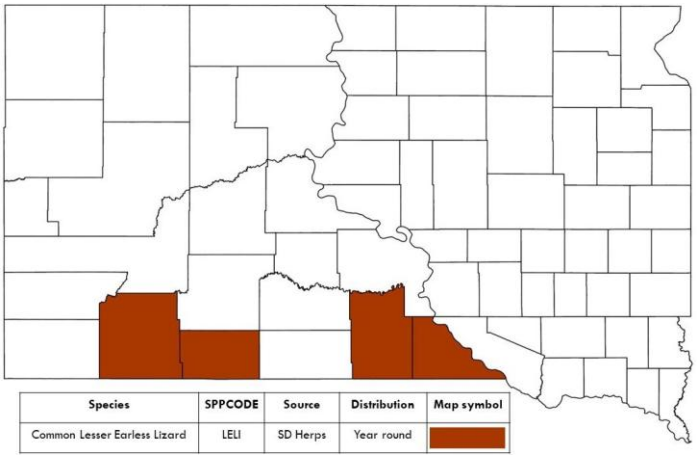
Red-bellied snakes are easily distinguished by their bright red undersides. When threatened, red-bellied snakes have been known to flatten their bodies, expose their red undersides, and even feign death.

COMMON LESSER EARLESS LIZARD - LELI

(Holbrookia maculata)

Conservation Profile

TSN #	173927
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	No



Description:

Common lesser earless lizards are typically around 4 -5 inches in length. They are usually a light grayish-brown and have two distinct black stripes on their sides.

Distribution & Habitat:

This lizard inhabits sandy habitat in the south-central part of the state, often in areas with little vegetation. South Dakota represents the northern tip of this species' range. They can be found as far south as Mexico.

Conservation Actions & Needs:

Only a handful of records of this lizard exist in the state, so there are questions about where exactly it is distributed and what its overall abundance is. Better monitoring and surveying could illuminate whether it occurs in areas like Todd county, Buffalo Gap National Grassland, and Badlands National Park.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Threats:

Common lesser earless lizards have a very small and restricted range in South Dakota, which makes them vulnerable to habitat fragmentation and extirpation.

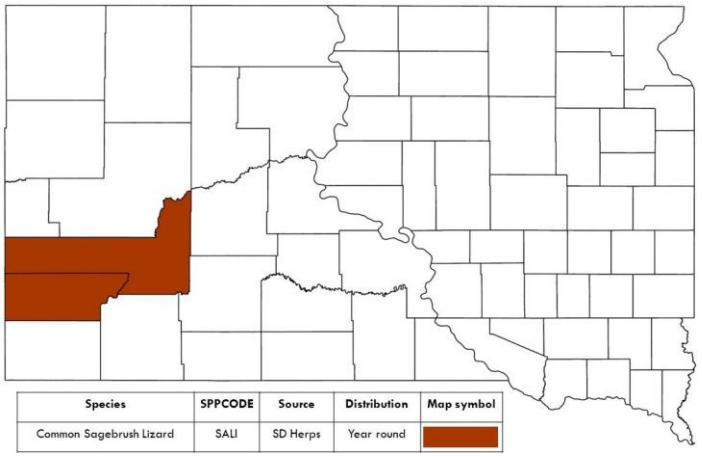
South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Highlights:

As their name suggests, common lesser earless lizards do not have external ear openings, but they can still hear! Dominant males also have the amusing habit of pushing their upper bodies up and down, which makes them look like they are doing push-ups. This is thought to help attract females.

COMMON SAGEBRUSH LIZARD - SALI

(Sceloporus graciosus)



Conservation Profile

TSN #	173870
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	No

Description:

Common sagebrush lizards typically reach about 4-6 inches in length and have several pale and brown stripes running down their bodies. They are in a genus called *Sceloporus*, commonly referred to as spiny lizards. These lizards are notable for having strongly keeled scales and prominent femoral pores.

Distribution & Habitat:

South Dakota is on the eastern edge of this species' range. They have been found at only a handful of canyons and rocky outcrops in the southern Black Hills, but could be more widespread.

Threats:

These lizards have a very narrow and restricted range in South Dakota, being found only in the Black Hills. This makes them vulnerable to habitat fragmentation and extirpation.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Since this lizard occurs almost entirely in the Black Hills National Forest, management and conservation of this lizard will largely depend on the US Forest Service. Better monitoring and surveying could illuminate how widespread it is in the Black Hills.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

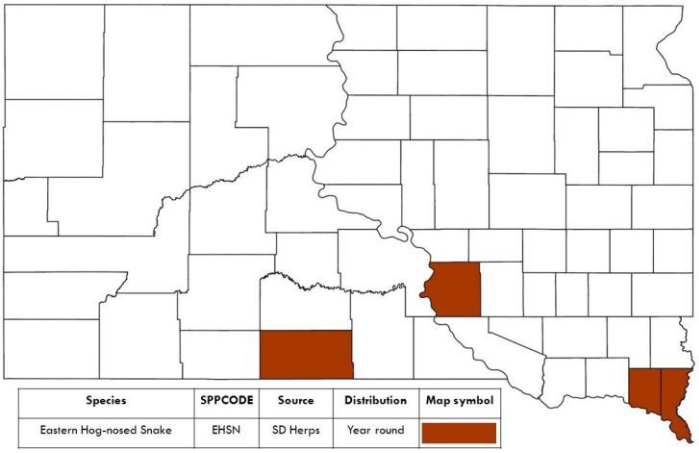
Common sagebrush lizards look very similar to prairie lizards (*Sceloporus consobrinus*). The best way to tell them apart is to compare the backs of their thighs. Common sagebrush lizards have granular, non-overlapping scales while prairie lizards have keeled, overlapping scales.

EASTERN HOG-NOSED SNAKE - EHSN

(Heterodon platirhinos)

Conservation Profile

TSN #	563935
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	No



Description:

Eastern hog-nosed snakes are a State Threatened species, typically reaching about 20-33 inches in length. Like other hog-nosed snakes, they have a distinctive upturned snout (hence the name). They use their snouts like shovels to burrow in the ground and look for frogs and toads (their favorite prey).

Distribution & Habitat:

This snake has only been documented in a handful of counties. It prefers loose, sandy soil, which has become less common along the Missouri River floodplain ever since four major dams were built.

Threats:

Ever since the Missouri River was dammed the river no longer experiences the same cycle of flooding and meandering. These processes would create sandy habitat ideal for many species. Intensive agriculture and less sandy habitat has likely negatively impacted eastern hog-nosed snakes. Snakes are also often killed on roads, especially as they are emerging and entering hibernacula.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Although eastern hog-nosed snakes seem to have undergone extensive declines in the state, there may still be remnant populations out there waiting to be discovered. A recent record in Todd county has been encouraging. More intensive surveying along the Missouri River and the south-central part of the state could better illuminate its distribution and abundance.

Hibernacula should be identified wherever possible and given protection. Education of the public on the benefits of eastern hog-nosed snakes (and snakes in general) could improve the public's perception of snakes and minimize road mortalities.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

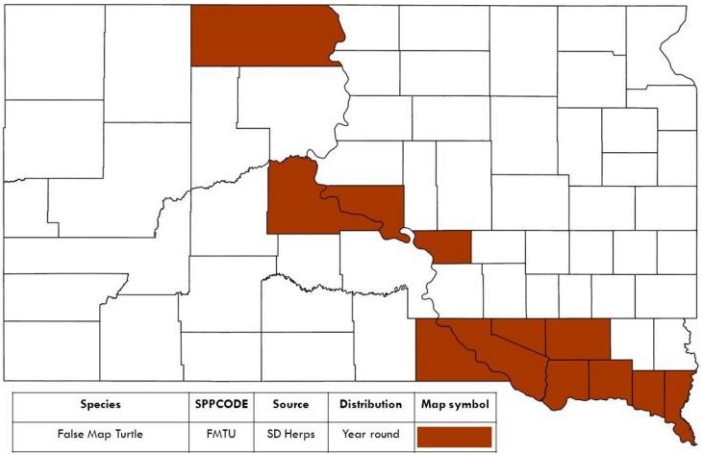
South Dakota is home to two species of hog-nosed snakes, the eastern hog-nosed snake and the plains hog-nosed snake. They look very similar, but there is an easy way to tell them apart. Plains hog-nosed snakes have black bellies, easterns do not.

FALSE MAP TURTLE - FMTU

(Graptemys pseudogeographica)

Conservation Profile

TSN #	173800
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)
Regional SGCN	No



Description:

False map turtles are a State Threatened species, typically reaching 4-10 inches in length. They look similar to the much more common painted turtle but have distinctive ridges going down the middle of their shells (painted turtles have smooth shells).

Distribution & Habitat:

False map turtles are primarily found in the Missouri River. They can be found in fast-flowing water as well as backwaters, ponds, and sloughs. However, they seem to be absent from reservoirs.

Threats:

This species has likely been negatively impacted by the construction of dams along the Missouri River. The Missouri River no longer experiences the same cycle of flooding and meandering, which means less sandbars and sandy habitat along the banks. False map turtles rely on this sandy habitat for nesting.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

More research is needed regarding its distribution and abundance along the Missouri River, as well as the smaller rivers and tributaries coming off of it.

False map turtles (and a host of other species) would benefit from better management of the Missouri River. A few artificial sand islands have been made for federally endangered species, and turtles have been documented nesting in these. More comprehensive measures have been proposed but not implemented. Doing so would require action by the US Army Corps of Engineers and agreement among numerous stakeholders.

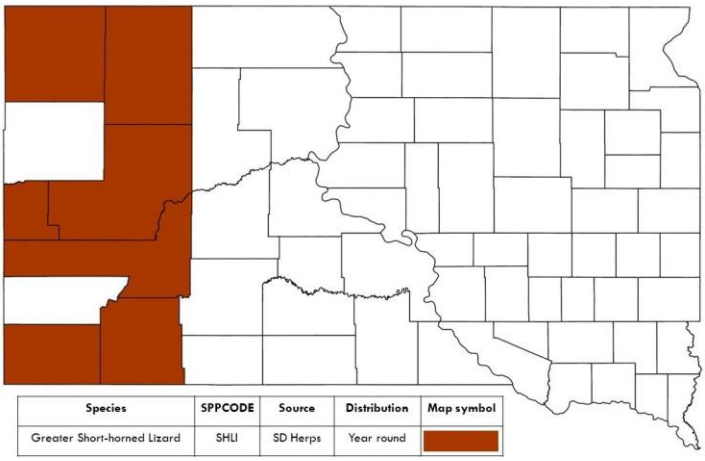
South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

Like many other turtle species, the sex of false map turtles is determined by temperature. Eggs incubated at 25°C or lower will produce mostly males, eggs incubated at 30°C or higher will produce mostly females.

GREATER SHORT-HORNED LIZARD - SHLI

(Phrynosoma hernandesi)



Conservation Profile

TSN #	564594
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)
Regional SGCN	No

Description:

The greater short-horned lizard is a stout little lizard, typically reaching about 3-4 inches in length. Horned lizards are distinctive for their spines, both around their heads and covering their bodies. These lizards feed mainly on ants.

Distribution & Habitat:

Greater short-horned lizards are found in the buttes and grasslands around the Black Hills. They prefer more open areas with sandy soils and will often bury themselves in the sand.

Threats:

This species seems to have experienced some declines in the state. It has not been observed in Meade and Pennington counties in several decades. This is likely due to the conversion of native grassland to agriculture.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

There are few verified records of this lizard in the state. This could be due to a patchy or declining distribution, but it could also be due to this lizard's secretive nature. More information is needed on where it occurs in the state and what its population trends are.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

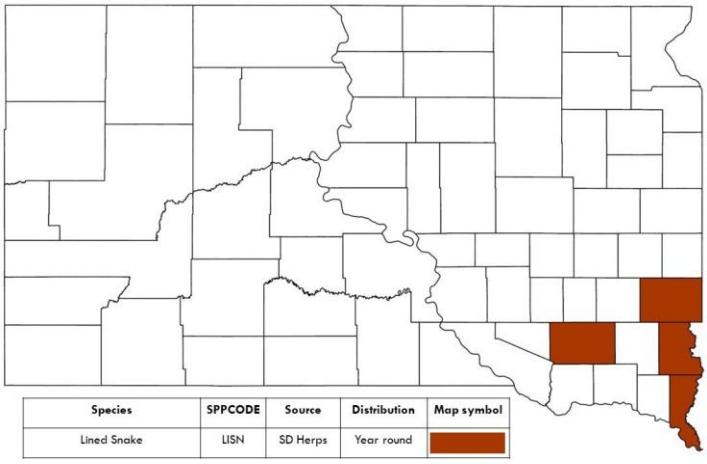
Horned lizards have the intriguing ability to shoot blood out of their eyes at predators when attacked.

LINED SNAKE - LISN

(Tropidoclonion lineatum)

Conservation Profile

TSN #	174293
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	No



Description:

Lined snakes are a small, secretive snake, typically reaching about 8-12 inches in length. They feed primarily on earthworms. Due to their rarity in South Dakota, they are a state endangered species.

Distribution & Habitat:

Lined snakes are only found in the southeast corner of the state. They seem to prefer grassland and woodland habitat, although they can also be present in residential areas. They are found in the Big Sioux River valley and have also recently been found in the James River valley.

Threats:

Lined snakes are primarily threatened by habitat loss. Much of their native prairie habitat has been and is being converted to cropland. They also face direct mortality from roads and are projected to be negatively impacted by climate change.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

More information is needed regarding this snake's distribution and abundance. It is encouraging that it has been documented along the James River, which could mean there are more populations waiting to be discovered.

Hibernacula should be identified wherever possible and given protection. Education of the public on the benefits of lined snakes (and snakes in general) could improve the public's perception of snakes and minimize road mortalities.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

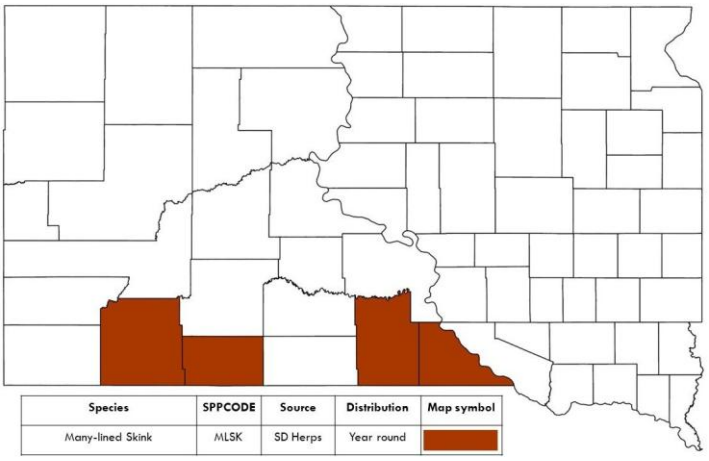
Lined snakes look very similar to garter snakes, but there is an easy way to tell them apart. If you look on the underside of a lined snake it has two very distinct rows of black half-moon crescents. Garter snakes do not have this pattern.

MANY-LINED SKINK - MLSK

(Plestiodon multivirgatus)

Conservation Profile

TSN #	1182155
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	No



Description:

This lizard reaches about 5-8 inches in length. Juveniles are black with bright blue tails. Adults have several brown, black, and light colored stripes running down their backs. Like other skinks, the many-lined skink has very short legs, a long tail, and very smooth scales.

Distribution & Habitat:

This species seems to only occur in the sandhills in the south-central part of the state, but records are few. They prefer sandy soil and rarely venture out into the open.

Threats:

This species is dependent on habitat with sandy soil. Loss of habitat and development would threaten this species.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Due to the paucity of records for this species, its exact distribution remains unclear. It has not been observed for several decades in Oglala Lakota and Bennett counties. Suitable habitat may occur in Todd county and Buffalo Gap National Grassland, but records are lacking. This lizard would benefit from more targeted surveys to gain a better understanding of its distribution and abundance.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

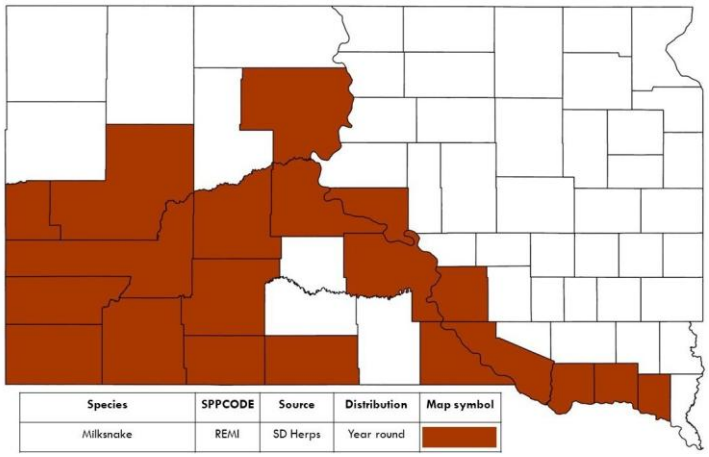
Many-lined skinks look similar to prairie skinks (*Plestiodon septentrionalis*), but their ranges do not seem to overlap in South Dakota. Prairie skinks are found in the eastern third of the state. Prairie skinks also tend to have thicker black stripes on their sides.

MILKSNAKE - REMI

(Lampropeltis triangulum)

Conservation Profile

TSN #	174187
Global Rank	G5 (Secure)
State Rank	S4 (Apparently Secure)
Regional SGCN	No



Description:

Milksnakes are a colorful snake, typically reaching around 24-36 inches in length. Due to their secretive nature, they are rarely seen.

Distribution & Habitat:

Milksnakes are found in a variety of habitats and have a wide distribution in the state. They can be found in grasslands, forests, rocky habitat, and the like.

Threats:

The main concern with this species is a lack of current distribution data. Although this species appears to have a wide range in South Dakota, many county records are decades old. Snakes are also often killed on roads, especially as they are emerging and entering hibernacula.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Conservation efforts should focus on acquiring more up-to-date distribution data for this species. With many records being decades old it is unknown if the milksnake has continued to persist in many areas of the state where it occurred historically.

Hibernacula should be identified wherever possible and given protection. Education of the public on the benefits of lined snakes (and snakes in general) could improve the public's perception of snakes and minimize road mortalities.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

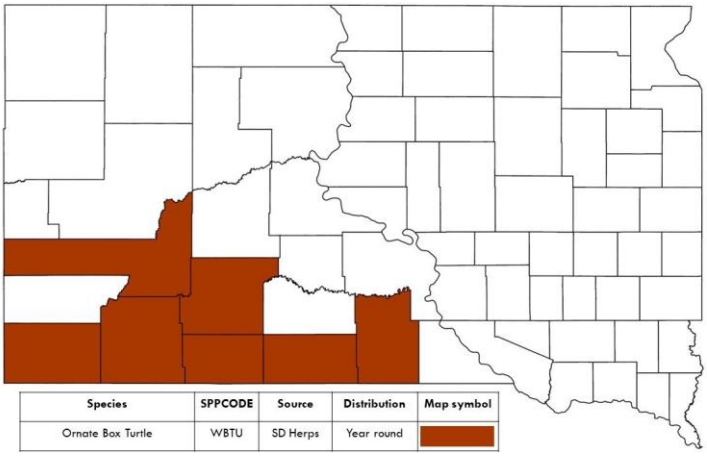
Milksnakes show quite a variety of color patterns throughout their range, and it often varies by geography. Red, black, white, brown, yellow, and orange are all colors this species has exhibited. In South Dakota, the most common color pattern is red, black, and whitish/grayish.

ORNATE BOX TURTLE - WBTU

(Terrapene ornata)

Conservation Profile

TSN #	173778
Global Rank	G4 (Apparently Secure)
State Rank	S3 (Vulnerable)
Regional SGCN	No



Description:

Ornate box turtles are a brilliant looking turtle, with yellow stripes on their shell and yellow or orange markings on their legs. Unlike most turtles, ornate box turtles spend almost all their time on land.

Distribution & Habitat:

Ornate box turtles are found in the south-central and southwest parts of the state. They seem to prefer sandy grassland areas.

