

South Dakota Wildlife Action Plan 2025 Revision

TABLE OF CONTENTS

EXECUTIVE SUMMARY	vii
Chapter Overview.....	viii
Acknowledgements	xiii
List of Tables.....	xx
List of Figures.....	xxii
List of Appendices	xxv
List of Acronyms	xxvii
Chapter 1. Introduction.....	1
1.1 Background	2
1.2 Summary of Plan Updates and Changes.....	4
1.3 Key Elements and Plan Roadmap	6
1.4 Goals	7
1.5 Species of Greatest Conservation Need - Overview	8
1.6 Conservation Strategies – Overview.....	8
Chapter 2. Species of Greatest Conservation Need	9
2.1 List Development, Review, and Criteria	9
SGCN list revision process.....	10
SGCN list criteria	10
SGCN categorization by criteria	11
2.2 Species Profiles	23
Chapter 3. Conservation Background – Terrestrial and Riparian-Wetland Ecosystems.....	28
3.1 Conservation Strategy.....	29
Application.....	31
3.2 Ecoregions.....	32
3.3 Natural Disturbance Processes	38
Climate.....	39
Fire.....	39
Grazing.....	41
Black-tailed prairie dogs.....	42
Other herbivores	43
Beavers	43
Flood events.....	45

South Dakota Wildlife Action Plan 2025 Revision

Chapter 4. Aquatic Ecosystems	59
4.1 Aquatic Goals and Objectives.....	59
4.2 Aquatic Conservation Strategy.....	60
Application of the strategy	60
A systematic approach to conservation.....	61
4.3 Aquatic Diversity – Classification of Riverine Ecosystems.....	61
Missouri River Region (Mississippi River Drainage).....	64
Upper Mississippi Region (Mississippi River Drainage).....	68
Souris-Red-Rainy Region (Nelson River Drainage).....	68
Chapter 5. Conservation Challenges and Threats to Native Ecosystems	69
5.1 Introduction	69
5.2 Terrestrial Systems.....	72
Direct conversion of native ecosystems.....	72
Natural disturbance processes.....	74
5.3 Riparian-Wetland Systems	75
Direct conversion of native ecosystems.....	75
Natural disturbance processes.....	78
5.4 Aquatic Systems	79
Natural system modifications	79
5.5 Conservation Threats	80
Nonnative and invasive species - Terrestrial Systems.....	80
Nonnative and invasive species – Riparian-wetland Systems	81
Invasive and problematic species, pathogens and genes – Aquatic Systems.....	81
Climate change – Terrestrial Systems.....	82
Climate change – Riparian-wetland Systems.....	86
Climate change – Aquatic Systems.....	90
Energy production and mining – Terrestrial Systems	90
Energy production and mining – Riparian-wetland Systems	92
Energy production and mining – Aquatic Systems.....	93
Recreational activities – Terrestrial Systems	93
Recreational activities – Riparian-wetland Systems	95
Human intrusions and disturbance – Aquatic Systems.....	95
Pollution – Terrestrial Systems	95
Pollution – Riparian-wetland Systems	96
Pollution – Aquatic Systems.....	97
Residential and commercial development – Aquatic Systems	97

South Dakota Wildlife Action Plan 2025 Revision

Agriculture and aquaculture – Aquatic Systems	98
Transportation and service corridors – Aquatic Systems.....	98
5.6 Species-level Conservation Challenges	98
Conservation threats described by taxonomic groups	99
Climate Change Impacts to SGCNs	106
5.7 Conservation Challenges and Threats Summary.....	110
Chapter 6. Conservation Actions	113
6.1 Introduction	113
6.2 Conservation Action Categories	115
Land Management – Terrestrial Systems.....	115
Wetland/riparian/watershed management – Riparian-wetland Systems	118
Land/water management – Aquatic Systems	118
Species management – Terrestrial Systems	119
Species management – Riparian-wetland Systems	119
Species management - Aquatic Systems.....	119
Creating awareness – Terrestrial Systems	119
Creating awareness – Riparian-wetland Systems	120
Creating awareness – Aquatic Systems.....	120
Livelihood, economic incentives – Terrestrial and Riparian-wetland Systems	120
Livelihood, economic incentives – Aquatic Systems	120
Conservation designation and planning – Terrestrial Systems	121
Conservation designation and planning – Riparian-wetland Systems	121
Conservation designation and planning – Aquatic Systems.....	122
Legal and policy – Terrestrial Systems	123
Legal and policy – Riparian-wetland Systems	123
Legal and policy – Aquatic Systems	123
Research and monitoring – Terrestrial Systems	124
Research and monitoring – Riparian-wetland Systems	124
Research and monitoring – Aquatic Systems.....	124
Education and training – Terrestrial Systems	125
Education and training – Riparian-wetland Systems	125
Education and training – Aquatic Systems.....	126
Institutional development – Terrestrial and Riparian-wetland Systems.....	126
Institutional development – Aquatic Systems	126
6.3 Conservation Actions Described by Taxonomic Groups.....	127
6.4 Conservation Opportunity Areas – Overview	131

