

## Chapter 10. Engaging the Public and Partners through Watchable Wildlife, Environmental Education, and Wildlife-Associated Recreation

### Relevant Required Elements:

**#8** – Broad public participation is an essential element of developing and implementing these plans, the projects that are carried out while these plans are developed, and the Species in Greatest Conservation Need that Congress has indicated such programs and projects are intended to emphasize.

### Focus of Chapter 10:

This chapter begins with a discussion of outdoor recreation’s importance in the state, including the extensive participation rates of hunters, anglers, and birders; the economic importance of these activities; and the relationship between outdoor experiences and mental health. The two opinion surveys discussed in Chapter 7 are mentioned in the context of South Dakotans’ strong commitment to wildlife and natural resources.

The role and activities of a working group on this topic are discussed. Included is a preliminary list of outdoor education and recreation needs, based on internal expertise.

AFWA’s Fish and Wildlife Relevancy Roadmap is introduced and, in combination with South Dakota’s 2020 census results and attitude survey findings, the potential applicability of this tool is discussed as a way that SDGFP can broaden its reach and impact with lapsed and untapped outdoor users.

### 10.1 Importance of Outdoor Recreation in South Dakota

South Dakota has a long-standing tradition of fish and wildlife appreciation, including extensive use and enjoyment of outdoor resources for recreation. Whether deer or pheasant hunting, fishing, wildlife viewing, bird feeding, or simply enjoying quiet time in nature, these pastimes are important solitary or family activities that build bonds between generations and between hunters and landowners and contribute significantly to local economies.

These activities also enhance mental health. The American Psychological Association published a summary of studies showing the connection between time spent in nature and mental health and improved cognition called “[Nurtured by nature](#).” Highlights of this analysis included studies showing a connection between nature and stress reduction and brain recuperation. Time in nature may increase happiness, a sense of purpose, and positive social interactions. One study found that children who grew up with green spaces had reduced risk of many psychiatric disorders later in life. Even virtual reality experiences can benefit those unable to physically spend time outdoors. Connections with nature benefit mood and well-being and potentially offset the effects of loneliness and social isolation. People with low levels of social interactions may enhance their well-being by spending time in nature. Closer to home, a recent social science survey of South Dakotans found that 70% of respondents believe fish and wildlife contribute greatly to their quality of life, and 85% agreed that it was very important for the state of South Dakota to conserve and protect as many of these natural resources as possible (ETC

Institute 2024).

The 2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation evaluated participation and economic impacts of fishing, hunting, and wildlife watching during 2022. Wildlife watching includes observing, feeding, or photographing wildlife at or away from home. An estimated 148.3 million wildlife watchers spent \$250.2 billion during 2022 on trips, equipment, magazines, memberships, contributions, land, and plantings. An estimated 14.4 million hunters spent \$45.2 billion on their activities, and 39.9 million anglers spent \$99.4 billion during 2022. Wildlife watchers include more than half of the over-16 U.S. population. At the national level, they are relatively evenly split among males (50%) and females (48%) and among age groups. (U.S. Dept. of Interior, USFWS 2022A).

A companion analysis of birding in the U.S. during 2022 found that 37% of the U.S. population at least 16 years old were birders (birdwatchers), most commonly watching birds in their backyards. Birders average 49 years old, are typically White, may just as likely be male or female, and have a higher-than-average income and education. The more sparsely populated an area is, the more likely are its residents to watch birds. South Dakota is one of 8 states in the West North Central census region. This region had the second highest participation rate of all birders and of birders around the home. An additional analysis at the national scale showed that birders also fished (24%), hunted (8%) and fished and hunted (6%). Compared to an average birder, African American and Asian American birders are more likely to both bird and fish (28% and 31%, respectively) or bird and hunt (10% and 7%, respectively), with African American birders more likely to participate in all 3 activities (8%) (U.S. Dept. of Interior, USFWS 2022B).

The South Dakota Departments of Tourism and Game, Fish and Parks and regional tourism associations promote opportunities to experience the state's natural resources through hunting, fishing, and tourism. An untapped and potentially underserved constituent group is wildlife watchers, particularly birders. If the national average age (49 years) also pertains to South Dakota, this group may have less interest in outdoor pursuits that require permits, specialized equipment, and extensive physical abilities in favor of birding near and away from home. If national statistics bear up in the state, this group is more equally divided among the sexes and ages and likely has a more diverse ethnic composition than more traditional pursuits. SDGFP may benefit from reaching out to birders to offer more targeted programming, provide opportunities for community science involvement, and solicit feedback to help SDGFP continue its mission of providing for the needs of fish, wildlife, and habitats while working to meet the needs of traditional and more diverse users.

## 10.2 Connection Between Outdoor Experiences and Conservation Ethics

An area of study that has grown in recent decades is an attempt to better understand the complexities around the basic premise of much of place-based environmental education; that childhood experiences in nature are often pivotal in creating a life-long commitment to the environment. Much of the social science research on this subject has been conducted in developed countries. Rosa et al. (2018), in a study in Brazil, found that greater contact with nature during childhood led to continued contact with nature during adulthood. Those adult nature experiences were positively associated with pro-

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environmental behaviors. The authors emphasized the lasting effect of experiences with nature during childhood.



Whitburn et al. (2019) conducted a meta-analysis of 26 studies on the topic of the relationship between connection to nature and pro-environmental behaviors. These studies included 37 independent samples and more than 13,000 individuals. This study confirmed the premise that people who are more strongly connected to nature have greater pro-environmental behaviors.