Threats:

For populations to persist, these turtles need large tracts of quality habitat. They can withstand some agricultural development, but intensive agriculture is detrimental. Roads present a major source of mortality to these turtles. Box turtles are also collected for the pet trade.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Areas with healthy turtle populations should be identified and conserved. Areas with fewer roads are preferred. Turtles have long lifespans and reproduce slowly, which means a population cannot withstand high mortality rates. Education of the public on the benefits of ornate box turtles (and turtles in general) could minimize road mortalities.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

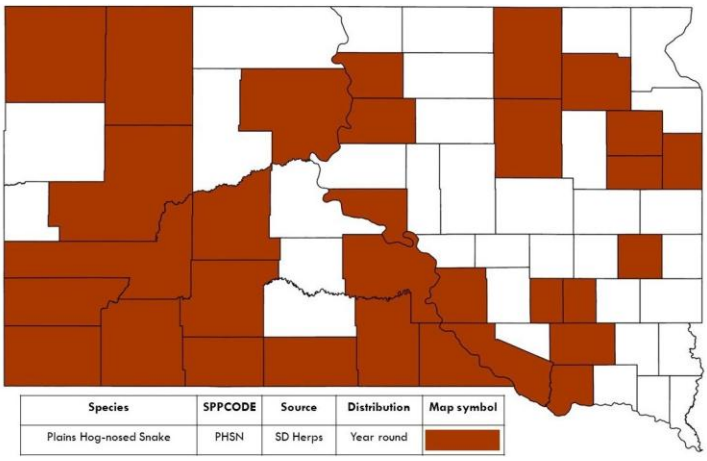
An easy way to tell apart adult males from females is to look at their eyes. Males have red eyes while females have brown or yellow eyes. Like many other turtle species, sex is determined by incubation temperature. Eggs incubated at 29°C or lower will produce mostly males, temperatures above this will produce mostly females.

PLAINS HOG-NOSED SNAKE - PHSN

(Heterodon nasicus)

Conservation Profile

TSN #	174155
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
Regional SGCN	Yes



Description:

Plains hog-nosed snakes typically reach around 15-26 inches in length. Like other hog-nosed snakes, they have a distinctive upturned snout (hence the name). They use their snouts like shovels to burrow in the ground and look for frogs and toads (their favorite prey).

Distribution & Habitat:

Plains hog-nosed snakes appear to have a patchy distribution in the state, but this may simply be due to incomplete distribution records. They may very well occur throughout the state. They prefer grassland with sandy soil.

Threats:

Plains hog-nosed snakes are threatened by habitat loss, particularly the conversion of native prairie to agriculture. Snakes are also often killed on roads, especially as they are emerging and entering hibernacula.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Although plains hog-nosed snakes appear to have a large distribution in South Dakota, many county records are decades old. This makes it difficult to determine whether populations are healthy or have experienced declines. More information is needed on the distribution and abundance of this snake in the state.

Hibernacula should be identified wherever possible and given protection. Like other snakes, hog-nosed snakes are susceptible to being killed on roads. Education of the public on the benefits of eastern hog-nosed snakes (and snakes in general) could improve the public's perception of snakes and minimize road mortalities.

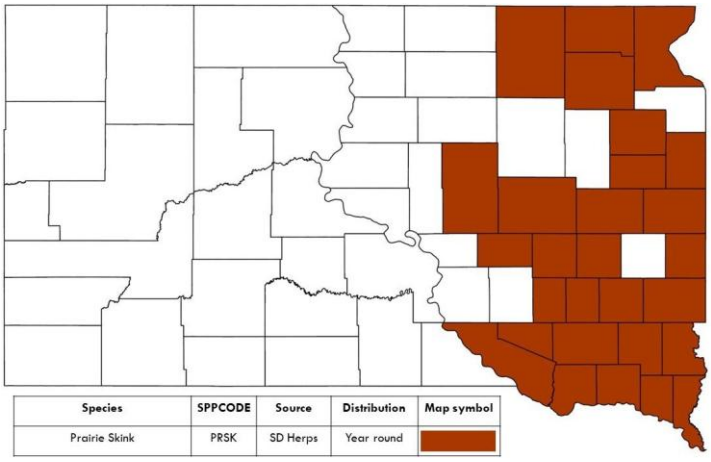
South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

South Dakota is home to two species of hog-nosed snakes, the eastern hog-nosed snake and the plains hog-nosed snake. They look very similar, but there is an easy way to tell them apart. Plains hog-nosed snakes have black bellies, easterns do not.

PRAIRIE SKINK - PRSK

(Plestiodon septentrionalis)



Conservation Profile

TSN #	208900
Global Rank	G5 (Secure)
State Rank	S5 (Secure)
Regional SGCN	No

Description:

Prairie skinks are a secretive lizard, typically reaching about 4-8 inches in length. Juveniles are black with bright blue tails, adults have a brown or tan background with black or light colored stripes. Like other skinks, prairie skinks have very short legs, long tails, and smooth scales.

Distribution & Habitat:

Prairie skinks are found in the eastern third of the state in grassland and woodland habitat. They can also occur in residential or suburban areas. They are rarely seen out in the open and spend most of their time burrowed in the ground or under rocks, logs, and the like.

Conservation Actions & Needs:

Loss of native prairie has been extensive in the eastern half of the state. Prairie lizards would benefit from protecting native prairie that remains and restoring prairie where possible. There are also a few counties where this lizard almost certainly occurs but verified records are lacking.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Threats:

Prairie skinks have undoubtedly experienced habitat loss with the conversion of native prairie to agriculture. Although they remain relatively common throughout their range, they have limited dispersal abilities and South Dakota represents an important part of this species' distribution.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Highlights:

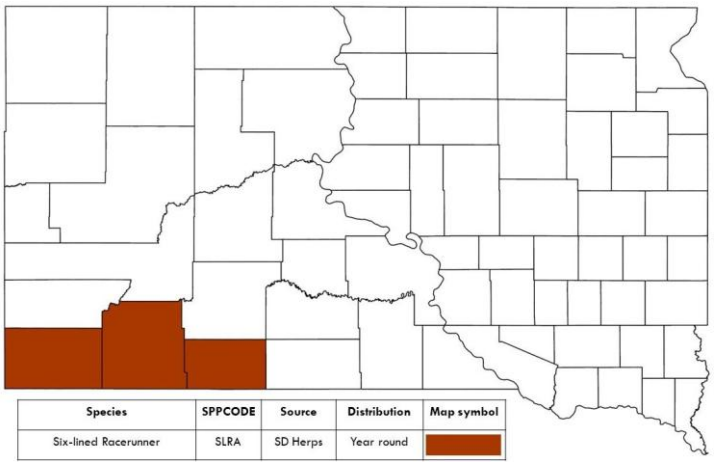
Prairie skinks have the interesting distinction of being the only lizard you will typically see in eastern South Dakota. Prairie skinks look similar to many-lined skinks (*Plestiodon multivirgatus*), but their ranges do not seem to overlap in South Dakota. Many-lined skinks are found in the south-central part of the state. Prairie skinks also tend to have thicker black stripes on their sides compared to many-lined skinks.

SIX-LINED RACERUNNER - SLRA

(Aspidoscelis sexlineata)

Conservation Profile

TSN #	914095
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	No



Description:

Six-lined racerunners have a dark background with lighter stripes. They can also have green near their heads. They typically reach about 6-11 inches in length. As the name indicates, they have six distinct lines running down their backs and tails.

Distribution & Habitat:

Six-lined racerunners are often found in dry areas with sparse vegetation. They have been recorded in the southwest corner of the state. More recent reports from Todd county, Union county, and the Cheyenne River indicate this species likely has a larger distribution than indicated on the map.

Conservation Actions & Needs:

There are relatively few records of this lizard in the state. Better monitoring and surveying could shed light on this lizard's distribution and abundance in the state.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Threats:

Six-lined racerunners have a limited distribution in South Dakota, which makes them vulnerable to extirpation. Intensive agriculture also has a detrimental effect on them.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Highlights:

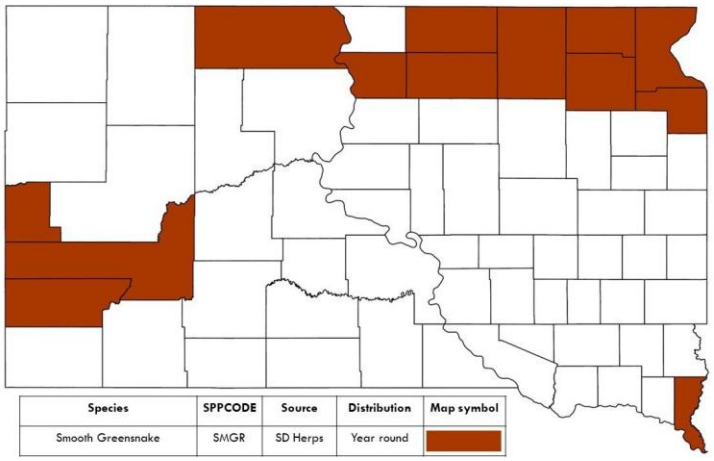
Six-lined racerunners are in a family of lizards called whiptails. Most of these species have long tails and are incredibly fast. Good luck trying to catch one by hand!

SMOOTH GREENSNAKE - SMGR

(Opheodrys vernalis)

Conservation Profile

TSN #	174173
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)
Regional SGCN	Yes



Description:

Smooth greensnakes are a solid green snake, typically reaching around 12-20 inches in length. They eat a variety of invertebrates, including crickets, spiders, snails, and worms.

Distribution & Habitat:

Smooth greensnakes are found in the Black Hills, the southeast corner of the state, and counties bordering North Dakota. They are often found in mesic grassy areas.

Smooth greensnakes appear to have a disjunct distribution in the state, but more study is needed. There could be more populations throughout the state that have yet to be detected due to this snake's secretive nature.

Threats:

This species is threatened by habitat loss. It has likely undergone extensive declines in the Great Plains due to the rise of modern agriculture. Snakes are also often killed on roads, especially as they are emerging and entering hibernacula.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Smooth greensnakes appear to be the most common and secure in the Black Hills, therefore special attention to that population is warranted. More research is needed on its distribution and abundance throughout the state.

Smooth greensnakes would likely benefit from minimal logging along riparian areas. Prescribed burns ideally should be performed outside the activity season (i.e., before emergence in the spring and after entering hibernacula in the fall). Hibernacula should be identified wherever possible and given protection. Education of the public on the benefits of smooth greensnakes (and snakes in general) could improve the public's perception of snakes and minimize road mortalities.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

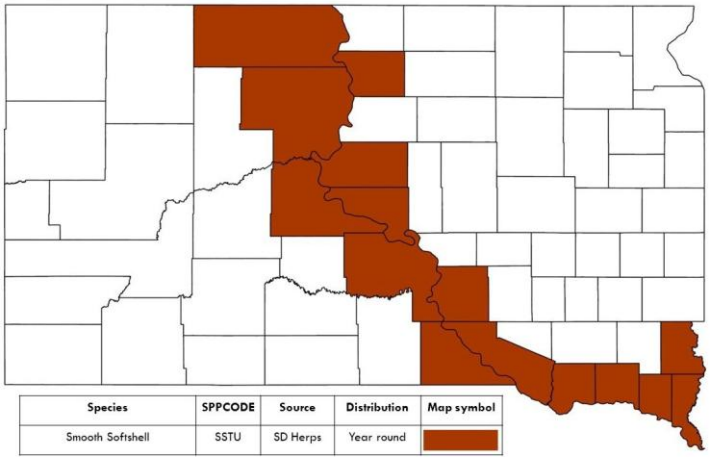
There should be no mistaking smooth greensnakes with any other snake in South Dakota. No other snake has such a solid green coloration. North American racers (*Coluber constrictor*) can be somewhat greenish or olive, but it is not as striking. Racers are also much bigger than greensnakes.

SMOOTH SOFTSHELL - SSTU

(Apalone mutica)

Conservation Profile

TSN #	208677
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)
Regional SGCN	No



Description:

Smooth softshell turtles are a grayish, brownish turtle typically reaching 5-14 inches in length. Unlike most turtles, the outside of their shells is soft and leathery.

Distribution & Habitat:

Smooth softshell turtles seem to occur mainly in the Missouri River. They prefer free and fast-flowing rivers and require sandy banks and sandbars for nesting. They are not quite the habitat generalists that spiny softshells are and are not found as frequently in reservoirs and standing water.

Threats:

This species has likely been negatively impacted by the construction of dams along the Missouri River. The Missouri River no longer experiences the same cycle of flooding and meandering, which means less sandbars and sandy habitat along the banks. Smooth softshell turtles rely on this sandy habitat for nesting and are not found as frequently in reservoirs and standing water. Nests can also be destroyed by human activities such as ATV use.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Reports of this turtle from Pennington, Meade, Fall River, Butte, Campbell, Buffalo, and Minnehaha counties should be investigated to gain a better understanding of its distribution in the state.

Smooth softshell turtles (and a host of other species) would benefit from better management of the Missouri River. A few artificial sand islands have been made for federally endangered species, and turtles have been documented nesting in these. More comprehensive measures have been proposed but not implemented. Doing so would require action by the US Army Corps of Engineers and agreement among numerous stakeholders.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

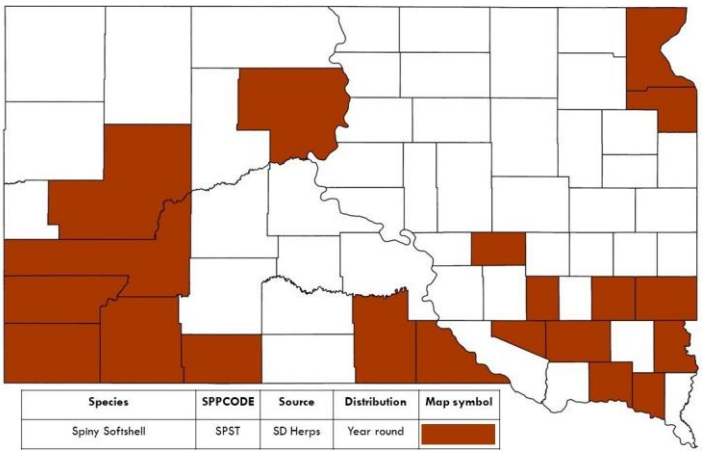
Smooth softshell turtles look very similar to spiny softshell turtles (*Apalone spinifera*), but the two can be differentiated upon closer examination. Spiny softshells have a row of small spines or projections (tubercles) on the edge of their shell just behind the head. Smooth softshells lack this. Spiny softshells also have little projections coming out from the middle of their nostrils while smooth softshells do not.

SPINY SOFTSHELL - SPST

(Apalone spinifera)

Conservation Profile

TSN #	208680
Global Rank	G5 (Secure)
State Rank	S3 (Vulnerable)
Regional SGCN	No



Description:

Spiny softshell turtles are a grayish, brownish turtle typically reaching 5-16 inches in length. Unlike most turtles, the outside of their shells is soft and leathery.

Distribution & Habitat:

Spiny softshell turtles are found in a variety of aquatic habitats. These include rivers, streams, lakes, sloughs, and ponds. They typically use sandy habitat for nesting. Spiny softshells are much more habitat generalists than smooth softshells. However, spiny softshells are less abundant in the Missouri River than smooth softshells.

Threats:

Sandy banks or sandbars are typically needed for reproduction. Nests can be destroyed by human activities such as ATV use.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

The distribution of this turtle in South Dakota is not well known. Due to its generalist nature, it may very well occur throughout the state, but verified records are lacking. More information on the distribution and abundance of this turtle is needed.

South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

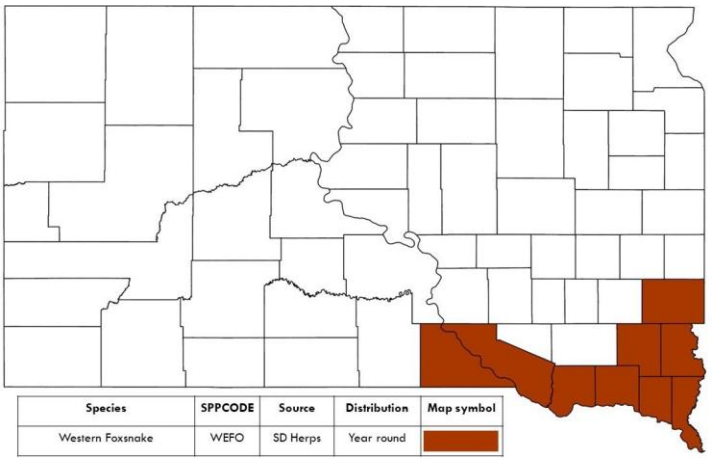
Spiny softshell turtles look very similar to smooth softshell turtles (*Apalone mutica*), but the two can be differentiated upon closer examination. Spiny softshells have a row of small spines or projections (tubercles) on the edge of their shell just behind the head. Smooth softshells lack this. Spiny softshells also have little projections coming out from the middle of their nostrils while smooth softshells do not.

WESTERN FOXSNAKE - WEFO

(Pantherophis ramspotti)

Conservation Profile

TSN #	1082710
Global Rank	G5 (Secure)
State Rank	S2 (Imperiled)
Regional SGCN	No



Description:

Western foxsnakes are a large snake, reaching between 36-50 inches. They primarily feed on rodents and other small vertebrates.

Distribution & Habitat:

Western foxsnakes are only found in the southeast corner of the state. They are commonly found in riparian and woodland areas. They can tolerate some degree of habitat modification and are often found in farms and barnyards.

Threats:

Foxsnakes in South Dakota are at the edge of their range. This makes them vulnerable to habitat loss and extirpation. Although foxsnakes can tolerate some level of development, intensive urban or agricultural areas are detrimental to them. Many snakes are also killed on roads.

South Dakota Conservation Threats:
https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Hibernacula should be identified wherever possible and given protection. Education of the public on the benefits of western foxsnakes (and snakes in general) could improve the public's perception of snakes and minimize road mortalities.

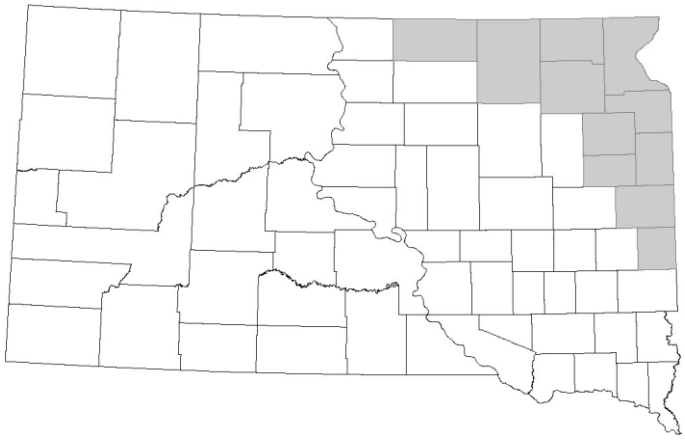
South Dakota Conservation Actions:
https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Highlights:

Western foxsnakes look similar to gophersnakes (*Pituophis catenifer*, also commonly called bullsnakes). Gophersnakes occur much more widely in the state, especially west of the Missouri River. Foxsnakes have more clearly defined blotches on their backs and a divided anal scale. Gophersnake patterning tends to be less clearly defined and they have an undivided anal scale.

DAKOTA SKIPPER DASK

(Hesperia dacotae)



Conservation Profile

TSN	706618
Global Rank	G2 (Imperiled)
State Rank	S2 (Imperiled)

Federal Threatened (FT); RSGCN

Description:

Male is tawny-orange (upper) and yellow-orange (under). Short body with rounded wings. Wingspan 1 -1.25" (2.5-3 cm).

Distribution & Habitat:

Historically ranged from southern Manitoba through Dakotas and portions of Minnesota, Iowa, and Illinois. No longer found in Illinois or Iowa.

Scattered populations in South Dakota on remnant, undisturbed native mixed-grass and tallgrass prairies in some northeastern counties. Favors areas with abundance of purple coneflower and needle-and-thread grass. Larvae feed on little bluestem.

Conservation Threats:

- Small home range makes species susceptible to poorly-timed prescribed fires that cause direct mortality and poorly-timed mowing, haying, and grazing.
- Conversion of remaining pieces of undisturbed native habitats.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Listed as a federal threatened species in 2014.