South Dakota Wildlife Action Plan 2025 Revision

Why aquatic and terrestrial COAs were developed separately	131
Terrestrial conservation opportunity areas	132
Aquatic conservation opportunity areas	139
6.5 Conservation Actions Summary	155
Chapter 7. Agency Coordination, Cooperator Interactions, and Public Involvement.....	160
	160
7.1 Public Involvement and Partnership Process.....	160
SDGFP staff and their roles:.....	160
Agencies and Native American tribes	162
External public	162
7.2 Coordination with Other Agencies and Native American Tribes.....	163
7.3 Public Participation Opportunities	163
7.4 Review of Draft South Dakota Wildlife Action Plan.....	164
7.5 Understanding South Dakota Citizens – Wildlife Values	164
Public opinion survey.....	164
Relevancy survey	165
Chapter 8. Monitoring	167
8.1. Monitoring Plan Prioritization.....	168
State and/or federal threatened or endangered species designation.....	168
NatureServe global ranks.....	168
South Dakota Natural Heritage Program state ranks	169
Primary habitats.....	170
Chapter 9. Review Schedule and Framework	191
Chapter 10. Engaging the Public and Partners through Watchable Wildlife, Environmental Education, and Wildlife- Associated Recreation.....	192
10.1 Importance of Outdoor Recreation in South Dakota	192
10.2 Connection Between Outdoor Experiences and Conservation Ethics.....	193
10.3 Education and Recreation Working Group Input	194
10.4 Fish and Wildlife Agency Relevancy	195
References	202
Appendices	1
Appendix A. SDGFP Letter of Intent to Revise SDWAP and USFWS Response Letter	1
Appendix B. South Dakota Wildlife Action Plan implementation accomplishments from 2015 - 2024; completed or approved State Wildlife Grant and Competitive-State Wildlife Grant projects.....	3

South Dakota Wildlife Action Plan 2025 Revision

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.	16
Appendix D. Species Profiles for Species of Greatest Conservation Need.	28
Appendix E. Aquatic Insect Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.	221
Appendix F. Crayfish Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.	228
Appendix G. Gastropod Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan of 2025.	231
Appendix H. Additional Terrestrial Insect Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.	234
Appendix I. Bumble Bee Species of Greatest Conservation Need County Occurrence Records from Severin-.....	242
McDaniel Insect Research Collection, South Dakota State University.....	242
Appendix J. Ecological Site Statewide and Conservation Opportunity Area Acreages.....	244
Appendix K. Wildlife Health information Sheet	255
Appendix L. Terrestrial conservation opportunity area acreages sorted by Major Land Resource Areas.	260
Appendix M. Comments Received During Plan Review Period and Associated Resolution of Suggested Input.....	262

Acknowledgements

SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS

South Dakota Wildlife Action Plan Science Team:

Eileen Dowd Stukel, SD Wildlife Action Plan Coordinator
Chelsey Pasbrig
John (JM) Weidler
Ryan Wendinger
Lucas Zilverberg

Jennifer Buchanan, Casey Heimerl, and Silka Kempema assisted prior to leaving SDGFP.

Amanda (Mandy) Pearson and Jessica Speiser joined this effort while the plan revision was in progress and assisted in various aspects of the process.