- Protect and properly manage native prairie sites known to host this species.
- Continue monitoring populations and success of reintroductions.
- Monitor areas adjacent to occupied sites.
- Establish refugia within managed areas to safe-guard populations when haying or burning areas. Late season haying may be better tool than fire.
- Reduce pesticide and herbicide use in occupied areas.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image above of male at purple coneflower © Dennis Skadsen

Images (left to right):

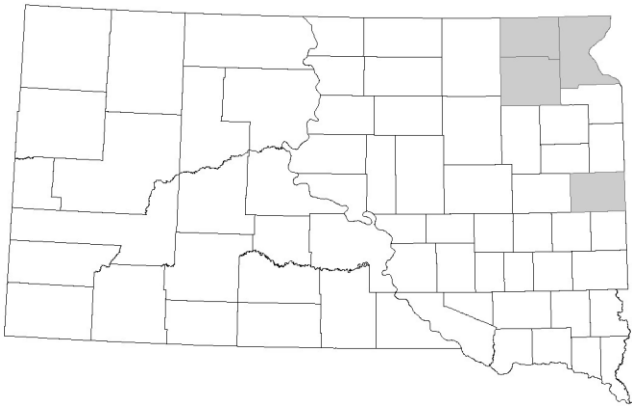
male (upper)

female (upper)

female

EASTERN VEINED WHITE

(Pieris oleracea) **EVWH**



Conservation Profile

TSN	777778
Global Rank	G5 (Secure)
State Rank	SNR (State Not Ranked)

Description:

Uppersides white with some black on outer margin. Has spring and summer forms. Wingspan 1.5-1.8" (3.8-4.6 cm).

Distribution & Habitat:

Widely occurring species across Canada, northeastern U.S., and at some sites in far western states.

Known from extreme northeastern South Dakota, where it is found along streams and in moist areas of deciduous woodlands. Larvae feed on various mustards.

Conservation Threats:

- May be threatened by climate change impacts, such as warming and precipitation changes.
- Habitat loss to urbanization and agricultural uses.
- Competition with invasive cabbage white butterfly, which was introduced from Europe around the mid-1800s.

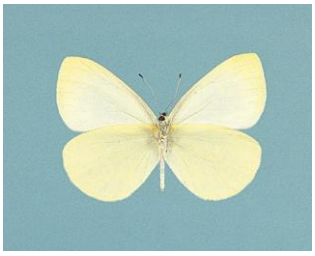
South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Listed as a state SGCN because species represents stream habitats and moist deciduous woodlands of northeastern South Dakota.

- Some experts believe this species has been greatly reduced due to competition with cabbage white butterfly. Continued monitoring at the species or regional level would help detect serious declines.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx



Images:

male (upper) - above

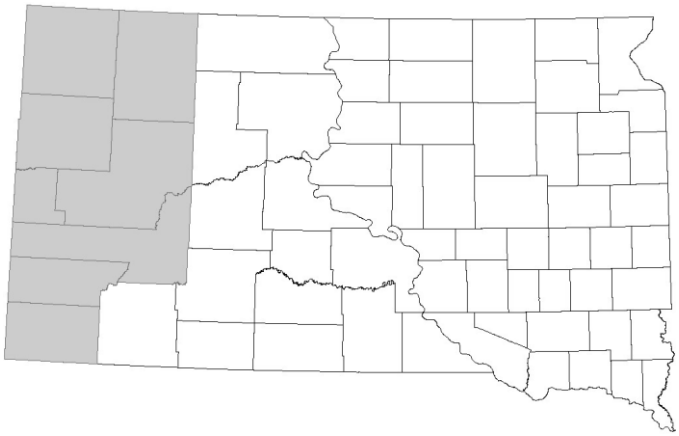
female (upper) - left

male (under) - middle

female (under; summer) - right

GARITA SKIPPERLING GASK

(*Oarisma garita*)



Conservation Profile

TSN	706687
Global Rank	G4 (Apparently Secure)
State Rank	SNR (State Not Ranked)

Description:

Dark brown with orange extending to outer wing (upper). Wingspan 0.75-1.1" (2-2.8 cm).

Distribution & Habitat:

Although a wide-ranging species, declining in portions of range. Found from southern Canada to Intermountain West and Great Plains and in portions of the Southwest.

Ranges in western South Dakota in a variety of habitats, including open woodlands, mountain meadows, and short-grass prairie hills. Larval host plants are native grasses, such as needlegrasses, blue grama, and squirreltail.

Conservation Threats:

- Habitat loss in western states due to conversion of mid– and short-grass prairie for agricultural and development uses.
- Climate change impacts, such as warming and precipitation changes.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Considered imperiled (S2) by Minnesota and Nebraska Natural Heritage Programs.
- Would benefit from better information about current distribution, abundance, and limiting factors.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Images © Gary Marrone, SDGFP

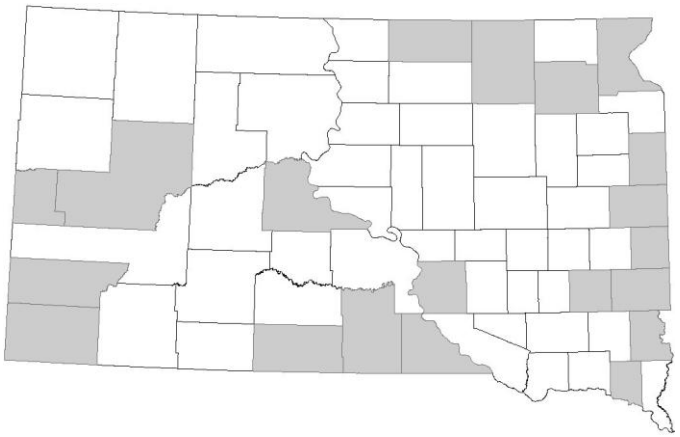
Images (left to right):
male (upper)

female (upper)

male (under)

IOWA SKIPPER IOSK

(*Atrytone arogos iowa*) aka Arogos Skipper



Conservation Profile

TSN	707269
Global Rank	G2T2 (Subspecies Imperiled)
State Rank	S2 (Imperiled)
RSGCN	

Description:

Yellow-orange with dark borders (upper); female has broader wing margins. Wingspan 1.1-1.25" (2.8-3.2 cm). Species called arogos skipper; subspecies called Iowa skipper.

Distribution & Habitat:

A Great Plains species, with remnant populations at range margins. Subspecies found from Minnesota and the Dakotas through southwestern Missouri to central Texas.

Documented from a variety of undisturbed grassland locations in the state, with the exception of northwestern South Dakota. Larvae feed on big bluestem and little bluestem.

Conservation Threats:

- Habitat loss and fragmentation
- Loss of historical disturbance regimes, such as fire
- Apparent lack of sustainability of populations not associated with areas that supported large populations

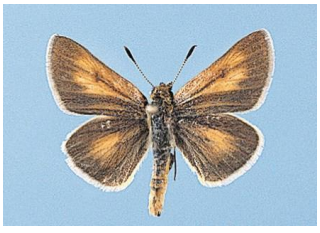
South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes, particularly careful use of prescribed fire
- Identify populations on protected areas. Develop and implement practices for protection, monitoring, and compatible land management practices, including establishing fire refugia areas.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image above of female nectaring on purple coneflower; images © Gary Marrone, SDGFP



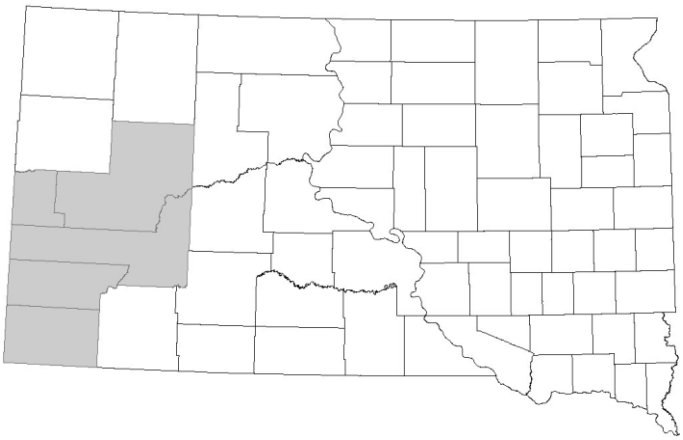
Images (left to right):
male (upper)

female (upper) male

(under)

KRAUTH'S SULPHUR KRSU

(Colias christina krauthii)



Conservation Profile

TSN	778472
Global Rank	G5TNR (Species Secure; Subspecies Not Ranked)
State Rank	SNR (State Not Ranked)

Description:

Orange with black wing margins (upper). Wingspan 1.4-2" (3.6-5 cm). Species called Christina's sulphur; subspecies called Krauth's sulphur.

Distribution & Habitat:

Species ranges from Alaska to Baja California and eastward as far as South Dakota and Nebraska.

South Dakota habitats include forest meadows, roadsides, and areas with limestone outcroppings. Endemic subspecies of the Black Hills of Wyoming and South Dakota, Bear Lodge Mountains of Wyoming, and Nebraska's Pine Ridge. Larvae feed on legumes.

Conservation Threats:

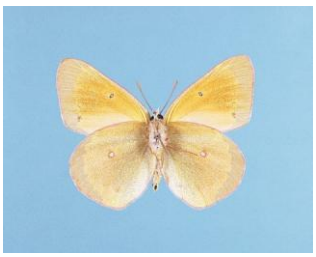
Species considered secure (G5). Listed as a state SGCN because of its endemic status and limited distribution.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Periodic monitoring of this subspecies will be helpful to detect any threats and possible limiting factors.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

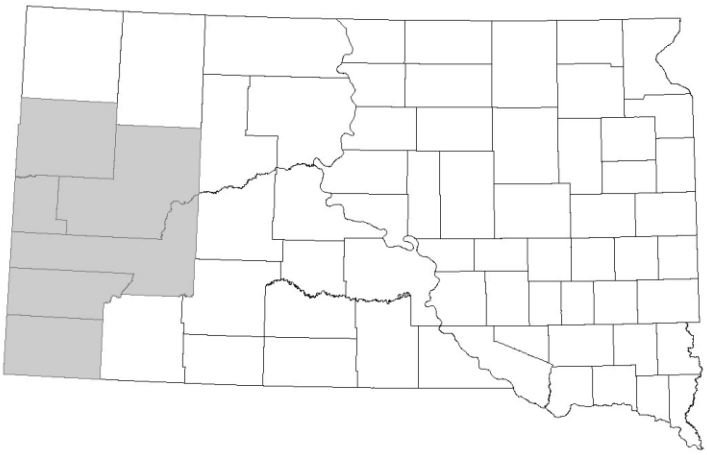


Images:

male (upper) - above
male (under) - left
female (upper) - middle
female (under) - right

LARGE MARBLE LAMA

(Euchloe ausonides)



Conservation Profile:

TSN	777761
Global Rank	G4 (Apparently Secure)
State Rank	SNR (State Not Ranked)

Description:

White with black markings on tips of forewings (upper). Females may have yellowish tinge. Wing-span 1.2-1.8" (3-4.6 cm).

Distribution & Habitat:

Ranges from South Dakota and Minnesota north and west through portions of western U.S. and through much of Canada and Alaska.

Found in western South Dakota in a variety of habitats. Larvae feed on mustards and rockcresses.

Conservation Threats:

- Climate change impacts
- Loss of habitat to conversion for development
- Habitat impacts from pesticides and grazing

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Listed as a state SGCN because of a need for more information on distribution, abundance, and potential limiting factors. Monitoring will help address these information needs.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image above of female on western wallflower © Doug Backlund; other images © Gary Marrone, SDGFP

Images (left to right):

male (upper)

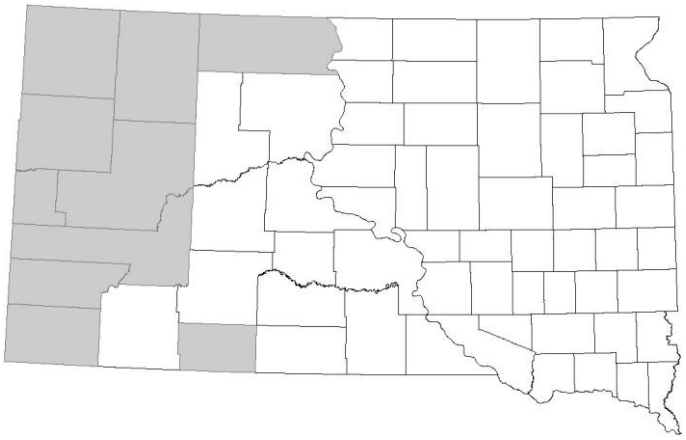
female (upper)

male (under)

LONG'S RUDDY COPPER

(Tharsalea rubidus longi)

aka Lycaena rubidus longi **LRCO**



Conservation Profile

TSN	778625
Global Rank	G4TNR (Species Apparently Secure; Subspecies Not Ranked)
State Rank	SNR (State Not Ranked)

Description:

Red-orange with faint spots (upper). More prominent spots on forewing of grayish-white underparts of both sexes. Wingspan 1.1-1.4" (2.8-3.6 cm).

Distribution & Habitat:

Species ranges from Alberta and Saskatchewan through portions of central and western U.S.

Subspecies limited to area from central North Dakota to Nebraska and westward to eastern Wyoming. Preferred habitats in South Dakota include dry sites, such as gravelly and sandy areas of stream banks and abandoned gravel pits. Larvae feed on several dock species.

Conservation Threats:

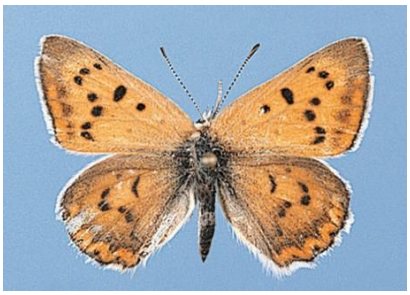
- Habitat loss to development and agricultural uses
- Climate change impacts of warming and precipitation changes

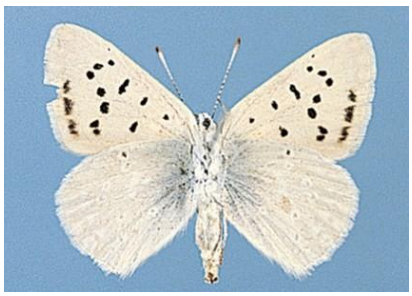
South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Listed as a state SGCN because this is an endemic subspecies in the region. Considered uncommon in the state. Additional data and monitoring would contribute to better understanding of distribution, abundance, and potential limiting factors.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx



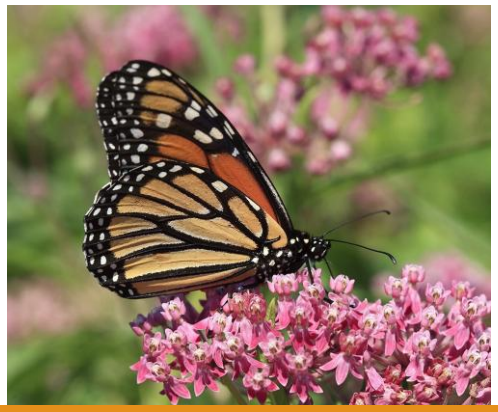


Images:

male (upper) - above

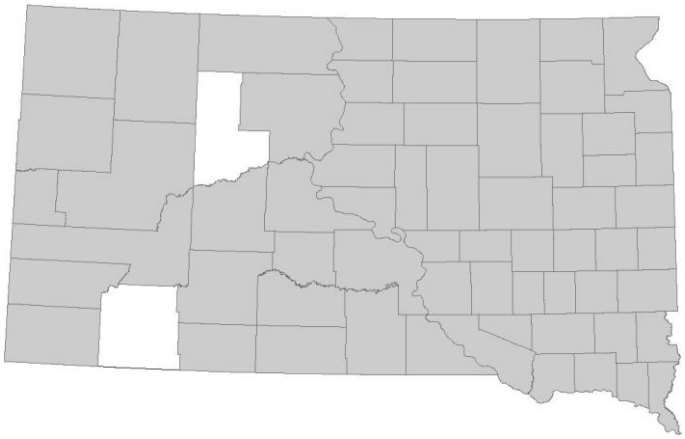
female (upper) - left

male (under) - right



MONARCH MONA

(Danaus plexippus)



Conservation Profile

TSN	117273
Global Rank	G4 (Apparently Secure)
State Rank	SNR (State Not Ranked)
RSGCN	

Description:

Bright orange with black veins. Black wing margins have white spots. Male has black scent patch on hindwing. Wingspan 3.4-4" (8.6-10.1 cm).

Distribution & Habitat:

Ranges widely in North America, aside from Alaska and northern Canada. Estimated 90% decline in migratory monarch populations led to 2024 proposal for federal threatened species listing.

Widely documented in the state, but more common in eastern South Dakota. Milkweeds are critical for breeding and larval development. Adults also need nectar sources, particularly during fall migration.

Conservation Threats:

- Loss of milkweed due to use of genetically modified, herbicide-tolerant (Roundup Ready) corn and soybeans and associated use of glyphosate.
- Most populations are migratory, exposing monarchs to threats during breeding, migration, and wintering. Eastern population overwinters mainly in the Oyamel Forest of central Mexico, a small area threatened by illegal logging, agricultural development, and climate change and severe weather impacts.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Proposed for listing as federal threatened species in December 2024.

- Set aside milkweed patches for breeding habitat
- Homeowners should maintain backyard habitat for breeding (milkweeds) and fall energy sources (nectar) for migrating monarchs
- Protect winter habitats in California and Mexico from logging and development
- Mitigate projected climate change impacts to overwintering areas

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image of male nectaring on swamp milkweed (above) and caterpillar (left) © Doug Backlund; other images © Gary Marrone, SDGFP

Images:

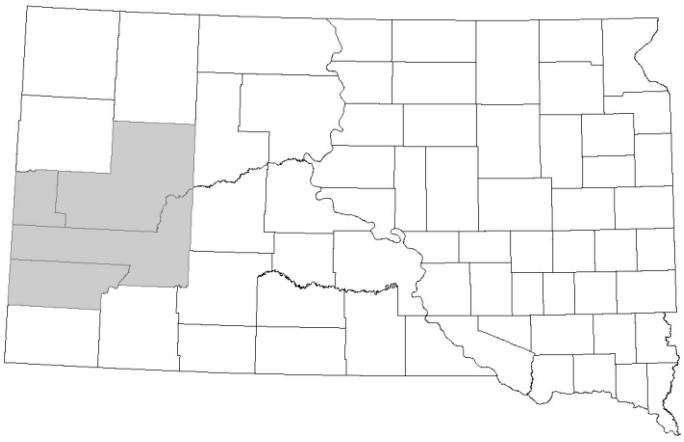
male (upper) - left

female (upper) - middle

caterpillar - right

MOTTLED DUSKYWING

(Erynnis martialis) **MODU**



Conservation Profile

TSN	706746
Global Rank	G3 (Vulnerable)
State Rank	SNR (State Not Ranked)
RSGCN	

Description:

Mottled dark brown to black, giving it a checkered look (upper). Wingspan 1.1-1.4" (2.8-3.6 cm).

Distribution & Habitat:

Widespread, but distribution is not continuous within eastern North America. In general, species occurs in limited areas and at low densities. Appears most secure in Great Lakes region and southern Manitoba.

Restricted in South Dakota to high limestone areas of northern Black Hills, where it is found in open woodlands.

Conservation Threats:

- Spraying for spongy (gypsy) moths; may be less of a current threat than previously
- Overabundance of deer and associated browsing impacts
- Poorly managed prescribed fire

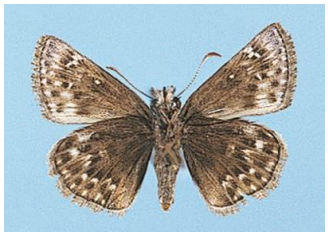
South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes,
- Appropriate use of prescribed fire
- Monitor known populations

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Images © Gary Marrone, SDGFP



Images:

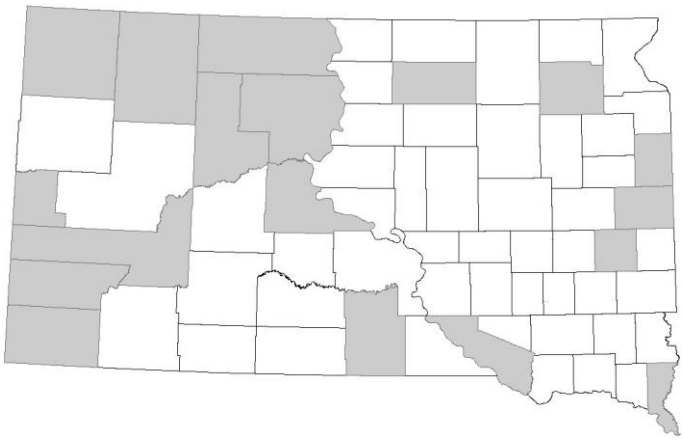
male (upper) - above

female (upper) - left

female (under) - right

OTTOE SKIPPER OTSK

(Hesperia ottoe)



Conservation Profile

TSN	706626
Global Rank	G3 (Vulnerable)
State Rank	S2 (Imperiled)
RSGCN	

Description:

Male brighter orange and with more distinct black wing borders than female (upper). Wingspan 1.2-1.55" (3-4 cm).