Core Planning Team:

Stephanie Buckley	Andrew Norton
Jake Davis	Chelsey Pasbrig
Eileen Dowd Stukel	Mandy Pearson
John Kanta	Jessica Speiser
John Lott	Ryan Wendinger
Stan Michals	Lucas Zilverberg
Hilary Morey	

Landscapes and Habitat Working Group:

Nathan Baker	Mandy Pearson
Jake Davis	Chelsey Pasbrig
Eileen Dowd Stukel	Alex Solem
Jason Jungwirth	Jessica Speiser
Eric Magedanz	Dan Sternhagen
Stan Michals	JM Weidler
Rocco Murano	Ryan Wendinger
Mark Norton	Lucas Zilverberg

Education and Recreation Working Group:

Heather Berg	Jody Moats
Eileen Dowd Stukel	Paige O'Farrell
Lacy Elrod	David Parker
Brandon Maahs	

Public Involvement Working Group:

Stephanie Buckley
Eileen Dowd Stukel

Website and Interfacing Working Group:

Chelsey Pasbrig
JM Weidler

South Dakota Wildlife Action Plan 2025 Revision

ADDITIONAL ACKNOWLEDGEMENTS

- This plan benefited from the assistance of Amanda Horvath and Patricia Thompson, U.S. Fish and Wildlife Service and staff with the Utah Division of Wildlife Resources.
- Jim Noble and Heather Berg, SDGFP, provided GIS expertise and assistance.
- The following taxonomic experts assisted with the review and revision of the SGCN list: Katie Lamke (and others), Xerces Society; Kevin Ellison, American Bird Conservancy; Lusha Tronstad, University of Wyoming; Hollis Marriott, University of Wyoming; Matthew Brust, Chadron State College; Stephen Spomer, University of Nebraska-Lincoln; David Swanson, University of South Dakota; Kristel Bakker, Dakota State University; Amanda Cheeseman, South Dakota State University (SDSU); Drew Davis, Eastern New Mexico University; Natalie Gates, U.S. Fish and Wildlife Service; Greg Schomert, USDA Forest Service; Amy Hammesfahr, USDA Forest Service; Kurt Hansen, USDA Forest Service; Sarah Nodskov, USDA Forest Service; Cheryl Mayer, USDA Forest Service; Jodi Massie; Larry Igl, U.S. Geological Survey; Rose Swift, U.S. Geological Survey; and Jeff Curtis, Nathan Baker, Mark Ermer, and David Ode (retired), SDGFP.
- Abigail Martens, SDSU, provided access to terrestrial invertebrate species records of the Severin-McDaniel Insect Research Collection.
- Matthew Brust, Chadron State College, provided extensive assistance with tiger beetle species by sharing expertise and allowing use of images and distribution maps.
- Leon Hinz, Illinois Department of Natural Resources, facilitated permission to allow use of Franklin's ground squirrel image.

This project was funded in part by federal funding through SWG T-102-R-1, administered through the USFWS.

Cover photos by Owen McElroy, Sam Stukel, and Laura Hubers; additional photos contributed by SDGFP staff Owen McElroy, Mandy Pearson, Luke Zilverberg, and Ryan Wendinger.



Preferred Citation:

South Dakota Department of Game, Fish and Parks. 2025. South Dakota Wildlife Action Plan, 2025 Revision. Wildlife Division Report 2025-02. South Dakota Department of Game, Fish and Parks, Pierre, SD, USA.