Distribution & Habitat:

Rare throughout its remaining range in Manitoba and central and eastern states in the U.S.

Relies on undisturbed mid- to tall-statured grasslands in South Dakota. Widely distributed but uncommon to rare where it occurs. Larvae feed on native prairie grasses, such as big and little bluestems and sideoats grama.

Conservation Threats:

- Loss of remaining prairies to agricultural crops
- Poor management of sites due to fire suppression
- Mowing or grazing during summer months that removes nectar sources or impacts larvae during leaf-shelter phase
- Invasive plant species that outcompete host plants

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Protect and properly manage native prairie sites with nectar sources
- Monitor known populations on public lands. Develop and implement appropriate management strategies, including proper application of prescribed fire, mowing, and grazing.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

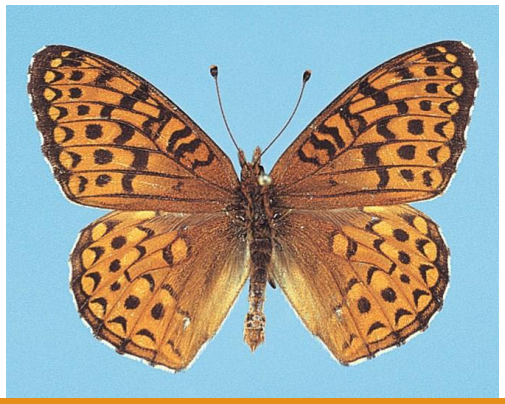
Images © Gary Marrone, SDGFP

Images:

male (upper) - above

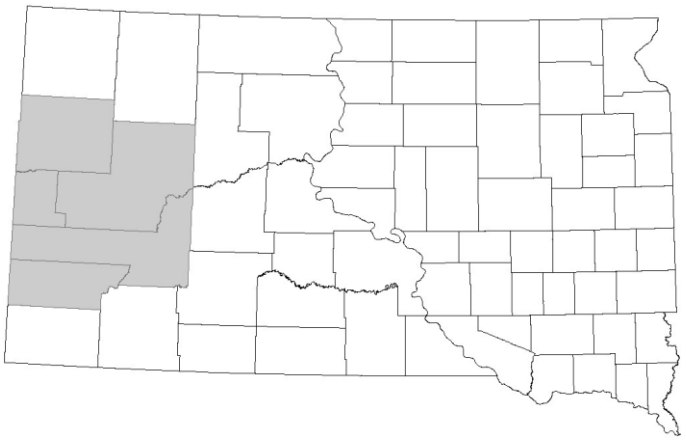
female (upper) - left

male (under) - right



PAHASAPA FRITILLARY PAFR

(Speyeria atlantis pahasapa)



Conservation Profile:

TSN	779195
Global Rank	G5T3 (Species Secure; Subspecies Vulnerable)
State Rank	S2 (Imperiled)

Description:

Bright orange with black spots and markings (upper). Undersides have silver spots. Wingspan 2.0-2.8" (5- 7 cm). Species is called the Atlantis fritillary.

Distribution & Habitat:

Endemic subspecies in Black Hills of South Dakota and Wyoming. Occurs at higher elevations in boreal forests, typically in riparian habitats with adjacent meadows. Larvae feed on violets, such as northern bog violet, meadow violet, and Canada violet.

Conservation Threats:

- Limited habitat threatened by development and private ownership

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Monitoring needed to determine distribution and habitat extent
- Work with private landowners who host this sub-species to foster stewardship

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Images © Gary Marrone, SDGFP

Images:

male (upper) - above

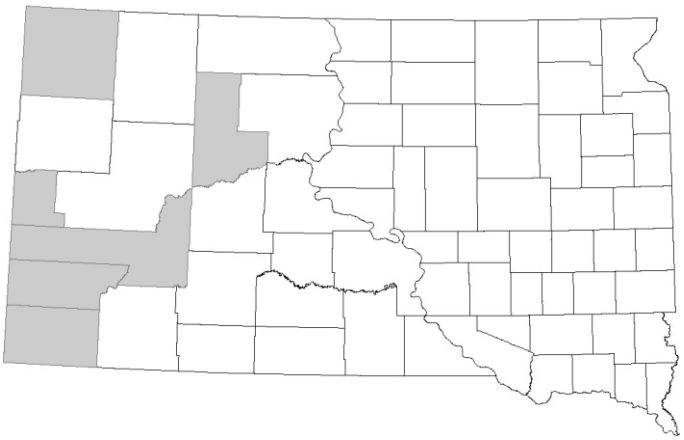
male (under) – left

female (upper) - middle

female (under) - right

PAHASKA SKIPPER PASK

(Hesperia pahaska)



Conservation Profile

TSN	706627
Global Rank	G5 (Secure)
State Rank	SNR (State Not Ranked)

Description:

Orange with black borders (upper). Undersides are lighter colored and with white spot patterns. Wingspan 1.25-1.65" (3.2-4.2 cm).

Distribution & Habitat:

Widespread and abundant in parts of its range, which extends from central Canada south through central states and west, excluding northwestern states. South Dakota is on eastern periphery of species' range.

Limited to shortgrass prairie habitats and foothills of western South Dakota. Blue grama is the only reported larval host plant in the state.

Conservation Threats:

- Climate change impacts from warming and precipitation changes

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- This species is now considered rare in western Nebraska. Monitoring may help describe short– and long-term population trends, which are poorly understood.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Image above © Doug Backlund; other images © Gary Marrone, SDGFP

Images (left to right):

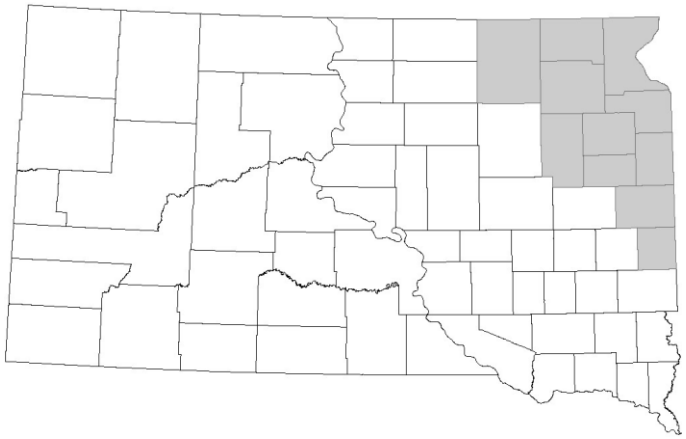
male (upper)

male (under)

female (upper)

POWESHIEK SKIPPERLING

(Oarisma poweshiek) **POSK**



Conservation Profile:

TSN	706688
Global Rank	G1 (Critically Imperiled)
State Rank	SX (State Extirpated)
Federal Endangered (FE); RSGCN	

Description:

Dark brown with orange at forward edge of forewing (upper). Male's undersides are lighter brown with white veins on much of hindwing. Wingspan 0.90-1.25" (2.3-3.2 cm).

Distribution & Habitat:

Historically ranged from southern Manitoba south along border between Minnesota and Dakotas across southern Minnesota and southern Iowa and into Illinois, with additional disjunct populations in the Midwest.

Formerly ranged in tallgrass prairie habitats near wetlands in northeastern South Dakota. Last observed in the state in 2008.

Conservation Threats:

Species experienced drastic declines within about a decade at multiple locations for unknown reasons. Declines began at the core of the range, with populations at the edges of the range surviving, although many of these populations have since disappeared.

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Listed as a federal endangered species in 2014.

- Continue monitoring potential habitats for occurrences.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Images © Gary Marrone, SDGFP

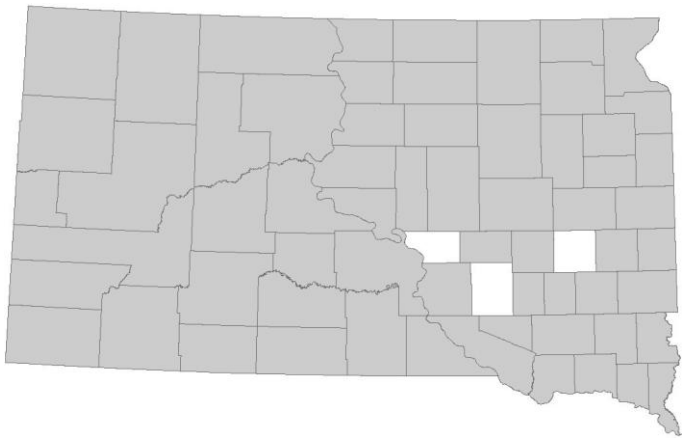
Images:

male (upper) - above

male (under) - left

REGAL FRITILLARY REFR

(*Argynnis idalia*)



Conservation Profile

TSN	777993
Global Rank	G3 (Vulnerable)
State Rank	S3 (Vulnerable)
RSGCN	

Description:

Reddish-orange forewing with black markings (upper). Black hindwing with two rows of spots (upper). Wingspan 2.9-3.8" (7.4-9.7 cm).

Distribution & Habitat:

Formerly ranged in tallgrass prairie habitats in New England south to North Carolina and southwestward to Oklahoma. Ranges as far west as portions of Wyoming and Colorado. Extirpated from New England and possibly several midwestern states.

South Dakota habitat types include tallgrass prairies near wetlands and undisturbed mixed-grass prairies. Larvae feed on various violet species.

Conservation Threats:

- Habitat loss and fragmentation to agricultural uses and development, including conversion of pastures to crops
- Inappropriate use of prescribed fire, especially short return intervals. Impacts include direct mortality and reduction in violets.
- Climate change impacts of warming temperatures

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Both subspecies were proposed for listing as federal endangered (eastern regal fritillary; *Argynnis idalia idalia*) or federal threatened (western regal fritillary; *Argynnis idalia occidentalis*) in August 2024. South Dakota is within the range of the western regal fritillary.

- Species persistence depends heavily on proper land management, including prescribed fire at appropriate intervals and wise pasture management

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

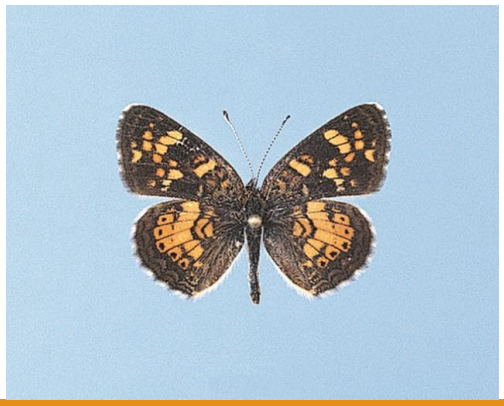
Image of male on swamp milkweed © Doug Backlund; other images © Gary Marrone, SDGFP

Images (left to right):

female (upper)

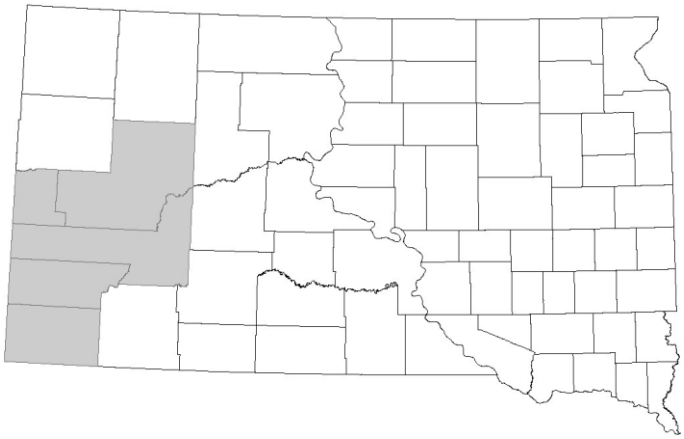
female (under)

male (upper) - melanic aberrant



TAWNY CRESCENT TACR

(Phyciodes batesii)



Conservation Profile

TSN	778096
Global Rank	G3 (Vulnerable)
State Rank	S1 (Critically Imperiled)
RSGCN	

Description:

Orange and black with wide black border (upper). Undersides much lighter buff to orange with some black markings in forewing. Wingspan 1.25-1.55" (3.2-4 cm).

Distribution & Habitat:

Uncommon in parts of its large range across much of Canada and in Intermountain West, northern Great Plains, Great Lakes region, Appalachians, and scattered sites along Pacific Coast.

Found in moist meadows and stream bottoms near forest openings in the Black Hills. Larvae eat smooth blue aster.

Conservation Threats:

- Climate change impacts of warming and precipitation changes
- Habitat loss to development and agricultural uses
- Impacted by pesticide use to control spongy moths

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

Research:

- Investigate impacts of fire return intervals on known populations

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

Images © Gary Marrone, SDGFP

Images:

male (upper) - above

male (under) - left

female (upper) - middle

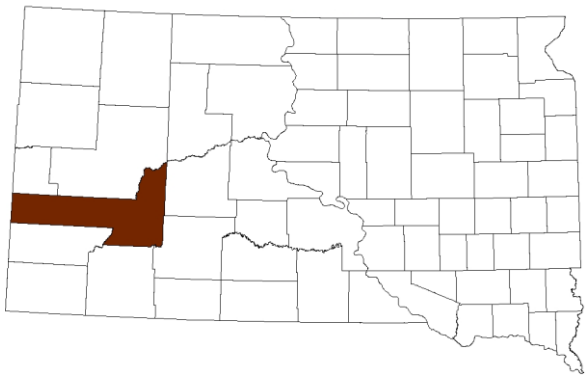
female (under) - right

BEAUTIFUL TIGER BEETLE

(Cicindela pulchra pulchra) **BTBE**

Conservation Profile

TSN	697882
Global Rank	G4T4 (Species and Subspecies Apparently Secure)
State Rank	SNR (State Not Ranked)



Year-round distribution

Description:

Body length 16-18 mm. Not designed to blend in with its background, this tiger beetle has a combination of metallic red, green, blue, and purple colors. Powerful fliers that can cover long distances, especially when alarmed.

Distribution & Habitat:

A subspecies of shortgrass prairies of central North American Great Plains states, ranging from South Dakota to Texas and westward to Arizona.

Considered a "spring/fall" species. Sexually immature adults emerge during the fall to feed, then return to overwintering burrows until they emerge the following spring to mate. Documented in only one county in South Dakota to date.

Conservation Threats:

- No specific threats are known, but limited distribution in the state merits attention to species status and distribution

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

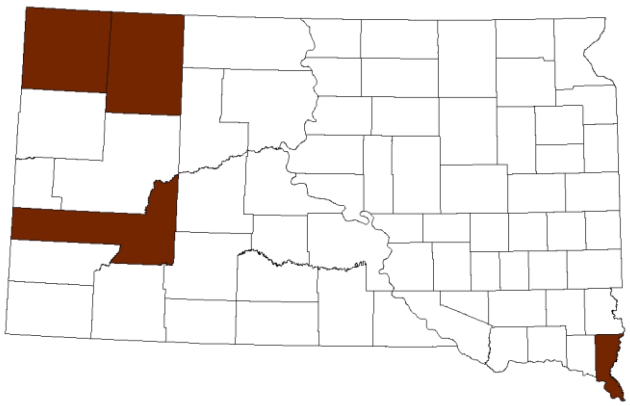
- Provide native ecosystem diversity with historical disturbance regimes
- Tiger beetles are environmental indicators. Support efforts to learn more about state distribution and habitat associations.

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

All images © Mathew Brust; male beautiful tiger beetle (above), below left to right — female; third instar larva at top of burrow, close-up of face, and male

GHOST TIGER BEETLE GTBE

(*Cicindela lepida*) aka little white tiger beetle



Year-round distribution

Conservation Profile

TSN	697702
Global Rank	G3 (Vulnerable)
State Rank	S1 (Critically Imperiled)

Description:

Body length 10.5-13.5 mm. White markings among brown color cause a white appearance overall. Blends in with sandy habitats, but may be spotted by its shadow.

Distribution & Habitat:

Widely distributed through much of North America, but with a patchy distribution due to narrow habitat needs and declines from historical times. Declining in many parts of its range.

Habitats are open, blowing portions of large sand dunes or sand beaches.

Conservation Threats:

- Loss of sand dune habitat from recreational ATVs and artificial dune stabilization
- Loss of natural historical disturbance regimes, including fire suppression, which contributes to vegetation encroachment
- Lack of potential areas for recolonization

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes
- Reduce dune destruction or stabilization in areas known to be occupied

Monitoring

- Survey areas likely to support this species, such as undisturbed blowouts and shorelines of lakes and rivers

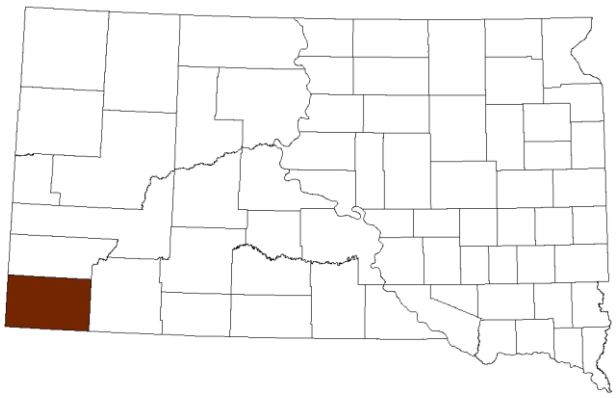
Research

- Investigate impacts of intensive grazing

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

All images © Mathew Brust; male ghost tiger beetle (above), below left to right - male, female, and close-up of female's face

GREAT PLAINS GIANT TIGER BEETLE (*Amblycheila cylindriformis*) GPTB



Year-round distribution

Conservation Profile

TSN	697663
Global Rank	G4 (Apparently Secure)
State Rank	S1 (Critically Imperiled)

Description:

Body length 30-36 mm. Color varies from dark red to nearly black. Nocturnal and flightless, although an active runner. The second largest tiger beetle in the Western Hemisphere, second to the South Texas giant tiger beetle.

Distribution & Habitat:

Ranges in the Great Plains states as far north as South Dakota and south as far as Texas. Within South Dakota, documented only in Fall River County.

South Dakota habitats include eroded gullies, clay hill banks, and dissected loess sediments in sand-sage prairie.

Conservation Threats:

- No threats identified at the species level

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

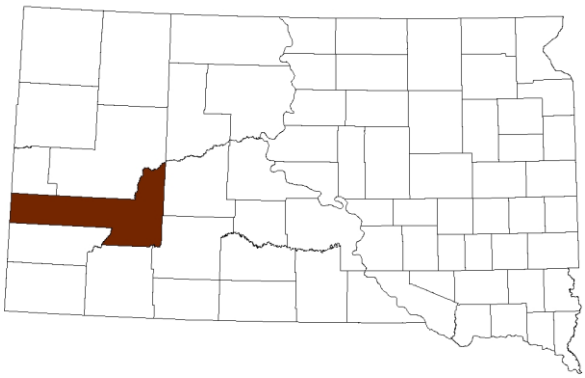
- Limited state distribution merits periodic surveys to better understand extent of range and potential habitat threats

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

All images © Mathew Brust; adult Great Plains giant tiger beetle (above), below left to right — third instar larva, larval burrow, and close-up of head (head photograph of captive animal)

INDIAN CREEK TIGER BEETLE

(*Cicindela nevadica makosika*) **ICTB**



Year-round distribution

Conservation Profile

TSN	697849
Global Rank	G5T1 (Species Secure; Subspecies Critically Imperiled)
State Rank	S1 (Critically Imperiled)

Description:

Body length 10.5-12.5 mm. Coppery brown with pronounced white spots. Seen during summer, with peak numbers in early July.

Distribution & Habitat:

Species (Nevada tiger beetle) ranges from central Canada south through central Great Plains states to Texas and in other areas of the West except for the Northwest.

Documentation of this subspecies described in Spomer 2004. Known from only 2 sites in the South Dakota Badlands. Lower Indian Creek site is an intermittent stream with above average salinity overlying Pierre shale substrate.