Owen McElroy

South Dakota Wildlife Action Plan 2025 Revision

List of Tables

<u>Table 1.1</u>	Roadmap to the 8 Key Elements in the SDWAP 2025 Revision.
<u>Table 2.1</u>	Species of Greatest Conservation Need List for South Dakota Wildlife Action Plan Revision of 2025.
<u>Table 2.2</u>	Sources of Maps and Images for Species of Greatest Conservation Need Species Accounts, SD Wildlife Action Plan Revision of 2025.
<u>Table 3.1</u>	Number of Acres Representing the 21 Major Land Resource Areas in South Dakota.
<u>Table 3.2</u>	National Land Cover Data Classification (Derived from Anderson 1976).
<u>Table 3.3</u>	Classification of Rivers Within South Dakota.
<u>Table 3.4</u>	Description of the Hydrogeomorphic Classes Identified for Wetland and Riparian Ecological Sites of South Dakota (As Definitions Modified from NRCS 2008 and Brinson 1995).
<u>Table 3.5</u>	Seven Hydrology Sub-classes Utilized for Wetland and Riparian Ecological Sites of South Dakota (Cowardin et al. 1979 and Stewart and Kantrud 1971).
<u>Table 3.6</u>	Seven Vegetation Zones Were Identified by Stewart and Kantrud (1971, 1972) and Used in the Wetland and Riparian Ecological Sites of South Dakota to Help Describe Vegetation Communities by Hydrological Subclass.
<u>Table 3.7</u>	United States Fish and Wildlife Service National Wetlands Inventory Identifying the Number and Acres of Drained Wetlands in South Dakota. Https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/ . (Service)
<u>Table 4.1</u>	Hierarchical Framework, with Basic Descriptions, Used for Classifying and Mapping Riverine Ecosystems. Hierarchy for HUC_2 Through HUC_10 digit Hydrologic Units: the Numbering Scheme of the Hydrologic Unit Codes Increases by Two Digits as the Hydrologic Units Are Successively Subdivided. Optional 12-, 14-, and 16-digit Delineations Are Not Shown But Follow the Same Hierarchical Hydrologic Unit Coding Scheme. Note: Levels in Red Account for the Levels Used in South Dakota's Selection Process for Identifying Conservation Opportunity Areas.
<u>Table 5.1</u>	An Evaluation of Challenges and Threats to Eight Primary Habitat Types Found Across South Dakota.
<u>Table 5.2</u>	Number of Species of Greatest Conservation Need Affected by Conservation Threats to Level 1 in the IUCN-CMP Threats System.

South Dakota Wildlife Action Plan 2025 Revision

<u>Table 5.3</u>	Conservation Threats to Level 2 in the IUCN-CMP Threats System Sorted by the Number of Species of Greatest Conservation Need Affected.
<u>Table 5.4</u>	Adaptive Capacity Groups and Descriptions; from Earl et al. 2024.
<u>Table 5.5</u>	Overall Climate Change Adaptive Capacity Scores and Levels for Representative Animal Species of Greatest Conservation Need for South Dakota Wildlife Action Plan Revision of 2025 (Earl et al. 2024).
<u>Table 6.1</u>	Conservation Actions for Habitat Restoration, Enhancement and Protection.
<u>Table 6.2</u>	Number of SGCNs Affected Under the First-level Conservation Action Categories.
<u>Table 6.3</u>	Number of SGCNs Affected Under the Second-level Conservation Action Categories.
<u>Table 6.4</u>	Protected Lands Data Sources for Terrestrial Conservation Opportunity Area Identification.
<u>Table 6.5</u>	Plant and Animal Species Data Sources Used in Terrestrial Conservation Opportunity Area Identification.
<u>Table 6.6</u>	List of Aquatic Species of Greatest Conservation Need Used in the Conservation Opportunity Area Development Process for the South Dakota Wildlife Action Plan.
<u>Table 6.7</u>	List of the Global Information System (GIS) Coverages and Their Sources Obtained or Created to Identify Existing and Potential Future Stressors to the Aquatic Species of Greatest Conservation Need in South Dakota.
<u>Table 6.8</u>	Seven Stressor Metrics Included in the Human Stressor Index (HSI) and the Specific Criteria Used to Define the Five Relative Ranking Categories for Each Metric Used to Calculate the HSI for Each Watershed (HUC_10).
<u>Table 6.9</u>	List of the Geographic Information System (GIS) Coverages, Their Sources, and Percent Coverage Obtained or Created to Account for Local and Watershed Ownership/stewardship in South Dakota.
<u>Table 8.1</u>	A Sample of Species-based Monitoring with Relevance to South Dakota as of 2025 (Abbreviated Version).
<u>Table 8.2</u>	A Sample of Habitat-based Monitoring with Relevance to South Dakota as of 2025 (Abbreviated Version).
<u>Table 8.3</u>	South Dakota Species of Greatest Conservation Need List with Primary Habitat Indicated.
<u>Table 10.1</u>	Environmental Education and Wildlife-associated Recreation Needs Identified by SDGFP Working Group for Wildlife Action Plan Revision of 2025.

South Dakota Wildlife Action Plan 2025 Revision

List of Figures

Figure 2.1	Sample Species of Greatest Conservation Need Profile.
Figure 3.1	Map of Major Land Resource Areas for South Dakota (USDA NRCS 2022).
Figure 3.2	Habitat Classification Using 2021 National Land Cover Database and the Midwest Landscape Initiative – Conservation Blueprint to Help Understand Current Land Uses Across South Dakota. MLI wetlands Were Merged With the 2021 NLCD (MLI 2024, USGS 2021).
Figure 3.3	Spatial Relation of Vegetational Zones in Major Classes of Natural Ponds and Lands (Stewart and Kantrud 1971).
Figure 3.4	A). Lacustrine-Permanent Ecological Site. Typical Vegetation Zones Under Average Precipitation Conditions for the Lacustrine Class–Permanent Subclass. B) . Lacustrine-Intermittent Ecological Site. Typical Vegetation Zones Under Average Precipitation Conditions for the Lacustrine Class -Intermittent Subclass, Adapted from (Stewart and Kantrud 1971).
Figure 3.5	A) Riverine-Permanent Ecological Site. Typical Vegetation Zones Under Average Precipitation Conditions for the Riverine Class-Permanent Subclass. B) Riverine-Intermittent Ecological Site. An Example of Vegetation Zones That Might Occur Under Average Precipitation Conditions for the Riverine Class-Intermittent Subclass, Adapted from (Stewart and Kantrud 1971).
Figure 3.6	United States Fish and Wildlife Service National Wetlands Inventory (Data as of 2024).
Figure 3.7	Heat Map of the Number of Wetlands Developed from United States Fish and Wildlife Service National Wetlands Inventory (Data as of 2024).
Figure 3.8	Drained Wetlands in South Dakota. Data Acquired from the US Fish and Wildlife National Wetlands Inventory.
Figure 4.1	Map Showing HUC Levels 6, 8, and 10 Used in South Dakota's Selection Process for Identifying Conservation Opportunity Areas.
Figure 4.2	Map Showing the Boundaries of the Fourteen River Basins (HUC_6) of South Dakota, Including the Minnesota and Upper Red Basins from the Upper Mississippi and Souris-Red-Rainy Regions, Respectively.
Figure 4.3	Locations of Six Missouri River Mainstem Dams.
Figure 5.1	World Wildlife Fund Plowprint Map of South Dakota from the 2024 Report Showing Where Lands Have Been Converted to Row Crop Agriculture or Developed and Those Acres That Remain Intact.
Figure 5.2	U.S. Portion of the Prairie Pothole Region (PPR).