Conservation Threats:

- Trampling by cattle herds

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SD_Conservation_Threats.xlsx

Conservation Actions & Needs:

Monitoring

- Limited distribution merit periodic surveys to better describe distribution and subspecies status

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

All images © Mathew Brust; female Indian Creek tiger beetle (above) and three females pictured below

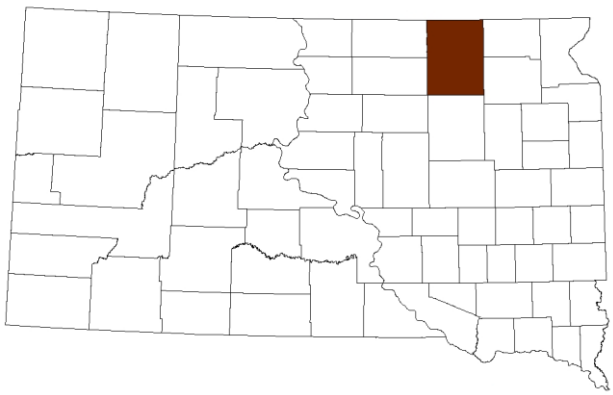
Additional information:

NatureServe Explorer lists this taxon as Ellipsoptera nevadica makosika

Spomer, S. M. 2004. A new subspecies of Cicindela nevadica *LeConte (Coleoptera:Carabidae:Cicindelinae) from the badlands of South Dakota. The Coleopterists Bulletin 58(3):409-412.*

SANDY TIGER BEETLE STBE

(Cicindela limbata nympha)



Year-round distribution

Conservation Profile

TSN	697839
Global Rank	G5T4 (Species Secure; Subspecies Apparently Secure)
State Rank	S4 (Apparently Secure)

Description:

Body length 9-13 mm. Iridescent green wings have extensive white markings that help this species blend in with sand dunes and other sandy habitat backgrounds.

Distribution & Habitat:

Species occurs in central Canada and U.S. as far south as Utah and Colorado. Subspecies found in central Great Plains.

A "spring/fall" tiger beetle that is active from March to October. Habitats include sand dunes and sand blowouts. Blowouts are depressions in sandy habitat caused by wind erosion. Some species are adapted to this habitat type.

Conservation Threats:

- Destruction of sand dune habitats and larval burrows by off-road vehicles

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Conservation Actions & Needs:

- Provide native ecosystem diversity with historical disturbance regimes

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

All images © Mathew Brust; male sandy tiger beetle (above), below left to right - female, third instar larva at top of burrow, and male; subspecies C. l. limbata *pictured*

VARIABLE TIGER BEETLE

(Parvindela terricola) **VTBE**

Year-round distribution

Conservation Profile:

TSN	697744
Global Rank	G5 (Secure)
State Rank	SU (State Unknown)

Description:

Body length 8-12 mm. As the name implies, darker colors can vary, with lighter-colored markings. A "summer" tiger beetle active from June through August.

Distribution & Habitat:

Found primarily in the Central Great Plains, western U.S., and southern tier of Canadian provinces.

Habitats may include alkaline sites and bare areas of adjacent shortgrass prairie.

Conservation Actions & Needs:

- Grazing management that keeps occupied prairie habitat cover at lower heights and more open

South Dakota Conservation Actions: https://gfp.sd.gov/UserDocs/nav/SDConsActions.xlsx

All images © Mathew Brust; female variable tiger beetle (above), below left to right — female, mating pair, and male

Conservation Threats:

- Water level reductions or irrigation changes that affect alkaline mudflat habitats

South Dakota Conservation Threats: https://gfp.sd.gov/UserDocs/nav/SDConsThreats.xlsx

Appendix E. Aquatic Insect Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.

AQUATIC INSECTS

Because of the lack of agency expertise in this area, SDGFP benefited from input from taxonomic experts and other sources outside the agency for this group of new SGCN, in particular. As of the time of this plan's publication, none of these species was monitored by the South Dakota Natural Heritage Program, a readily available data source for many other taxonomic groups. For that reason, information in the following table may be more general and less state-specific than for other taxonomic groups, particularly plant and vertebrate animal species.

Six new aquatic insect SGCN are included in the 2025 Wildlife Action Plan in addition to the four aquatic insects previously listed. Due to a lack of basic information on the distribution and status of these aquatic insect species no site- specific data are included. Aquatic insects include five mayflies, 4 dragonflies, and 1 stonefly.

Taxonomic group (class, order, family)	Common Name	Scientific Name	4-letter code	Taxonomic species number (TSN)	Global Rank/State Rank RSGCN IUCN*	Habitats	Conservation Threats	Conservation Actions
AQUATIC INSECTS								
Insecta, Ephemeroptera, Caenidae	A Small Square-Gilled Mayfly	*Sparbarus nasutus*	SSGM	776971	G3/SNR RSGCN	Slow-moving, clear streams and rivers with sand or silt substrate. Nymphs prefer shallow water. Adults utilize forest habitats adjacent to streams or rivers.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow • Pollution from runoff from agricultural practices and use of pesticides • Deforestation and loss of trees along riparian areas which are used by adults and help shade streams • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring

Insecta, Plecoptera, Perlidae	Dakota Stone	*Perlesta dakota*	DAST	609908	G3/SNR RSGCN	Low gradient streams or rivers. Adults can be collected by beating tall overhanging streamside grasses.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow and loss of riparian vegetation • Pollution from runoff from agricultural practices and use of pesticides • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring
Insecta, Odonata, Corduliidae	Dot-winged Baskettail	*Epitheca petechialis*	DWBT	593050	G4/SNR	Lakes, ponds, and slow-moving streams. Often observed along forest clearings or in open woodlands.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow • Pollution from runoff from agricultural practices and use of pesticides • Deforestation and loss of trees along riparian areas which are used by adults and help shade streams • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring

Insecta, Odonata, Gomphidae	Elusive Clubtail	*Stylurus notatus*	ELCT	593022	G3/SNR RSGCN	Large, slow-flowing rivers. As the name suggests, this species is hard to find. Adults typically feed in forest canopies.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow • Pollution from runoff from agricultural practices and use of pesticides • Deforestation and loss of trees along riparian areas which are used by adults and help shade streams • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring
Insecta, Ephemeroptera, Acanthametropodidae	Extraordinary Bow-legged Minnow Mayfly	*Analetris eximia*	EBMM	100993	G3/SNR	This species is associated with medium or larger perennially flowing prairie rivers with shifting sand-gravel substrates with cobble riffles.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow • Sedimentation • Pollution from runoff from agricultural practices and use of pesticides • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring

Insecta, Ephemeroptera, Caenidae	Fox Small Square-gilled Mayfly	*Cercobrachys fox*	FSSM	776959	G3/SNR RSGCN	Large, warm river habitats in the downslip face of sandbars.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow and loss of sandbars • Pollution from runoff from agricultural practices and use of pesticides • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring
Insecta, Odonata, Corduliidae	Plains Emerald Dragonfly	*Somatochlora ensigera*	PEDF	101965	G4/SNR RSGCN	Streams and small rivers, typically with riparian vegetation. Both sexes can be observed perched in vegetation near water. Males are territorial and can be observed patrolling along streams. Females oviposit in banks or gravel beds near water.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow and riparian vegetation • Pollution from runoff from agricultural practices and use of pesticides • Sedimentation • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring

Insecta, Odonata, Gomphidae	Riverine Clubtail	*Stylurus amnicola*	RICT	593018	G4/SNR RSGCN	Most likely to observe during emergence and breeding when found near medium to large rivers. During other times of the year the adults are found near the tops of trees.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow • Pollution from runoff from agricultural practices and use of pesticides • Deforestation and loss of trees along riparian areas which are used by adults and help shade streams • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring
Insecta, Ephemeroptera, Pseudironidae	White Sand-River Mayfly	*Pseudiron centralis*	WSRM	100674	G5/SNR RSGCN	Large, shallow perennially flowing prairie rivers with shifting sand dominated reaches.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow and riparian vegetation • Pollution from runoff from agricultural practices and use of pesticides • Sedimentation • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring

Insecta, Ephemeroptera, Baetidae	White Small Minnow Mayfly	*Centroptilum album*	WSMM	100878	G5/SNR RSGCN	Inhabit swift flowing streams with rocky substrate and algae.	Suspected: • Habitat conversion for agricultural uses • Habitat loss with changes in natural flow and riparian vegetation • Pollution from runoff from agricultural practices and use of pesticides • Sedimentation • Climate change with rising water temperatures	• Site stewardship • Habitat restoration • Species stewardship • Outreach and communications • Best management practices • Reduce pesticide use near streams and riparian areas • Protected areas and conservation planning • Basic research and monitoring

*Key to codes:

NatureServe Ranks:

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.

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

RSGCN = Midwest Regional Species of Greatest Conservation Need

Process conducted by MAFWA Midwest Landscape Initiative to identify species that would benefit from regional collaborative conservation efforts. If a species is listed as a Midwest RSGCN, that is indicated in this column. Classification of species on the RSGCN Watch List is not noted in this column.

IUCN = International Union for Conservation of Nature

IUCN is an international organization that works to conserve nature. One tool is the development of the IUCN Red List of Threatened Species. Species experts apply an assessment process to determine conservation status and whether the assessed species is threatened with extinction. If IUCN has assessed a species, that is indicated in this column. Categories include: data deficient; least concern; near threatened; vulnerable; endangered; critically endangered; extinct in the wild; and extinct.

Appendix F. Crayfish Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.

CRAYFISH

Because of the lack of agency expertise in this area, SDGFP benefited from input from taxonomic experts and other sources outside the agency for this group of new SGCN, in particular. As of the time of this plan's publication, none of these species was monitored by the South Dakota Natural Heritage Program, a readily available data source for many other taxonomic groups. For that reason, information in the following table may be more general and less state-specific than for other taxonomic groups, particularly plant and vertebrate animal species.

Four new crayfish SGCN are included in the 2025 Wildlife Action Plan. Due to a lack of basic information on the distribution and status of these crayfish species no site-specific data are included.

Taxonomic group (class, order, family)	Common Name	Scientific Name	4-letter code	Taxonomic species number (TSN)	Global Rank/State Rank RSGCN IUCN*	Habitats	Conservation Threats	Conservation Actions
CRUSTACEANS								
Malacostraca, Decapoda, Cambaridae	Calico Crayfish	*Faxonius immunis*	CACR	97446	G5/SNR RSGCN	Shallow sloughs and isolated pools on the broad, flat flood plains of large, medium and small sized river and streams. Mud bottom in slow-flowing turbid waters. Retreat to burrows in late summer as their habitats dry up.	Suspected: • Pesticides • Habitat conversion • Dams • Invasive species • Agriculture	• Site stewardship • Species stewardship • Outreach and communications • Best management practices • Protected areas and conservation planning • Basic research and monitoring
Malacostraca, Decapoda, Cambaridae	Devil Crayfish	*Lacunicambarus diogenes*	DECR	97338	G5/SNR IUCN Unknown	Habitats primarily in lowland, forested areas with high water tables and fine sediments, often near streams, ponds, lakes or wetlands. Are known for their distinctive "mud chimney" burrow entrances.	Suspected: • Pesticides • Habitat conversion • Dams • Invasive species • Agriculture	• Site stewardship • Species stewardship • Outreach and communications • Best management practices • Protected areas and conservation planning • Basic research and monitoring

Malacostraca, Decapoda, Cambaridae	Ringed Crayfish	*Faxonius neglectus*	RICR	97465	G5/SNR IUCN Unknown	Inhabit waterways that are clear, permanent flowing river systems ranging from small creeks to large rivers. Found in waters with firm, rocky substrates in shallow riffles and pools that are free of silt. Where they live in crevices under rocks.	Suspected: • Pesticides • Habitat conversion • Dams • Invasive species • Agriculture	• Site stewardship • Species stewardship • Outreach and communications • Best management practices • Protected areas and conservation planning • Basic research and monitoring
Malacostraca, Decapoda, Cambaridae	Virile Crayfish	*Faxonius virilis*	VICR	97425	G5/SNR	Inhabit streams, lakes, ponds or wetlands with moderate flow and turbidity, abundant cover, muddy, sandy or rocky substrate and stable water levels.	Suspected: • Pesticides • Habitat conversion • Dams • Invasive species • Agriculture	• Site stewardship • Species stewardship • Outreach and communications • Best management practices • Protected areas and conservation planning • Basic research and monitoring

*Key to codes:

NatureServe Ranks:

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.

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

RSGCN = Midwest Regional Species of Greatest Conservation Need

Process conducted by MAFWA Midwest Landscape Initiative to identify species that would benefit from regional collaborative conservation efforts. If a species is listed as a Midwest RSGCN, that is indicated in this column. Classification of species on the RSGCN Watch List is not noted in this column.

IUCN = International Union for Conservation of Nature

IUCN is an international organization that works to conserve nature. One tool is the development of the IUCN Red List of Threatened Species. Species experts apply an assessment process to determine conservation status and whether the assessed species is threatened with extinction. If IUCN has assessed a species, that is indicated in this column. Categories include: data deficient; least concern; near threatened; vulnerable; endangered; critically endangered; extinct in the wild; and extinct.

Appendix G. Gastropod Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan of 2025.

GASTROPODS

Five land snail species found in the Black Hills are listed as SGCN in South Dakota. The ecological function of these species is to help break down organic matter. Because they do not move long distances, endemic species and subspecies may result. Terrestrial snail species may be vulnerable to climate change impacts because of occurrence in habitats at higher elevations and due to rising air temperatures, drier habitats resulting from reduced precipitation, and vegetation changes. These species are threatened by impacts of logging, such as forest thinning that reduces moisture, canopy cover, and understory cover; road construction and salt application; extensive livestock grazing at water sources that host land snails; impacts of herbicide and pesticide use; and general habitat destruction and loss to development and impacts of outdoor recreationists.

These species were surveyed twice in their Black Hills habitats during the 1990s (Frest and Johannes 1993, 2002) and a subset of sites revisited during 2010 (Tronstad and Andersen 2011). SWG project T-103, "Monitoring land snails in the Black Hills: revisiting sites to detect trends" began in 2024 and will conclude in 2025. Lusha Tronstad, PhD, is leading this effort to resurvey sites visited during the 1990s and 2010 to assess the current status of these SGCNs in the Black Hills. Field sampling was completed in 2024, with final results available in late 2025.

Taxonomic group (class, order, family)	Common Name	Scientific Name	4-letter code	Taxonomic species number (TSN)	Global Rank/State Rank	State Distribution and habitats	Conservation Threats	Conservation Actions
Gastropoda, Helicida, Vertiginidae	Callused Vertigo Snail	*Vertigo arthuri*	CAVE	76824	G5/SU	Black Hills; moist, undisturbed forests of white spruce or ponderosa pine, often with deep litter understory	• Road construction and road salting during winter • Herbicide and pesticide impacts • Habitat destruction by outdoor recreationists	• Provide native ecosystem diversity with historical disturbance regimes • Work with host agencies and landowners to reduce conservation threat impacts • Share and apply final results from SWG project T-103 (see above)

Gastropoda, Helicida, Oreohelicidae	Cooper's Rocky Mountainsnail	*Oreohelix cooperi*	CRMO	77693	G3/SU	Black Hills; calcareous soils in moist ponderosa pine forests above 3,000-feet and in white-spring/ponderosa pine riparian habitats	• Road construction and road salting during winter • Herbicide and pesticide impacts • Habitat destruction by outdoor recreationists	• Provide native ecosystem diversity with historical disturbance regimes • Work with host agencies and landowners to reduce conservation threat impacts • Share and apply final results from SWG project T- • 103 (see above)
Gastropoda, Stylommatophora, Succineidae	Frigid Ambersnail	*Catinella gelida* (aka *Mediappendix gelida*)	FRAM	None assigned; validity of this taxon questioned by some experts	G1/SU	Black Hills; well vegetated sites at low to medium elevation and cold-air drainage slopes, often found near limestone talus near the base of a slope	• Road construction and road salting during winter • Herbicide and pesticide impacts • Habitat destruction by livestock grazing, logging, and outdoor recreationists	• Provide native ecosystem diversity with historical disturbance regimes • Work with host agencies and landowners to reduce conservation threat impacts • Share and apply final results from SWG project T-103 (see above)
Gastropoda, Helicida, Vertiginidae	Mystery Vertigo	*Vertigo paradoxa*	MYVE	76848	G4/SU	Black Hills; forests dominated by white spruce and ponderosa pine, north-facing slopes, limestone or schist substrates	• Herbicide and pesticide impacts	• Provide native ecosystem diversity with historical disturbance regimes • Work with host agencies

								to reduce pesticide and herbicide use in occupied habitats
Gastropoda, Stylommatophora, Discidae	Striate Disc	*Discus shimekii*	STDI	567504	G5/SU	Black Hills; montane forests, riparian aspen stands or aspen pockets; found under leaf litter, woody debris and rocks	• Habitat loss and degradation from timber harvest and grazing • Stand replacement fires	• Provide native ecosystem diversity with historical disturbance regimes • Work with host agencies and landowners to reduce conservation threat impacts • Share and apply final results from SWG project T- • 103 (see above)

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Appendix H. Additional Terrestrial Insect Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.

OTHER TERRESTRIAL INSECTS

Because of the lack of agency expertise in this area, SDGFP benefited from input from taxonomic experts and other sources outside the agency for this group of new SGCN, in particular. As of the time of this plan's publication, none of these species was monitored by the South Dakota Natural Heritage Program, a readily available data source for many other taxonomic groups. For that reason, information in the following table may be more general and less state-specific than for other taxonomic groups, particularly plant and vertebrate animal species.

Thirty-three new terrestrial insect SGCN are included in the 2025 Wildlife Action Plan. Eight new butterfly species and two new tiger beetle species are presented in individual species accounts. The following list includes 7 species of bumble bees, 7 species of solitary bees, and 9 additional species; 3 coleopterans, 5 orthopterans, and 1 lepidopteran. See the figure following this table for county record maps for 5 species of bumble bee SGCN from the SDSU Severin-McDaniel Insect Research Collection. No records from this collection were found for *Bombus occidentalis* or *Bombus terricola*.

Taxonomic group (class, order, family)	Common Name	Scientific Name	4-letter code	Taxonomic species number (TSN)	Global Rank/State Rank RSGCN IUCN*	Habitats	Conservation Threats	Conservation Actions
BUMBLE BEES								
Insecta, Hymenoptera, Apidae	American bumble bee	*Bombus pensylvanicus*	AMBB	714828	G3/SNR RSGCN IUCN Vulnerable	Grassland, farmland or other open areas with nectar- and pollen-producing flowers, nesting areas in grass clumps near flowers, and overwintering sites in decaying wood for hibernating queens. Generalist foragers for flowers that bloom throughout the colony's life cycle.	Suspected: • Pesticides • Habitat conversion • Managed colony pathogen spread • Increasing parasite loads • Low genetic diversity	• Definition of population viability needed • Candidate for federal listing under ESA • Research and monitoring to assess population trends and develop solutions for conservation threats • Appropriate use of prescribed fire to open habitats General recommendations for bumble bees: • Habitat restoration • Reduce pesticide use near suitable

								habitats during flowering • Promote farming practices that promote use of legumes and other pollinator-friendly along field edges • Avoid honey bee introduction to high-quality native bee habitat • Minimize wild bee exposure to diseases from managed bee colonies
Insecta, Hymenoptera, Apidae	Morrison's bumble bee	*Bombus morrisoni*	MOBB	714823	G3/SNR IUCN Vulnerable	Habitats, particularly shrublands, that provide rich floral resources throughout nesting season, sites for nesting and overwintering, such as logs, stumps, and unused ground-nesting bird or rodent nests. Generalist pollinators of agricultural crops and native plants.	Suspected: • Habitat loss • Insecticides • Managed colony pathogen spread	• Provide native ecosystem diversity with historical disturbance regimes Habitat management and protection • Build awareness for habitat needs • Use laws and policies when necessary • Investigate population size, distribution and trends • See General Recommendations listed for American bumble bee
Insecta, Hymenoptera, Apidae	Yellow bumble bee	*Bombus fervidus*	YEBB	714802	G3/SNR IUCN Vulnerable	Forest, shrubland, farmlands, fields, urban parks, and gardens. May be host to *Bombus suckleyi*	• Habitat loss from development for residential, commercial, and agricultural uses • Pesticide exposure • Found to have higher levels of *Nosema bombi* than more common species. *Nosema bombi* is a	• More investigation needed to understand specific threats and their relative importance and extent of inbreeding • See General Recommendations listed for American bumble bee

							pollinator parasite that escaped from managed bee colonies to infect wild bees.	
Insecta, Hymenoptera, Apidae	Southern Plains bumble bee	*Bombus fraternus*	SPBB	714805	G3/SNR RSGCN	Midwestern prairies. Species has a short tongue, making it a habitat specialist, with a restricted list of nectar plants, including ironweed, blazing star, goldenrod, coneflower and milkweeds. Will visit urban gardens.	General bumble bee threats likely to apply to this species: • Habitat conversion to agricultural uses • Pesticide impacts • Higher temperatures resulting from climate change • Impacts from nonnative honey bees • Loss of nectar plants to herbicide use and invasive plants	• Continued surveys needed across the species' range • See General Recommendations listed for American bumble bee
Insecta, Hymenoptera, Apidae	Suckley's cuckoo bumble bee	*Bombus suckleyi*	SCBB	714839	G2/SNR IUCN Critically Endangered	Can occur in a wide variety of habitat types. A parasitic bumble bee. Does not build its own nests, but takes over colonies by killing queen and "enslaving" colony workers. Appears most successful in parasitizing *Bombus occidentalis*, but recorded as present in colonies of several other *Bombus* species.	• Indirect impact due to loss of host species; caused by habitat declines and disease • Pesticide use • Pathogens from managed colonies • Competition with nonnative bees • Climate change	• Provide native ecosystem diversity with historical disturbance regimes • USFWS proposed to list this species as endangered under ESA in December 2024 • See General Recommendations listed for American bumble bee
Insecta, Hymenoptera, Apidae	Western bumble bee	*Bombus occidentalis*	WEBB	714827	G3/SNR IUCN Vulnerable	Open grassy areas, gardens, urban parks, shrublands, and mountain meadows. Host to Suckley's cuckoo bumble bee, and likely several other cuckoo bumble bee species.	• Higher levels of *Nosema bombi* and lower genetic diversity than other stable species with which they occur. • Habitat loss to agriculture, urban development, fire suppression	• Comprehensive surveys at historic and potential sites • Protect known populations from threats, such as overgrazing by livestock and vegetative encroachment by conifers