South Dakota Wildlife Action Plan 2025 Revision

Figure 5.3	Upland Accessibility of Breeding Duck Pairs in the SD PPR (Thunderstorm Nap). Mallard, Northern Pintail, Gadwall, Blue-winged Teal, and Northern Shoveler are Included in the Model.
Figure 5.4	The Central Grasslands Roadmap of South Dakota (c. 2023) with Grasslands Categorized as Core Grasslands, Vulnerable Grasslands, and Converted/altered Grasslands. Map Derived from https://www.grasslandsroadmap.org/ Where More Information and Map Updates Can Be Found As They Become Available.
Figure 5.5	South Dakota Average Temperature from 1895 to 2023 (NOAA National Centers for Environmental Information 2024).
Figure 5.6	South Dakota Average Precipitation from 1895 to 2023 (NOAA National Centers for Environmental Information 2024).
Figure 5.7	Figure 5.7. South Dakota Palmer Drought Severity (PDSI) Index Starting January 1895. PDSI is Classified by the Following: Extremely Wet 4.00 or more, Very Wet 3.00 to 3.99, Moderately Wet 2.00 to 2.99, Slightly Wet 1.00 to 1.99, Incipient Wet Spell 0.50 to 0.99, Near Normal 0.49 to -0.49, Incipient Dry Spell -0.50 to -0.99, Mild Drought -1.00 to -1.99, Moderate Drought -2.00 to -2.99, Severe Drought -3.00 to -3.99, and Extreme Drought -4.00 or less (NOAA National Centers for Environmental Information 2024).
Figure 5.8	Projected Climate Change for the Range of Conditions for 2021–2050 and 2070–2099 from the Downscaled Climate Change Analysis of This Report. Findings Suggest That a 10% Increase in Spring Precipitation is Needed to Offset Effects on Wetlands of a 2°C Increase in Temperature Reported by Poiana et al. (1995).
Figure 5.9	Comparison of Projected Climate Change for the Range of Conditions Projected in 2021–2050 and 2070–2099 From the Downscaled Climate Change Analysis of This Report. Findings Suggest That a 20% Increase in Overall Precipitation is Needed to Offset Effects on Wetlands of a 3°C Increase in Temperature as Reported by Johnson et al. (2005). This is Similar to the Relationship Reported by Johnson et al. (2010).
Figure 6.1	Example of Spatially Explicit Model for Conservation Delivery. Upland Accessibility by Breeding Duck Pair in the Prairie Pothole Joint Venture.
Figure 6.2	Map of Square Mile Hexagons by Percentage of Protected Area.
Figure 6.3	Map of Large, Intact Blocks with Limited Amounts of Human Disturbance.
Figure 6.4	Map of Square Mile Hexagons by Species Richness Count.
Figure 6.5	Map of Terrestrial Conservation Opportunity Areas.
Figure 6.6	Sample Map Defining Confirmed and Probable Distributional Records at the Watershed (HUC_10) and Sub-basin (HUC_8) Boundary Levels, Respectively.
Figure 6.7	Map of Overall Confirmed Species Richness (Fish and Freshwater Mussels, Excluding Aquatic Insects and Crayfish) for Species of Greatest Conservation Need for HUC_10 Watershed Boundaries.

South Dakota Wildlife Action Plan 2025 Revision

Figure 6.8	Map Showing the First Value in the Human Stressor Index (HSI) for Each of the Watersheds (HUC_10) in South Dakota. A Value of 1 Indicates Relatively Low Human Disturbance, While a Value of 5 Indicates a Relatively High Human Disturbance. No Watersheds Have a Value of 1 and Only 8 Watersheds Have a Value of 2.
Figure 6.9	Map Showing the Last Two Values in the Human Stressor Index (HSI) for Each of the Watersheds (HUC_10) in South Dakota. A Value of 9 Indicates an Extremely Low Level of Cumulative Stress. The Highest Possible Value was a 21. The Higher the Value for the Last Two Digits, the Higher the Degree of Cumulative Disturbance.
Figure 6.10	Map Showing the Cumulative Human Stressor Index (HSI) for Each of the Watersheds (HUC_10) in South Dakota. The First Number Represents the Highest Value Received Across all 7 Human Stressor Metrics, While the Last Two Numbers Represent the Sum of the Scores Received for Each of the 7 Metrics.
Figure 6.11	South Dakota Land Ownership/stewardship Map with Basins (HUC_6) Overlaid.
Figure 6.12	Map Showing the Bad River Sub-basin (HUC_8) that was Selected to Meet All Elements of the Basic Conservation Strategy Developed for the Aquatic Conservation Opportunity Area Selection Process in South Dakota. The Figure Also Shows Watersheds (HUC_10) Within the Bad River Sub-basin.
Figure 6.13	Map Breaking Down the Assessment Criteria for the Bad River Sub-basin. Conservation Opportunity Areas Were Selected by a Hierarchy System Based on First Looking at the Highest Species Richness.
Figure 6.14	Map Breaking Down the Assessment Criteria for the Bad River Sub-basin. Conservation Opportunity Areas Were Selected by a Hierarchy System Based Secondly Looking at the Lowest Human Stressor Index Value.
Figure 6.15	Map Breaking Down the Assessment Criteria for the Bad River Sub-basin. Conservation Opportunity Areas Were Selected by a Hierarchy System Lastly Looking at the Highest Percentage of Public Ownership.
Figure 6.16	Map of the Two Conservation Opportunity Areas Selected for the Bad River Sub-basin.
Figure 6.17	Map of the Two Conservation Opportunity Areas Within Middle Cheyenne-Elk Sub-basin (HUC_8) That Were Selected to Meet All Elements of the Conservation Strategy and Assessment Process in South Dakota. An Additional COA Was Selected Because It Represented the Only Watershed (HUC_10) with Confirmed Presence of Lake Chub, a Species of Greatest Conservation Need.
Figure 6.18	Map of 73 Aquatic Conservation Opportunity Areas Selected to Meet All Elements of the Aquatic Conservation Strategy and Assessment Process Across South Dakota.

South Dakota Wildlife Action Plan 2025 Revision

List of Appendices

Appendix	Title	Link (if not included in appendices package)
Appendix A	South Dakota Game, Fish and Parks Letter of Intent to Revise SD Wildlife Action Plan and U.S. Fish and Wildlife Service Response Letter.	
Appendix B	State Wildlife Action Plan Implementation Accomplishments from 2015 – 2024; Completed or Approved State Wildlife Grant and Competitive-State Wildlife Grant Projects.	
Appendix C	State Wildlife Action Plan Implementation Accomplishments from 2015 – 2024, In Addition to State Wildlife Grant or Competitive-State Wildlife Grant Projects Described in Appendix B.	
Appendix D	Species Profiles for Species of Greatest Conservation Need.	
Appendix E	Aquatic Insect Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.	
Appendix F	Crayfish Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.	
Appendix G	Gastropod Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan of 2025.	
Appendix H	Additional Terrestrial Insect Species of Greatest Conservation Need and Summary Information for South Dakota Wildlife Action Plan 2025.	
Appendix I	Bumble Bee Species of Greatest Conservation Need County Occurrence Records from Severin-McDaniel Insect Research Collection, SDSU.	
Appendix J	Ecological Site Statewide and Conservation Opportunity Area Acreages for Terrestrial Systems.	
Appendix K	Wildlife Health Information Sheet.	
Appendix L	Terrestrial Conservation Opportunity Area Acreages Sorted by Major Land Resource Areas.	
Appendix M	Comments Received During Plan Review Period and Associated Resolution of Suggested Input.	

South Dakota Wildlife Action Plan 2025 Revision

Appendix N	Past, Present, and Future Climates for South Dakota – Observed Climatic Variation From 1895-2010 and Projected Climate Change to 2099. Authors Mark A. Cochrane and Christopher J. Moran (Full Report)	https://gfp.sd.gov/images/WebMaps/Viewer/WAP/Website/SWGSummaries/South_Dakota_Future_Climate_Projections_Report.pdf
Appendix O	Conservation Threats to South Dakota Species of Greatest Conservation Need (CMP/IUCN Direct Threats Classification v 2.0).	https://gfp.sd.gov/UserDocs/nav/SD_ConsThreats.xlsx
Appendix P	Assessing Climate Vulnerability & Adaptive Capacity of Midwest Species of Greatest Conservation Need. Authors Earl et al. 2024.	https://gfp.sd.gov/userdocs/nav/assessing_climate_vulnerability_adaptive_capacity_midwest_sgcn.pdf
Appendix Q	Conservation Actions for South Dakota Species of Greatest Conservation Need (CMP Actions Classification 2.0).	https://gfp.sd.gov/UserDocs/nav/SD_ConsActions.xlsx
Appendix R	Past, Present, and Future Climates for South Dakota – Observed Climatic Variation From 1895-2010 and Projected Climate Change to 2099. Authors Mark A. Cochrane and Christopher J. Moran (Executive Summary)	https://gfp.sd.gov/images/WebMaps/Viewer/WAP/Website/SWGSummaries/Climate_Change_report_Executive_Summary.pdf
Appendix S	South Dakota Wildlife Action Plan Public Opinion Survey Findings Report. Author ETC Institute.	https://gfp.sd.gov/UserDocs/nav/FindingsReport_SouthDakotaWAP.pdf
Appendix T	South Dakota Wildlife Action Plan Revision: Relevancy Survey. Author Stephanie Buckley.	https://gfp.sd.gov/UserDocs/nav/WAP_Relevancy_Survey_Final.pdf
Appendix U	SD Monitoring Efforts – Species and Habitats.	https://gfp.sd.gov/userdocs/nav/SD_Monitoring_Efforts-species_and_habitats.xlsx

List of Acronyms

AC – Adaptive capacity (to climate change)