							• causing woody species encroachment, overgrazing and trampling of nesting and overwintering sites by livestock • Pesticide impacts	• Resolve taxonomic issues • See General Recommendations listed for American bumble bee
Insecta, Hymenoptera, Apidae	Yellow-banded bumble bee	*Bombus terricola*	YBBB	714843	G3/SNR RSGCN IUCN Vulnerable	Wide variety of habitats, such as farmland, woodland, urban areas, grasslands, wetlands, and meadows. Known or suspected host of several cuckoo bumble bees.	• Habitat loss and fragmentation • Pathogens from managed colonies • Pesticide impacts, particularly neonicotinoids • Climate change and severe weather • Infection from *Nosema bombi*, particularly in areas with managed greenhouse bees • Lower genetic diversity than other stable species with which they occur	• Provide native ecosystem diversity with historical disturbance regimes • Protect known populations from pesticide exposure and introduced pathogens • Protect and manage high quality habitats • See General Recommendations listed for American bumble bee
SOLITARY BEES								
Insecta, Hymenoptera, Halictidae	a dieunomia bee	*Dieunomia triangulifera*	DIBE	655878	G3/SNR	A solitary bee that was formerly widespread, but is now recorded infrequently. Wide variety of habitat types; prairies, pastures, alkaline flats, alluvial sand dunes, and cornfields	• Habitat conversion to agricultural uses • Off-road ATV impacts • Pesticides	• Surveys to document new populations • Protect known populations from identified threats
Insecta, Hymenoptera, Megachilidae	a leafcutter bee	*Megachile dakotensis*	LEBE	761311	G2/SNR	Great Plains prairie species now known from only a few sites in Indiana, Nebraska, South Dakota, and Manitoba. Most	• Habitat loss to agricultural crops, ranching, and development • Fire suppression	• Provide native ecosystem diversity with historical disturbance regimes • Surveys to document new populations

						records are many decades old.		• Protect known populations from identified threats
Insecta, Hymenoptera, Halictidae	a nomia bee	*Nomia universitatis*	NOBE	655881	G3/SNR	A solitary bee that is a rare resident of remnant prairies, but sometimes found in cornfields and pastures. Known to occur in ND and NE. Females nest in large groups in the ground.	• Habitat loss to agricultural uses • Pesticide impacts	• Surveys to document new populations • Protect known populations from identified threats
Insecta, Hymenoptera, Megachilidae	Blue shining mason bee	*Osmia cyaneonitens*	BSMB	715538	G3/SNR	A solitary bee that likely nests in hollow cavities in older wood. Current distribution includes portions of Colorado and Utah as the core range, with relatively old records from western SD and NE.	• Current specific threats are unknown	• Resurvey sites where species was previously found • Survey additional sites with similar habitat features • Protect any new or rediscovered populations
Insecta, Hymenoptera, Apidae	Occidental digger bee	*Anthophora occidentalis*	OCDB	154385	G4/SNR	A ground-nesting, solitary bee. Documented habitats include rangeland badlands, mixed-grass prairie, and farm fields. SD on eastern periphery of species' range, although occurs in IA.	• Oil and gas drilling • Fire suppression • Alteration of natural hydrology • Climate change • Ranching	• Resurvey sites where species was previously found • Survey additional sites with similar habitat features • Protect any new or rediscovered populations
Insecta, Hymenoptera, Megachilidae	Robust sunflower leafcutter bee	*Megachile fortis*	RSLB	761446	G2/SNR	A ground-nesting, solitary bee of central North American grassland habitats.	• Pesticides, especially grasshopper spraying • Incompatible livestock grazing practices • Herbicide impacts • Poorly-timed prescribed fire	• Resurvey sites where species was previously found • Survey additional sites with similar habitat features • Protect any new or rediscovered populations • Develop and implement best management practices related to livestock grazing, prescribed fire, and pesticide and

								herbicide applications
Insecta, Hymenoptera, Megachilidae	Spiny-legged leafcutter bee	*Megachile dentitarsus*	SLLB	761330	G3/SNR	A ground-nesting, solitary bee of grassland habitats. Considered secure in western part of its central North American range.	• Habitat loss to agricultural uses • Fire suppression	• Provide native ecosystem diversity with historical disturbance regimes
REMAINING INSECTS								
Insecta, Orthoptera, Acrididae	Carlinian snapper grasshopper	*Circotettix carlinianus*	CSGR	658075	G5/SNR	Ranges in southern tier of Canadian provinces extending south to include a few western U.S. states. Inhabits open areas of grassland and desert habitats. May be associated with clay or shale soils.	• Current specific threats are unknown	• Surveys to better understand state distribution and abundance
Insecta, Orthoptera, Acrididae	Contrasting spur-throat grasshopper	*Melanoplus discolor*	CSGR	658380	G4/SNR	South Dakota records from low-statured grassland habitat.	• Current specific threats are unknown	• Surveys to better understand state distribution and abundance
Insecta, Coleoptera, Lampyridae	Marsh firefly	*Photinus aquilonius*	MAFI	722509	GU/SNR	Occurs along U.S. Canada border from Nova Scotia and northeastern states west as far as SD. Reported habitats include marshes and open fields.	Suspected threats: • Light pollution, which could impact use of flash displays during courtship • Wetland loss	• Surveys to better understand state distribution and abundance • Information needed on life history attributes
Insecta, Coleoptera, Coccinellidae	Nine-spotted lady beetle	*Coccinella novemnotata*	NSLB	692571	G5/SNR	Formerly a common North American species, but has declined drastically in the last 40 years. Possibly extirpated from eastern U.S.	• Introduction of nonnative lady beetles • Habitat quality decline caused by pesticide use, urban expansion, and natural succession of farmland	• Surveys to better understand state distribution and abundance
Insecta, Orthoptera, Acrididae	Graceful sedge grasshopper; aka northern sedge locust	*Stethophyma gracile*	GSGR	658764	G5/SNR	Considered widespread in much of Canada. Found in a few U.S. states. Wetland habitats include low-lying	• Wetland loss and alteration	• Surveys to better understand state distribution and abundance

						areas of rivers, streams, and other wetlands. Occurs in sedge wetlands in the Black Hills.		
Insecta, Orthoptera, Acrididae	Rocky Mountain sprinkled locust	*Chloealtis abdominalis*	RMSL	658064	G5/SNR	Wide-ranging species in western Canada and south to several northern and upper midwestern states. Occupies forests and grasslands, especially grassy depressions. Can occur at up to 11,000 feet in elevation. Eats grasses and sedges.	• Current specific threats are unknown	• Surveys to better understand state distribution and abundance
Insecta, Lepidoptera, Saturniidae	Sagebrush buck moth; aka hera sheepmoth	*Hemileuca hera*	SABM	936185	G5/SNR	Ranges in western Canada and portions of central U.S., extending into southwestern SD. May be rare at the periphery of its range. Habitats include sagebrush, pinyon-juniper woodlands, and subalpine sagebrush meadows. Caterpillars need big sagebrush (*Artemisia tridentata* and sand sagebrush (*A. filifolia*))	• Sagebrush habitat loss and encroachment of invasive species (cheatgrass; *Bromus tectorum*)	• Provide native ecosystem diversity with historical disturbance regimes
Insecta, Orthoptera, Acrididae	Southwestern dusky grasshopper	*Encoptolophus subgracilis*	SDGR	658175	G5/SNR	Ranges from southcentral Canada through central states to Mexico. Uses mixed-grass, shortgrass, and desert prairies. Most abundant in northern mixed-grass prairie, favoring moist areas with grass and sedge growth. SD on eastern periphery of species' range.	• Current specific threats are unknown	• Surveys to better understand state distribution and abundance

Insecta, Coleoptera, Coccinellidae	Tamarack lady beetle; aka mountain lady beetle	*Coccinella monticola*	TALB	692577	GNR/SNR	May occupy a wide variety of habitats; agricultural areas, parks and gardens, grasslands, meadows, woodlands, and riparian areas.	• Current specific threats are unknown	• Surveys to better understand state distribution and abundance

*Key to codes:

NatureServe Ranks:

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.

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

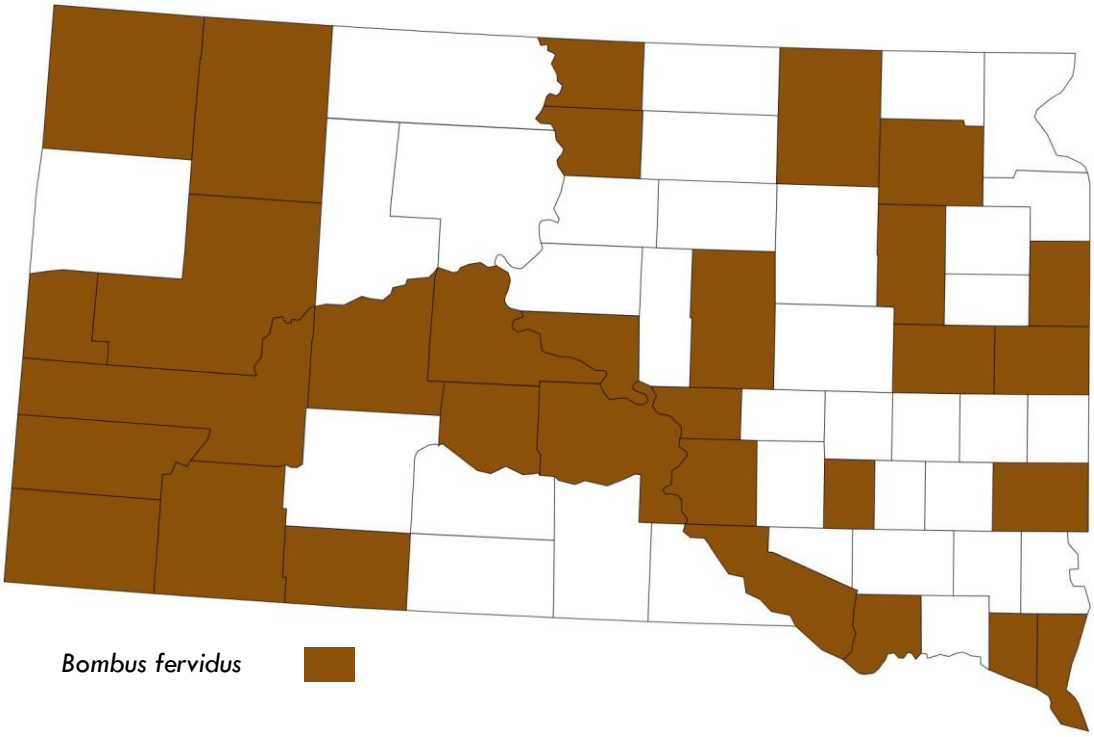
RSGCN = Midwest Regional Species of Greatest Conservation Need

Process conducted by MAFWA Midwest Landscape Initiative to identify species that would benefit from regional collaborative conservation efforts. If a species is listed as a Midwest RSGCN, that is indicated in this column. Classification of species on the RSGCN Watch List is not noted in this column.

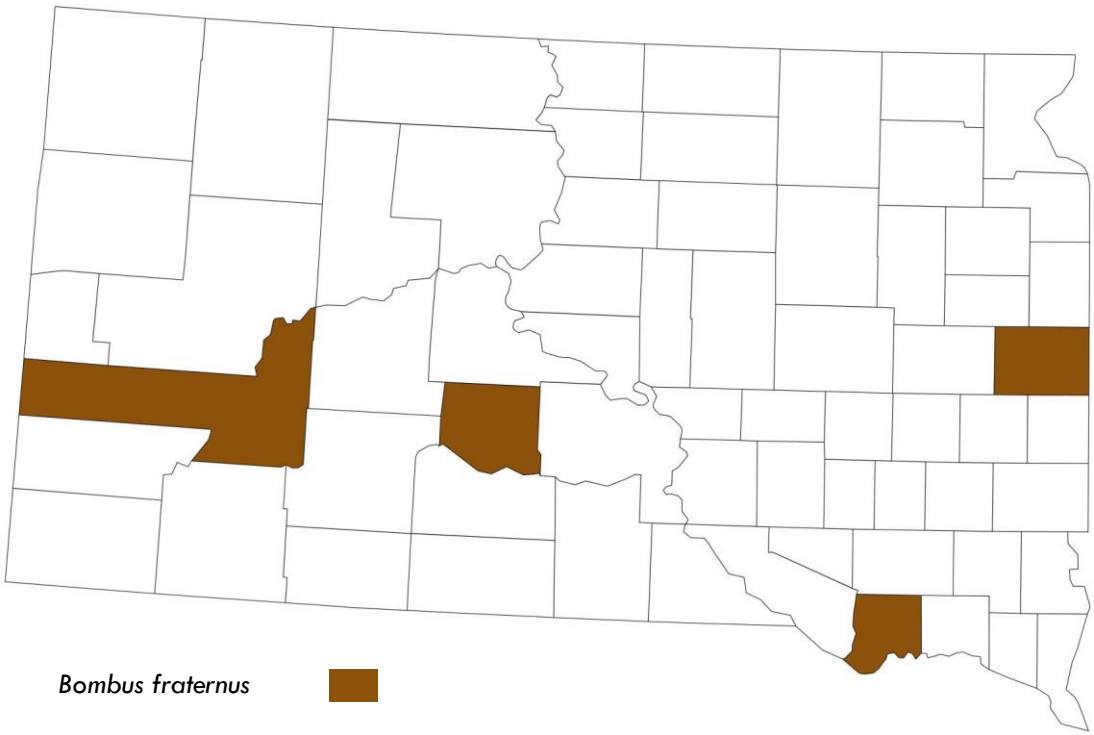
IUCN = International Union for Conservation of Nature

IUCN is an international organization that works to conserve nature. One tool is the development of the IUCN Red List of Threatened Species. Species experts apply an assessment process to determine conservation status and whether the assessed species is threatened with extinction. If IUCN has assessed a species, that is indicated in this column. Categories include: data deficient; least concern; near threatened; vulnerable; endangered; critically endangered; extinct in the wild; and extinct.

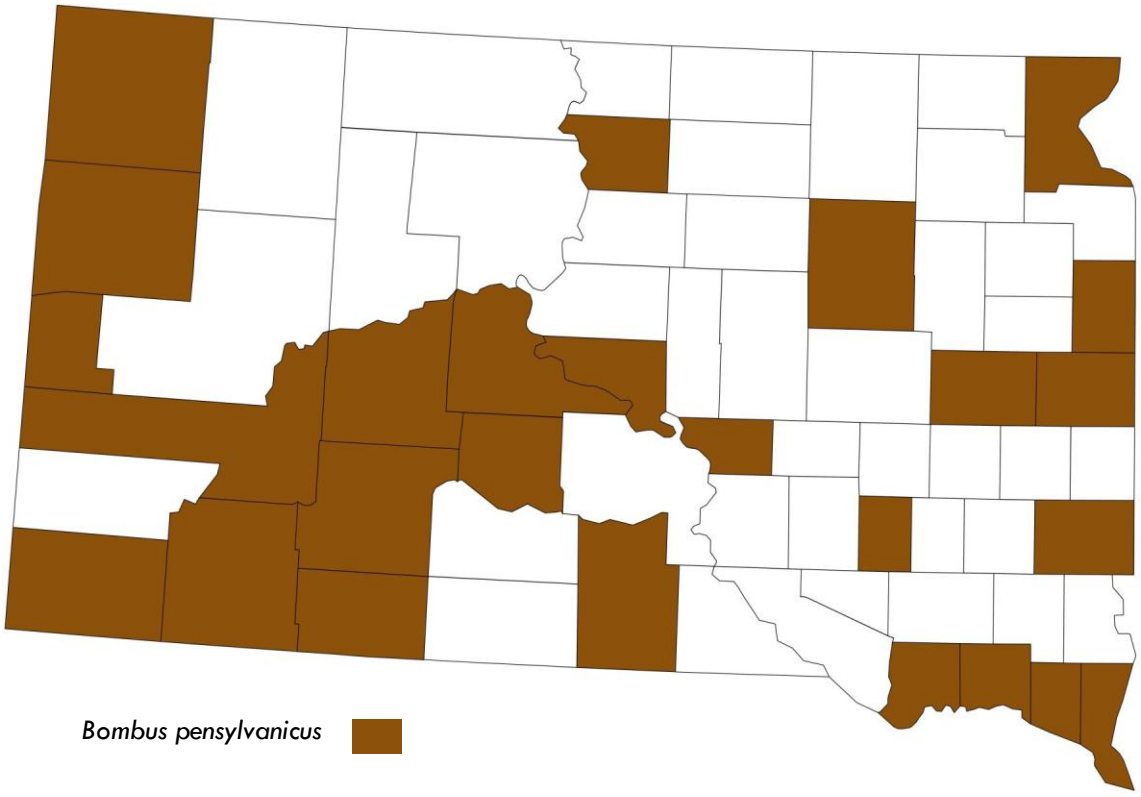
Appendix I. Bumble Bee Species of Greatest Conservation Need County 0ccurrence Records from Severin-McDaniel Insect Research Collection, South Dakota State University.



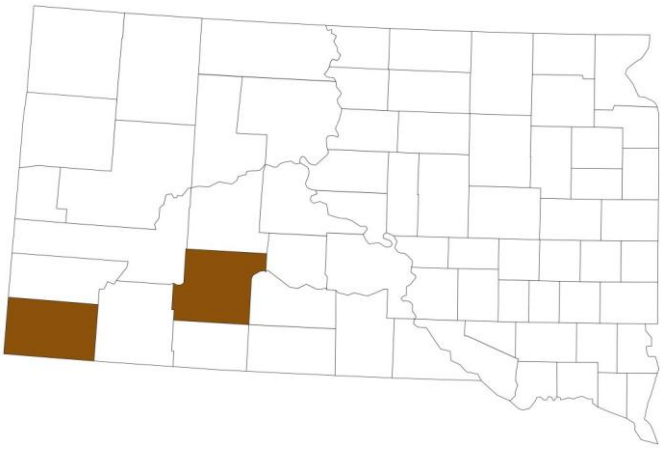
Bombus fervidus



Bombus fraternus



Bombus pensylvanicus



Bombus morrisoni

Bombus suckleyi

Appendix J. Ecological Site Statewide and Conservation Opportunity Area Acreages.