AFWA – Association of Fish and Wildlife Agencies

AIS – Aquatic Invasive Species

ARSD – Administrative Rules of South Dakota

BCI – Bat Conservation International

BDA – Beaver dam analog

BHNF – Black Hills National Forest

BLM – Bureau of Land Management

BOR – Bureau of Reclamation

C – °Celsius

CGR – Central Grasslands Roadmap

CCVI – Climate Change Vulnerability Index

CMP – Conservation Measures Partnership

COA – Conservation Opportunity Area

CREP – Conservation Reserve Enhancement Program

CRP – Conservation Reserve Program

CSWG – Competitive-State Wildlife Grant

CWA – Clean Water Act

CWD – Chronic wasting disease

DDT – Dichlorodiphenyltrichloroethane

DGCM – Downscaled Global Climate Model

EHD – Epizootic hemorrhagic disease

EIA – Energy Information Administration

EPA – (US) Environmental Protection Agency

ERC – Eastern red cedar

South Dakota Wildlife Action Plan 2025 Revision

ESA – Endangered Species Act

F – °Fahrenheit

FIA – (SD) Forest Inventory and Analysis

FMCS – Freshwater Mollusk Conservation Society

FSA – Farm Service Agency

GCM – Global Climate Model

GIS – Geographic Information System

GPA – (SD) Game Production Area

HAPET – Habitat and Population Evaluation Team

HGM – Hydrogeomorphic (system)

HRV – Historical range of variability

HSI – Human Stressor Index

HUC – Hydrologic Unit Code

IEA – International Energy Agency

IPM – Integrated Population Model

IR – Integrated Report

ITIS – Integrated Taxonomic Information System

IUCN – International Union for the Conservation of Nature

MAFWA – Midwest Association of Fish and Wildlife Agencies

MLI – Midwest Landscape Initiative

MLRA – Major Land Resource Area

NABat – North American Bat Monitoring Program

NABCI – North American Bird Conservation Initiative

NAD – North American Datum

NANPCA – Nonindigenous Aquatic Nuisance Prevention and Control Act

NAWMP – North American Waterfowl Management Plan

South Dakota Wildlife Action Plan 2025 Revision

NFWF – National Fish and Wildlife Foundation

NGO – Non-governmental Organization

NGP – Northern Great Plains

NHD – National Hydrography Dataset

NLCD – National Land Cover Data

NOAA – National Oceanic and Atmospheric Administration

NPS – National Park Service

NRCS – Natural Resources Conservation Service

NREL – National Renewable Energy Laboratory

NWI – National Wetlands Inventory

PDSI – Palmer Drought Severity Index

PPR – Prairie Pothole Region

PUC – Public Utilities Commission

PV – Photovoltaic

RMBO – Rocky Mountain Bird Observatory

RSGCN – Regional Species of Greatest Conservation Need

SDBBA – South Dakota Breeding Bird Atlas; SDBBA II refers to the second state atlas project

SDBWG – South Dakota Bat Working Group

SD DANR – South Dakota Department of Agriculture and Natural Resources

SD DENR – South Dakota Department of Environment and Natural Resources (now merged with SD Dept. of Agriculture as SD DANR)

SDGFP – South Dakota Game, Fish and Parks

SDNHD – South Dakota National Heritage Database

SDPB – South Dakota Public Broadcasting

SDOU – South Dakota Ornithologists' Union

SDSU – South Dakota State University

South Dakota Wildlife Action Plan 2025 Revision

SDWAP – South Dakota Wildlife Action Plan

SGCN – Species of Greatest Conservation Need

SME – Society for Mining, Metallurgy & Exploration

SOM – Soil organic matter

SSURGO – Soil Survey Geographic Database

STM – state and transition model

SWG – State Wildlife Grant

TMDL – Total Maximum Daily Loads

TNC – The Nature Conservancy

TSN – Taxonomic Serial Number

USACE – United States Army Corps of Engineers

USDA – United States Department of Agriculture

USFS – United States Forest Service

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

UXO – Unexploded ordnance

WAFWA – Western Association of Fish and Wildlife Agencies

WAP – Wildlife Action Plan

WBD – Watershed Boundary Dataset

WKID – Well-known ID (GIS coordinate systems)

WNS – White-nose syndrome

WRE – Wetland Reserve Easement

WWF – World Wildlife Fund