Ecological Classification ID	Ecological Classification Name	Ecosite Acres	COA Acres	Ecosite COA %
R053BY001ND	Clayey	238,560.7	11,743.2	4.9
R053BY002ND	Claypan	74,834.1	6,063.3	8.1
R053BY003ND	Closed Depression	58,077.2	5,133.9	8.8
R053BY004ND	Limy Subirrigated	13,629.5	1,168.0	8.6
R053BY005ND	Loamy Overflow	54,142.0	4,005.7	7.4
R053BY006ND	Saline Lowland	79,236.2	6,539.3	8.3
R053BY007ND	Sands	22,355.4	1,850.5	8.3
R053BY008ND	Sandy	41,582.7	2,464.7	5.9
R053BY010ND	Shallow Gravel	86,093.8	4,816.9	5.6
R053BY011ND	Loamy	1,861,527.8	196,927.9	10.6
R053BY012ND	Subirrigated	2,395.2	759.3	31.7
R053BY013ND	Thin Claypan	10,394.0	1,128.5	10.9
R053BY014ND	Choppy Sands	289.2	98.3	34.0
R053BY015ND	Thin Loamy	165,226.0	22,833.7	13.8
R053BY017ND	Very Shallow	60,437.0	9,299.7	15.4
R053BY018ND	Linear Meadow	504.4	416.3	82.5
R053BY019ND	Wet Meadow	101,801.0	8,146.9	8.0
R053BY025ND	Shallow Marsh	76,981.5	8,890.5	11.5
R053BY026ND	Sandy Claypan	8,155.9	967.1	11.9
R053BY900ND	Not Assigned	30,197.2	7,167.2	23.7
R053BY999ND	Non-site	565.1	258.7	45.8
R053CY002SD	Linear Meadow	2,377.2	611.2	25.7
R053CY006SD	Limy Subirrigated	367.8	9.5	2.6
R053CY007SD	Saline Lowland	29,768.4	2,291.3	7.7
R053CY008SD	Sands	718.0	718.0	100.0
R053CY009SD	Sandy	753.5	4.4	0.6
R053CY010SD	Loamy	1,605,048.5	124,306.6	7.7
R053CY011SD	Clayey	247,679.4	28,872.3	11.7
R053CY012SD	Thin Upland	221,002.5	56,153.7	25.4

R053CY013SD	Claypan	90,671.2	2,421.3	2.7
R053CY014SD	Shallow To Gravel	12,773.4	2,021.0	15.8
R053CY015SD	Thin Claypan	13,269.6	238.7	1.8
R053CY016SD	Very Shallow	18,758.8	7,404.0	39.5
R053CY019SD	Closed Depression	136,324.9	15,531.6	11.4
R053CY020SD	Loamy Overflow	283,781.8	16,517.3	5.8
R053CY039SD	Deep Marsh	3,185.1	421.2	13.2
R053CY040SD	Loamy Floodplain	4,046.3	1,637.4	40.5
R053CY041SD	Clayey Floodplain	6,519.7	341.3	5.2
R053CY999SD	Non-site	3,130.2	1,999.5	63.9
R054XY020ND	Clayey	678,588.6	121,256.7	17.9
R054XY021ND	Claypan	239,826.8	80,370.2	33.5
R054XY021SD	CLAYEY OVERFLOW	4,294.7	2,826.1	65.8
R054XY022ND	Closed Depression	30,930.1	2,574.3	8.3
R054XY023ND	Loamy Overflow	179,861.4	76,882.0	42.7
R054XY024ND	Saline Lowland	26,165.0	3,749.8	14.3
R054XY025ND	Sands	36,124.2	30,546.9	84.6
R054XY026ND	Sandy	889,278.1	366,505.7	41.2
R054XY027ND	Sandy Claypan	43,069.4	18,347.7	42.6
R054XY028ND	Shallow Clayey	79,478.5	13,849.1	17.4
R054XY030ND	Shallow Loamy	463,126.7	189,586.3	40.9
R054XY031ND	Loamy	1,551,914.5	379,137.3	24.4
R054XY033ND	Thin Claypan	1,143,402.0	579,952.0	50.7
R054XY035ND	Very Shallow	30,978.1	17,039.5	55.0
R054XY036ND	Wet Land	6,365.5	686.2	10.8
R054XY037ND	Wet Meadow	5,499.0	793.6	14.4
R054XY038ND	Thin Loamy	188,883.3	59,629.8	31.6
R054XY041ND	Loamy Terrace	81,377.3	44,920.7	55.2
R054XY042ND	Sandy Terrace	27,548.5	22,810.3	82.8
R054XY043ND	Shallow Sandy	302,486.7	152,997.1	50.6
R054XY999ND	Non-site	57,767.7	45,311.4	78.4

R055BY056ND	Clayey	362,655.6	40,019.8	11.0
R055BY057ND	Claypan	127,649.9	11,738.9	9.2
R055BY058ND	Limy Subirrigated	86,551.0	23,439.3	27.1
R055BY059ND	Loamy Overflow	55,157.7	4,583.4	8.3
R055BY060ND	Saline Lowland	62,633.7	14,393.0	23.0
R055BY061ND	Sands	10,737.4	5,556.0	51.7
R055BY062ND	Sandy	43,891.8	12,488.1	28.5
R055BY063ND	Shallow Gravel	10,490.3	402.8	3.8
R055BY064ND	Loamy	945,036.0	148,233.9	15.7
R055BY065ND	Subirrigated	76,376.2	16,168.6	21.2
R055BY066ND	Thin Claypan	75,215.4	6,441.8	8.6
R055BY067ND	Choppy Sands	1,103.1	347.5	31.5
R055BY068ND	Thin Loamy	23,227.4	4,070.1	17.5
R055BY069ND	Very Shallow	1,068.5	31.2	2.9
R055BY070ND	Shallow Marsh	21,023.5	7,612.2	36.2
R055BY071ND	Wet Meadow	82,113.2	29,114.9	35.5
R055BY072ND	Sandy Claypan	1,313.6	0.0	0.0
R055BY074ND	Subirrigated Sands	71,542.7	30,807.4	43.1
R055BY077ND	Linear Meadow	6,756.6	876.8	13.0
R055BY999ND	Non-site	47,172.6	17,808.9	37.8
R055CY001SD	Shallow Marsh	114,316.9	14,941.9	13.1
R055CY002SD	Linear Meadow	47,381.1	28,062.2	59.2
R055CY003SD	Subirrigated	66,965.1	31,339.0	46.8
R055CY004SD	Wet Meadow	306,552.2	87,347.0	28.5
R055CY006SD	Limy Subirrigated	14,931.8	3,869.4	25.9
R055CY007SD	Saline Lowland	115,606.2	56,653.9	49.0
R055CY008SD	Sands	38,426.4	22,940.6	59.7
R055CY009SD	Sandy	143,110.8	66,342.4	46.4
R055CY010SD	Loamy	4,255,822.3	735,688.1	17.3
R055CY011SD	Clayey	428,392.5	59,800.4	14.0
R055CY012SD	Thin Upland	377,550.5	114,011.9	30.2

R055CY013SD	Claypan	176,929.4	43,337.7	24.5
R055CY014SD	Shallow To Gravel	89,527.4	23,551.5	26.3
R055CY015SD	Thin Claypan	15,506.7	1,709.3	11.0
R055CY016SD	Very Shallow	8,663.4	2,057.1	23.7
R055CY019SD	Closed Depression	84,697.2	12,949.4	15.3
R055CY020SD	Loamy Overflow	262,355.0	24,461.1	9.3
R055CY021SD	Clayey Overflow	591.8	186.7	31.5
R055CY024SD	Shallow Limy	1,462.2	1,316.3	90.0
R055CY037SD	Deep Marsh	67,888.6	20,416.9	30.1
R055CY040SD	Loamy Floodplain	199,326.0	34,229.4	17.2
R055CY999SD	Non-site	3,673.2	1,374.2	37.4
R056AY084ND	Clayey	78.0	23.5	30.2
R056AY087ND	Limy Subirrigated	11,320.2	1,164.4	10.3
R056AY088ND	Loamy Overflow	2,807.5	0.0	0.0
R056AY089ND	Saline Lowland	1,726.8	167.6	9.7
R056AY090ND	Sands	765.8	0.0	0.0
R056AY091ND	Sandy	3.5	0.0	0.0
R056AY093ND	Shallow Gravel	505.9	9.1	1.8
R056AY094ND	Loamy	1,592.7	0.0	0.0
R056AY095ND	Subirrigated	4,898.7	0.0	0.0
R056AY096ND	Subirrigated Sands	1,161.1	0.0	0.0
R056AY099ND	Thin Loamy	421.3	0.0	0.0
R056AY100ND	Very Shallow	699.1	0.0	0.0
R056AY101ND	Shallow Marsh	6,436.8	1,565.0	24.3
R056AY102ND	Wet Meadow	2,083.9	3.4	0.2
R058DY007SD	Saline Lowland	13,284.4	5,875.1	44.2
R058DY008SD	Sands	94,629.7	72,475.7	76.6
R058DY009SD	Sandy	329,523.5	203,641.6	61.8
R058DY010SD	Loamy	91,069.1	53,957.5	59.2
R058DY011SD	Clayey	9,090.1	5,800.7	63.8
R058DY012SD	Thin Loamy	9,356.9	6,946.8	74.2

R058DY013SD	Claypan	220,872.4	130,713.3	59.2
R058DY015SD	Thin Claypan	205,093.7	120,711.3	58.9
R058DY016SD	Very Shallow	7,334.0	3,954.8	53.9
R058DY022SD	Loamy Terrace	8,014.5	1,714.1	21.4
R058DY024SD	Shallow Loamy	114,982.3	76,311.1	66.4
R058DY027SD	Sandy Claypan	14,416.8	13,611.7	94.4
R058DY028SD	Shallow Sandy	31,114.2	29,013.9	93.2
R058DY029SD	Stony Hills	14,454.6	14,450.0	100.0
R058DY031SD	Sandy Terrace	32,434.3	17,846.3	55.0
R058DY999SD	Non-site	28,681.5	24,870.3	86.7
R060AY007SD	Saline Lowland	41,186.1	25,996.7	63.1
R060AY008SD	Sands	81,677.1	45,398.5	55.6
R060AY009SD	Sandy	74,188.2	29,359.5	39.6
R060AY010SD	Loamy 13-16" P.Z.	9,682.1	4,927.2	50.9
R060AY011SD	Clayey 13-16" P.Z.	4,918.3	3,479.2	70.7
R060AY012SD	Thin Upland	255,188.0	63,057.8	24.7
R060AY013SD	Claypan	18,338.4	1,426.5	7.8
R060AY015SD	Thin Claypan	248,322.0	103,694.9	41.8
R060AY016SD	Very Shallow	33,966.3	16,336.3	48.1
R060AY017SD	Shallow Clay	648,873.0	384,342.3	59.2
R060AY018SD	Dense Clay	438,818.5	306,574.4	69.9
R060AY019SD	Closed Depression	17,005.0	3,864.1	22.7
R060AY020SD	Loamy Overflow	71,007.9	18,332.8	25.8
R060AY021SD	Clayey Overflow	105,899.3	43,271.9	40.9
R060AY022SD	Loamy Terrace	162,294.4	74,901.4	46.2
R060AY024SD	Shallow Loamy	152,676.2	65,085.5	42.6
R060AY025SD	Shallow Dense Clay	313,094.0	202,209.8	64.6
R060AY026SD	Saline Upland	38,157.4	18,473.7	48.4
R060AY030SD	Porous Clay	10,691.5	996.4	9.3
R060AY040SD	Clayey 16-18" P.Z.	1,335,028.3	531,402.2	39.8
R060AY041SD	Loamy 16-18" P.Z.	604,457.9	129,425.9	21.4

R060AY043SD	Shallow Porous Clay	61,078.3	16,502.8	27.0
R060AY044SD	Shallow Sandy	312.3	272.5	87.3
R060AY999SD	Non-site	93,761.5	67,102.2	71.6
R061XN010SD	Loamy-North (18-22" PZ)	63,988.4	1,059.7	1.7
R061XN011SD	Clayey-North (18-22" PZ)	32,353.1	973.2	3.0
R061XN012SD	Thin Upland-North (18-22" PZ)	44,010.9	1,418.3	3.2
R061XN024SD	Shallow Loamy-North (18-22" PZ)	72,178.3	22,441.7	31.1
R061XS010SD	Loamy-South (16-18" PZ)	44,921.1	11,384.7	25.3
R061XS011SD	Clayey-South (16-18" PZ)	23,642.2	6,483.0	27.4
R061XS012SD	Thin Upland-South (16-18" PZ)	42,606.0	11,614.7	27.3
R061XS024SD	Shallow Loamy-South (16-18" PZ)	57,873.3	16,579.4	28.6
R061XS044SD	Rocky Hills-South (16-18" PZ)	270.8	0.0	0.0
R061XY003SD	Subirrigated	1,638.4	68.4	4.2
R061XY009SD	Sandy	5,537.0	847.4	15.3
R061XY016SD	Very Shallow	7,591.3	1,873.9	24.7
R061XY017SD	Shallow Clayey	2,075.6	215.6	10.4
R061XY020SD	Overflow	24,968.7	1,980.5	7.9
R061XY022SD	Loamy Terrace	19,634.8	3,775.5	19.2
R061XY029SD	Stony Hills	61,002.1	39,102.9	64.1
R061XY042SD	Lowland	257.7	174.4	67.7
R061XY122WY	Loamy-West (16-20" PZ)	2,009.9	38.0	1.9
R061XY128WY	Lowland (LL) 15-19" Precipitation Zone, Black Hills	844.3	0.0	0.0
R061XY130WY	Overflow (Ov) 15-19" Precipitation Zone, Black Hills	371.2	0.0	0.0
R061XY150WY	Sandy (Sy) 15-19" Precipitation Zone, Black Hills	56.1	15.0	26.7
R061XY158WY	Shallow Clayey (SwCy) 15-19" Precipitation Zone, Black Hills	51.5	0.0	0.0
R061XY162WY	Shallow Loamy-West (16-20" PZ)	589.9	190.0	32.2
R061XY176WY	Very Shallow (VS) 15-19" Precipitation Zone, Black Hills	0.9	0.9	100.0

R061XY999SD	Non-site	69,177.5	34,902.2	50.5
R062XA009SD	Sandy - North	42,761.8	31,517.6	73.7
R062XA010SD	Loamy - North	14,697.2	8,540.8	58.1
R062XA012SD	Thin Upland - North	119,201.1	105,019.9	88.1
R062XA020SD	Loamy Overflow - North	4,772.3	3,519.4	73.7
R062XA024SD	Shallow Loamy - North	39,250.0	23,041.1	58.7
R062XA032SD	Channery Loam - North	42,898.2	33,575.6	78.3
R062XB010SD	Loamy - High Central	15,988.5	14,948.8	93.5
R062XB024SD	Shallow Loamy - High Central	304.5	304.5	100.0
R062XB039SD	Stony Overflow - High Central	53,999.7	53,007.7	98.2
R062XC010SD	Loamy - South	25,199.9	15,462.5	61.4
R062XC011SD	Clayey - South	3,326.9	2,185.2	65.7
R062XC020SD	Loamy Overflow - South	7,389.4	4,453.2	60.3
R062XC024SD	Shallow Loamy - South	95,888.5	42,580.0	44.4
R062XY003SD	Subirrigated	1,937.5	1,729.5	89.3
R062XY012SD	Thin Upland	189,115.7	142,937.8	75.6
R062XY029SD	Stony Hills	21,507.9	15,844.6	73.7
R062XY043SD	Valley Loam	79,996.1	67,157.5	84.0
R062XY999SD	Non-site	658,270.7	605,236.0	91.9
R063AY001SD	Shallow Marsh	3,509.9	105.0	3.0
R063AY002SD	Wet Land	6,176.0	1,513.6	24.5
R063AY003SD	Subirrigated	654.0	654.0	100.0
R063AY007SD	Saline Lowland	1,036.6	195.8	18.9
R063AY008SD	Sands	15,273.1	13,118.4	85.9
R063AY009SD	Sandy	4,262.3	3,185.6	74.7
R063AY010SD	Loamy	289,621.0	125,233.3	43.2
R063AY011SD	Clayey	2,821,480.1	572,242.5	20.3
R063AY012SD	Thin Upland	299,308.6	100,086.0	33.4
R063AY013SD	Claypan	23,698.9	7,038.6	29.7
R063AY014SD	Shallow To Gravel	4,897.8	919.7	18.8
R063AY015SD	Thin Claypan	165,126.9	43,193.0	26.2

R063AY016SD	Very Shallow	93,673.7	51,112.4	54.6
R063AY017SD	Shallow Clay	1,814,639.9	989,591.3	54.5
R063AY018SD	Dense Clay	415,910.7	191,787.1	46.1
R063AY019SD	Closed Depression	41,045.8	4,730.5	11.5
R063AY020SD	Loamy Overflow	39,120.4	20,085.6	51.3
R063AY021SD	Clayey Overflow	64,563.8	29,032.2	45.0
R063AY022SD	Loamy Terrace	41,215.7	28,058.0	68.1
R063AY024SD	Shallow	18,201.3	7,964.8	43.8
R063AY030SD	Limy Clay	30,574.8	13,089.5	42.8
R063AY032SD	Clayey Terrace	14,253.0	12,852.4	90.2
R063AY999SD	Non-site	51,668.1	44,263.0	85.7
R063BY007SD	Saline Lowland	829.9	0.0	0.0
R063BY010SD	Loamy	338,101.5	70,074.2	20.7
R063BY011SD	Clayey	619,547.3	110,075.8	17.8
R063BY012SD	Thin Upland	285,017.4	64,691.0	22.7
R063BY013SD	Claypan	75,132.3	6,253.3	8.3
R063BY015SD	Thin Claypan	18,604.6	4,024.3	21.6
R063BY016SD	Very Shallow	7,726.9	3,394.5	43.9
R063BY017SD	Shallow Clay	125,221.8	69,165.2	55.2
R063BY018SD	Dense Clay	7,661.0	988.3	12.9
R063BY019SD	Closed Depression	7,359.2	415.8	5.7
R063BY020SD	Loamy Overflow	42,379.2	23,064.4	54.4
R063BY021SD	Clayey Overflow	122,712.0	35,485.7	28.9
R063BY024SD	Shallow	18,673.5	1,984.3	10.6
R063BY999SD	Non-site	1,940.8	1,590.7	82.0
R064XY002NE	Wet Subirrigated	1,493.4	166.1	11.1
R064XY011NE	Sandy 14-17" PZ	660.3	0.0	0.0
R064XY012NE	Sands	67,069.8	32,431.0	48.4
R064XY022NE	Wet Land	477.8	453.1	94.8
R064XY024NE	Subirrigated	479.5	152.5	31.8
R064XY026NE	Loamy Overflow	110,293.0	61,325.3	55.6

R064XY028NE	Loamy Terrace	19,164.3	17,568.4	91.7
R064XY029NE	Sandy Lowland	165.9	0.0	0.0
R064XY032NE	Sandy 17-20" PZ	180,971.0	93,355.1	51.6
R064XY035NE	Clayey 17-20 PZ	230,143.5	98,956.5	43.0
R064XY036NE	Loamy 17-20" PZ	1,090,135.7	316,881.8	29.1
R064XY037NE	Thin Upland	90,946.0	43,910.7	48.3
R064XY039NE	Shallow Clay	91,504.4	50,794.1	55.5
R064XY040NE	Shallow	582,909.7	132,366.3	22.7
R064XY044NE	Claypan	105,762.1	45,388.0	42.9
R064XY045NE	Dense Clay	44,697.8	38,930.9	87.1
R064XY046NE	Thin Claypan	103,778.1	49,310.4	47.5
R064XY047NE	Very Shallow	37,125.7	25,534.3	68.8
R064XY048NE	Badlands Terrace	2,392.3	1,824.7	76.3
R064XY049NE	Badlands Overflow	159,425.0	123,669.7	77.6
R064XY999NE	Non-site	295,310.8	242,809.5	82.2
R065XY022NE	Wet Land	4,195.5	3,498.4	83.4
R065XY023NE	Wet Subirrigated	8,891.4	6,029.5	67.8
R065XY024NE	Subirrigated	17,365.4	13,511.1	77.8
R065XY026NE	Deep Wetland	4,213.2	3,213.1	76.3
R065XY029NE	Sandy Lowland	6,666.0	5,339.4	80.1
R065XY032NE	Sandy Medium P.Z. 17-22	6,431.0	3,323.7	51.7
R065XY033NE	Sands Medium P.Z. 17-22	252,514.6	171,432.5	67.9
R065XY034NE	Choppy Sands Medium P.Z. 17-22	18,359.6	10,692.2	58.2
R065XY999NE	Non-Site	14.1	14.1	100.0
R066XY026NE	Loamy Overflow	19,703.6	1,930.4	9.8
R066XY032NE	Sandy 18-22" P.Z.	447,014.0	152,523.1	34.1
R066XY033NE	Sands 18-22 P.Z.	199,327.4	70,749.3	35.5
R066XY036NE	Loamy 18-22 P.Z.	82,000.4	14,413.0	17.6
R066XY040NE	Shallow Limy	70,078.4	33,547.7	47.9
R066XY044NE	Wet Land	29,111.3	20,123.7	69.1

R066XY045NE	Wet Subirrigated (obsolete, absorbed by sub/wetland)	980.6	711.2	72.5
R066XY046NE	Subirrigated	36,571.3	11,499.7	31.4
R066XY051NE	Sandy Lowland	879.2	879.2	100.0
R066XY054NE	Sandy 22-25 P.Z.	283,092.4	11,095.5	3.9
R066XY055NE	Sands 22-25 P.Z.	64,578.9	30,668.3	47.5
R066XY058NE	Loamy 22-25 P.Z.	142,307.0	7,005.4	4.9
R066XY062NE	Shallow To Gravel	41,112.4	3,863.6	9.4
R066XY065NE	Closed Depression	5,049.6	174.0	3.4
R066XY066NE	Loamy Terrace	20,169.1	15,782.7	78.3
R066XY999NE	Non-site	4,747.2	3,727.3	78.5
R067AY150WY	Sandy (Sy)	4,900.4	2,590.0	52.9
R102AY001SD	Shallow Marsh	134,694.6	11,368.0	8.4
R102AY002SD	Linear Meadow	200,470.9	36,173.6	18.0
R102AY003SD	Subirrigated	67,688.4	16,378.0	24.2
R102AY004SD	Wet Meadow	21,537.8	1,197.0	5.6
R102AY006SD	Limy Subirrigated	300,709.5	39,131.2	13.0
R102AY007SD	Saline Lowland	23,879.9	3,673.4	15.4
R102AY008SD	Sands	315.8	172.9	54.8
R102AY009SD	Sandy	70,519.7	15,498.8	22.0
R102AY010SD	Loamy	2,445,838.6	226,371.3	9.3
R102AY011SD	Clayey	228,004.3	4,526.4	2.0
R102AY012SD	Thin Upland	362,895.3	33,459.8	9.2
R102AY013SD	Claypan	561.1	378.4	67.4
R102AY014SD	Shallow Gravel	233,530.5	50,570.2	21.7
R102AY016SD	Very Shallow	40,970.8	9,249.1	22.6
R102AY020SD	Loamy Overflow	50,573.4	4,240.8	8.4
R102AY036SD	Saline Subirrigated	163.6	99.9	61.0
R102AY037SD	Deep Marsh	175,223.3	31,326.7	17.9
R102AY040SD	Loamy Floodplain	63,493.5	9,627.5	15.2
R102AY999SD	Non-Site	10,268.9	2,162.9	21.1

R102BY001SD	Shallow Marsh	12,392.2	174.1	1.4
R102BY002SD	Linear Meadow	98,250.0	20,595.3	21.0
R102BY003SD	Subirrigated	171,099.9	39,806.9	23.3
R102BY004SD	Wet Meadow	7,502.1	291.0	3.9
R102BY006SD	Limy Subirrigated	67,025.0	8,802.2	13.1
R102BY007SD	Saline Lowland	14,484.3	554.2	3.8
R102BY008SD	Sands	13,190.6	10,602.8	80.4
R102BY009SD	Sandy	17,595.6	9,057.7	51.5
R102BY010SD	Loamy	1,197,970.9	183,350.1	15.3
R102BY011SD	Clayey	22,344.1	2,271.2	10.2
R102BY012SD	Thin Upland	96,647.6	19,292.3	20.0
R102BY014SD	Shallow To Gravel	27,372.2	10,721.0	39.2
R102BY016SD	Very Shallow	1,215.3	115.2	9.5
R102BY020SD	Loamy Overflow	133,669.1	35,175.4	26.3
R102BY021SD	Clayey Overflow	123,733.9	59,936.6	48.4
R102BY040SD	Loamy Floodplain	5,616.9	2,505.3	44.6
R102BY999SD	Non-site	7,382.7	3,933.7	53.3
R102CY048NE	Loamy Overflow	20,910.9	8,240.4	39.4
R102CY050NE	Loamy Lowland	12,225.4	5,964.0	48.8
R102CY054NE	Sandy	1,171.3	185.4	15.8
R102CY058NE	Loamy Upland	286,009.1	43,591.3	15.2
R102CY059NE	Limy Upland	60,825.9	10,011.2	16.5
R102CY999NE	Non-Site	5,379.2	4,806.4	89.4

WHAT IS WILDLIFE HEALTH?

Wildlife health is a complex, dynamic topic that can be difficult to define and measure. Wildlife health encompasses more than simply the presence or absence of disease caused by pathogens, parasites, and toxicants (e.g., contaminants or other poisonous substances produced by animals, plants, or people); rather, wildlife health is defined by a population's ability to withstand stressors and challenges, such as climate change, habitat loss, the emergence of disease-causing agents, and other environmental, climatic and anthropogenic threats. The term "resilience" can be used instead of "health" and, as such, health is the result of interacting biological, social, and environmental determinants (Stephen 2014).

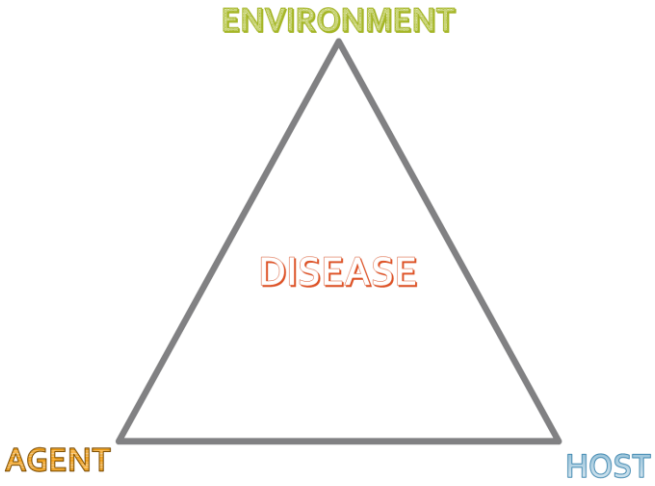
Why is wildlife health important?

The health of wildlife populations determines their ability to persist in the wild at sustainable levels for the long term. Wildlife health is linked to environmental and ecosystem health, as well as the health of humans and domestic animals. Monitoring wildlife health provides important information about population, community, and ecosystem dynamics and can inform measures needed to protect human and domestic animal health, as well as other wildlife populations. Further, wildlife health is linked with ecosystem health, and healthy ecosystems provide a plethora of services, from supporting productive agriculture to facilitating enjoyment of natural areas through recreation to mitigating the effects of severe weather and climate events, among many others. Healthy, resilient wildlife populations contribute to biodiversity, which also supports healthy ecosystems.

How does disease relate to wildlife health?

Disease occurs when a host responds to the presence of a pathogen, parasite, or toxicant and it can be both a determinant of health, as well as a stressor. Disease-causing agents can have significant impacts on wildlife populations. Diseases can have direct (e.g., causing overt morbidity and mortality) and indirect (e.g., decreased fitness) impacts on populations, both of which can result in or exacerbate population declines.

The development of disease depends on factors related to the host organism, the environment and climate, and the disease-causing agent (see epidemiologic triad at right). In healthy wildlife populations, pathogens (e.g., bacteria, fungi, viruses, parasites) and toxicants are present, and disease associated with these pathogens and toxicants typically occurs at low levels that do not have population-level impacts; however, when the host (i.e., wildlife) population experiences additional stressors or threats, the prevalence of disease may increase.



How do emerging diseases and other health threats impact wildlife populations?

An emerging disease is defined as "one that has recently been discovered; has recently increased in incidence, geography, or host range; or is newly evolved" (Rachowicz et al. 2005). Two hypotheses can apply to an emerging disease: the novel pathogen hypothesis states that the disease has recently spread into new geographic areas, whereas the endemic pathogen hypothesis suggests that it has been present in the environment but recently has affected new hosts or increased in its ability to cause disease (Rachowicz et al. 2005).

Diseases pose unique challenges to the conservation of wildlife populations, particularly in many species that are already experiencing other stressors. Disease may be the primary cause of population declines, or it may exacerbate population declines. Although in many instances we lack full comprehension of the impacts of diseases on wildlife populations, the impact of disease is well-documented in certain populations. For example, in North America, chytridiomycosis, caused by the fungus *Batrachochytrium dendrobatidis*, and WNS, caused by the fungus *Pseudogymnoascus destructans*, have emerged following pathogen introduction and have had devastating impacts on amphibian and bat populations, respectively.

The role of wildlife health in One Health

There are numerous definitions of One Health, but generally, One Health is considered a collaborative approach that recognizes that the health of humans, domestic and wild animals, and the ecosystems/landscapes they inhabit are interconnected (AFWA 2023). For example, sometimes disease-causing agents/toxicants that impact wildlife health may also threaten human (e.g., zoonotic diseases) or domestic animal health and vice versa. Further, anthropogenic changes to the landscape can also affect wildlife populations. Discussions of wildlife health should consider linkages with humans, domestic animals, and ecosystems through a variety of measures and collaborations.

How do we measure wildlife health?

Many different approaches can be used to measure health and evaluate health outcomes in wildlife. In a population of interest, potential health threats should be evaluated, followed by estimating the possible subsequent health outcomes. The health of wildlife populations (i.e., a population's resilience to stressors) is difficult to measure without the presence of an obvious challenge or threat that causes overt mortality. Evaluating potential threats to the health of wildlife populations will inform and guide the best way(s) to measure, evaluate, and subsequently manage health outcomes, which may vary by individual species, population, threat, and scenario.

Factors that may influence the health of populations include: genetic diversity; population demographics; climate change and weather events; resource availability; habitat continuity/quality; exposure to toxicants, pathogens, or parasites; and other stressors. These factors may directly affect population health or may work in conjunction with other factors to affect populations. For example, climate change may alter the geographic distribution of certain pathogens, leading to exposure of naive wildlife populations to novel pathogens. Additionally, decreased resource availability or poorer quality

and/or quantity of habitat may weaken a population's ability to respond to pathogens, thus resulting in more significant impacts of pathogens in certain populations.

Factors that may be reflective of the health of individuals and populations, and thus the resilience of a population, include: genetic diversity; immune function; reproductive fitness; population parameters; body condition; organ function; active infections; parasite loads; and causes of morbidity and mortality. These lists are not meant to be exhaustive but do provide good examples of various factors to consider when evaluating both potential health threats and measuring/evaluating health outcomes and the health of wildlife populations.

COMPONENTS OF WILDLIFE HEALTH

Morbidity and mortality events

Wildlife morbidity and mortality events often occur unexpectedly and may be highly visible and variable in scale. These events may include a few individuals of one species or a large number of multiple species or any combination of these and occasionally may involve a legal component (e.g., poisoning). Management agencies must be prepared to respond quickly and efficiently to investigate the cause of such events and to address the media and the public, should there be interest. They should also be prepared to communicate their findings and coordinate their response with other state, regional, and federal partners. The overarching goal of wildlife mortality investigations is to identify the cause(s) of such an event and identify any factors that may have contributed. Successfully investigating wildlife mortality events requires planning, preparation, flexibility, and often cooperation among agencies and other organizations (e.g., diagnostic laboratories).

Steps and considerations during investigation of wildlife mortality events should include: obtaining sufficient and relevant history; field evaluations; safe collection of sick and dead wildlife and/or samples; diagnostic laboratory analyses; communication of results to stakeholders; determination if any management actions are necessary; and implementation of such management actions, as appropriate. There are many resources that provide additional details on these steps (e.g., Friend and Franson 1999; Franson et al., 2015).

Emergency disease outbreak preparedness

An agency's ability to appropriately respond to morbidity and mortality events and disease outbreaks largely depends on the agency's emergency disease outbreak preparedness, meaning how well they have planned and prepared for potential future disease outbreak scenarios. Often, disease outbreaks occur rapidly and with minimal to no forewarning. Disease outbreaks may involve endemic or emerging/novel pathogens, parasites, or toxicants and may occur in a variety of scenarios. Emergency disease outbreak preparedness is necessary to respond rapidly and appropriately to these events and can encompass many different elements that are tailored to each specific agency and region's needs.

Foundational elements of emergency disease outbreak preparedness and response may include: planned coordination among all involved agencies/organizations, including established contracts with diagnostic laboratories; dedicated funding to enable swift and appropriate responses; predetermined

agency response plans and protocols for field investigation of disease outbreaks and morbidity/mortality events; biosecurity protocols; and kits with all necessary field investigation supplies. Agencies may consider conducting regular table-top exercises with staff; developing an Incident Command and Management System; engaging in long-term planning regarding potential management decisions; developing internal and external communication plans; and evaluating specific needs for prolonged/future surveillance and/or monitoring, depending on the outcome.

Prevention

While many threats to wildlife health cannot be prevented, certain steps can be taken to reduce the risk of them occurring and/or their effects on wildlife populations. For example, avoiding the transport of animals, plants, or environmental substrates (i.e. water and soil) between different areas can help to reduce the risk of moving disease-causing agents or diseased animals to naive areas. Regular inspections of facilities that temporarily house animals may reduce risk. Adhering to biosecurity measures when handling animals or biological material also reduces risk. Such measures may include: disinfection of field equipment; cleaning boots; and wearing personal protective equipment such as gloves, masks, and/or disposable aprons or boot covers. Previous knowledge of the potential disease-causing agents in a particular area can also help managers be prepared for outbreaks and prevent their spread.

Surveillance, monitoring, and management

It's important to understand the differences between surveillance, monitoring, and management when dealing with wildlife health. Surveillance can be active (intentional, planned collection of specific samples) or passive (opportunistic collection of samples as they are available) and involves testing for specific pathogens, toxicants, diseases, or other markers. While surveillance is typically aimed at prevention or early detection of health threats, monitoring aims to measure the threat and its impacts once present in the population. Finally, management is action taken to reduce the risk, spread, or impacts of a health threat. Merely conducting surveillance for the presence of a threat is not management, but monitoring is necessary to evaluate whether management actions are effective. Strategies for pathogen surveillance are described for herpetofauna populations in a paper by Gray et al (2017). While there are limited available published surveillance strategies for other taxa, similar strategies can apply to a broad range of species. Further, fish and wildlife health specialists are an excellent resource to collaborate with to develop species-, state-, and region-specific surveillance and monitoring strategies, as these may vary spatially and by population.

INTEGRATING WILDLIFE HEALTH INTO STATE WILDLIFE ACTION PLANS: ACTION ITEMS FOR CONSIDERATION*

***At the discretion of state fish and wildlife agencies**

Action: Recognize the importance of wildlife health and its role in supporting *resilient* wildlife populations and **i**ncorporate wildlife health into management plans.

Action: Work with academic and other partners to address emerging diseases through surveillance and research, including determining causes of death and/or population declines in species of greatest conservation need.

Action: Develop agency-specific morbidity and mortality event protocols and emergency disease outbreak and response protocols, including appropriate biosecurity measures, to better respond and address morbidity/mortality events and emergency disease outbreaks, as necessary.

Action: Work collaboratively and cooperatively with adjacent state fish and wildlife agencies, regional fish and wildlife associations, national fish and wildlife associations and agencies, agricultural and public health agencies, and others to address wildlife health issues at a regional and national scale.

Action: Provide opportunities for wildlife biologists, managers, agency personnel, and the public to expand their knowledge of wildlife health and improve wildlife health communication, as necessary.

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Appendix L. Terrestrial conservation opportunity area acreages sorted by Major Land Resource Areas.

MLRA Name	MLRA ID	MLRA Area (acres)	COA Acres	COA %
Black Hills	62	1,389,425.5	1,165,217.2	83.9
Black Hills Foot Slopes	61	541,646.2	158,693.3	29.3
Central Black Glaciated Plains	55B	1,138,250.6	42,055.6	3.7
Central Dark Brown Glaciated Plains	53B	2,179,248.9	241,808.0	11.1
Dakota-Nebraska Eroded Tableland	66	1,615,106.6	348,735.5	21.6
Glacial Lake Agassiz, Red River Valley	56A	37,730.9	3,088.8	8.2
Glacial Lake Dakota	55D	1,807,728.3	376,787.8	20.8
Iowa and Missouri Deep Loess Hills	107	4,879.1	4,879.1	100.0
Loess Uplands	102C	1,001,812.7	333,851.9	33.3
Mixed Sandy and Silty Tableland and Badlands	64	3,196,780.1	1,431,340.2	44.8
Nebraska Sand Hills	65	285,943.0	191,752.9	67.1
Northern Rolling High Plains, Eastern Part	58D	1,145,959.4	732,775.2	63.9
Northern Rolling Pierre Shale Plains	63A	6,475,816.2	2,616,379.7	40.4
Pierre Shale Plains	60A	4,548,079.2	2,014,888.6	44.3
Prairie Coteau	102D	3,897,499.5	520,834.1	13.4
Rolling Soft Shale Plain	54	6,175,164.8	2,210,939.5	35.8
Rolling Till Prairie	102A	759,769.1	18,232.9	2.4

Southern Black Glaciated Plains	55C	6,820,107.9	1,383,722.5	20.3
Southern Dark Brown Glaciated Plains	53C	2,623,678.5	271,959.6	10.4
Southern Rolling Pierre Shale Plains	63B	2,308,835.0	791,252.5	34.3
Till Plains	102B	1,400,815.2	149,998.1	10.7

Appendix M. Comments Received During Plan Review Period and Associated Resolution of Suggested Input.

GFP Seeking Comments on Draft Wildlife Action Plan Action Plan - May 16, 2025

PIERRE, S.D. – The SDGFP is reviewing and revising the 2015 South Dakota Wildlife Action Plan for submission to the U.S. Fish and Wildlife Service during the summer of 2025.

The South Dakota Wildlife Action Plan assesses the health of South Dakota's fish and wildlife and associated habitats, evaluates the problems they face, and outlines actions to help conserve them for the long term.

The draft Wildlife Action Plan can be found online at gfp.sd.gov/wildlife-action-plan.

Individuals interested in the Wildlife Action Plan for South Dakota may provide suggestions and comments on the revised action plan by June 20, 2025. Written comments must be received by the deadline and include your full name and city of residence. Comments can be sent to 523 E. Capitol Ave., Pierre, S.D. 57501, or submitted at gfp.sd.gov/forms/positions/.

Three taxonomic experts responded to the invitation to provide input on the Plan Revision:

- David Swanson, University of South Dakota, provided the following comments:
  - Least Tern, Conservation Threats: Add "Decreases in shallow water foraging habitat and forage fish populations"
  - American Three-toed Woodpecker, Distribution & Habitat: the statement "particularly where dead timber remains after fires" isn't really true for three-toed woodpeckers in South Dakota, as they rarely use burns. My suggested modification would be – "Prefers spruce forests, particularly with large dead trees present." Also, three-toeds in South Dakota will nest in living aspen, so suggested revision – Nests in cavities of large dead conifer trees or in living and dead aspen."
  - LeConte's Sparrow, Description: I think that LeConte's also closely resembles Nelson's Sparrow, so maybe add "Closely resembles Henslow's and Nelson's sparrows."
  - Virginia's Warbler, Conservation Threats: Suggested revision – "Isolated population in limited habitat in South Dakota may be vulnerable to wildfires or controlled burns."
- RESOLUTION: Dr. Swanson is an ornithologist at the University of South Dakota who has worked extensively with the species mentioned above. His edits were incorporated into the SD Wildlife Action Plan 2025 Revision. Eileen Dowd Stukel

- Steve Spomer, University of Nebraska-Lincoln, provided the following comments:
  - I see Dakota skipper as currently listed S2. I would think maybe S1. Plus, it is federally listed. Those, and O. Poweshiek have completely disappeared from Sieche Hollow SP and adjacent property.

- It looks like you have Cicindela limbata nympha as S4. Do you know if anyone has found it in the last 20 years? I looked for it a few years ago, but sand dunes were on private property, so I just limited my search to dunes next to the road and saw zero. I would suggest perhaps S1 unless you know of recent occurrences.
- Nebraska lists Hesperia ottoe as S1, and I would suggest that rating for SD also.
- The Pahasapa fritillary seems to fluctuate quite a bit from drought. I haven't seen any at the type locality (Deerfield Reservoir) for at least three years but haven't checked any of the other sites where we found them years ago. Maybe downgrade it to S2?

- RESOLUTION: Comments pertain to state Natural Heritage Program ranks rather than specific comments on Wildlife Action Plan Revision. These comments should be considered during upcoming state rank reviews.
  Eileen Dowd Stukel

- Riley Bernard, University of Wyoming, provided the following comment:
  - Chapter 2: Northern Myotis listed as T (2014 version Table 2-1), should be updated to state 'E'. Otherwise this document looks to be fairly updated/relevant based on current research and information.
- RESOLUTION: While the comment pertains to the 2015 South Dakota Wildlife Action Plan, the current SGCN list appropriately reflects Northern Myotis with an 'E' designation.
  Mandy Pearson

- **No additional feedback was received from taxonomic experts, representatives of agencies or tribes, or from members of the public during the advertised comment opportunity for the SDWAP 2025 Revision draft from May 16 – June 20, 2025.**