Many of us recall a pivotal wildlife or nature experience that planted the seed for our love of nature and outdoor recreation. But are today's kids likely to have the same kinds of experiences considering the many technologies available to them? Crawford et al. (2016) evaluated whether technology affected young people's engagement with nature. The study included 3 randomly assigned groups that toured a park. One group used a mobile app called "Agents of Nature" on an iPad, a second group toured the area with a park interpreter, and the third group used a paper map as their information tool. Four variables were evaluated: connection to nature; fun; attitude toward the park; and knowledge of the content of the park. The study found that not only did the mobile app not interfere with the students' connection to nature, but they had higher scores in the fun category. All groups showed a significant increase in connection to nature, again demonstrating the impact of place-based environmental education.

Crawford et al. (2016) also shared the following recommendations for effective environmental education:

1. Children should be active participants to fully engage with nature;
2. Children should be provided with detailed information about an area's plant and animal life; and
3. Participants need to enjoy the nature experience to want to repeat it.

### 10.3 Education and Recreation Working Group Input

SDGFP formed an Environmental Education and Wildlife-associated Recreation Working Group to help identify immediate and longer-term needs in this subject area. The group included 6 staff members from Parks and Wildlife divisions with extensive experience in education, wildlife interpretation, presentations in classrooms and other venues, and involvement with various types of outdoor recreation. Working Group members reviewed and discussed current publications about South Dakota's fish, wildlife, and habitats to help prioritize needs. This needs list was shared with budget managers within the agency. The Working Group also suggested a variety of ideas and specific products to meet public requests to improve and teach outdoor skills not specifically aligned with hunting, fishing, and trapping. Table 10.1 presents this initial list of needs to broaden opportunities and information SDGFP can offer to the public. This list is a starting point that can benefit from additional

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feedback from educators and members of the public who already interact with SDGFP as well as potential constituents who have not found their niche within the agency's current learning opportunities.

Additional feedback regarding educational program needs from SDGFP was gathered during a recent social science survey of a random sample of South Dakota households. Respondents were asked their preference for educational program content. Respondents were interested in pollinator programs (70%), wildlife identification classes or related online resources (65%), and wildlife viewing programs (64%) (ETC Institute 2024).



### 10.4 Fish and Wildlife Agency Relevancy

In 2019, AFWA released the Fish and Wildlife Relevancy Roadmap (Roadmap; AFWA and WMI 2019), a guide to address and overcome barriers to achieve greater relevance and increase public support and engagement. Among many shared concerns among state fish and wildlife agencies is the declining number of hunters and anglers - the traditional funding backbone of these agencies, a decline in the direct connection between people and nature, and the need to engage with people who are increasingly more diverse and more likely to live in urban settings.

When the Relevancy Roadmap was released in 2019, SDGFP Secretary Kelly Hepler also served as the President of AFWA. Hepler said of the effort:

“The North American Model of Wildlife Conservation is the world's most successful system of policies and laws to restore and safeguard fish and wildlife and their habitats through sound science and active management. We also recognize that as society is becoming more urban and diverse, fish and wildlife agencies need new approaches to help engage the public and promote an understanding of the importance of maintaining healthy fish and wildlife. This roadmap is a tool to assist us in achieving that goal.”

The Roadmap discussed 19 barriers to maintaining agency relevancy and engaging with broader and more diverse constituents. Barriers are sorted by agency culture and capacity, constituent culture and capacity, and political and legal constraints. The guide provides step-by-step guidance to identify critical barriers, associated strategies, and implementation steps. The Roadmap stresses the importance of evaluating relevancy efforts through adaptive management techniques.

According to the 2020 Census, South Dakota's population grew by 8.9% and became more urban and more racially diverse since 2010. Lincoln County in southeastern South Dakota grew the most during the 10 years between censuses. South Dakota had the second fastest-growing Hispanic population in the U.S., based on the 2020 Census, increasing from 2.7% in 2010 to 4.4% in 2020 (SDPB 2021).



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SDGFP provides many opportunities for people to learn and improve outdoor skills to enhance fishing, hunting, shooting sports, camping, boating, and wildlife identification experiences. The state's changing demographics and the possibility of new funding sources to supplement state hunting, fishing, and trapping license revenues and state park access and camping fees provide opportunities for SDGFP and others. Conservation entities can engage new and untapped users to broaden partnerships, impacts, and relevancy. SDGFP can continue to serve traditional constituents and the public at large as it reaches out to new users and potential conservation supporters while continuing to lead efforts for responsible protection and wise use of the state's outdoor resources.



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**Table 10.1. Environmental Education and Wildlife-associated Recreation Needs Identified by SDGFP Working Group for Wildlife Action Plan Revision of 2025.**

TOPIC	CATEGORY	TARGETED AGE OR GROUP	MORE INFORMATION
<b>Teacher, Student and Landowner Resources, including courses offered at SDGFP Outdoor Campuses</b>			
Curriculum on fire ecology	Education	High school students	
Promote secondary and post-secondary education related to outdoor recreation and conservation	Education	High school and college students	
Curriculum on resource sustainability	Education	Middle and high school students	This broad topic could help students understand widespread habitat and ecological concerns and the role local and individual efforts could play in solutions. Further exploration of the topic would benefit from involvement of people trained in sustainability education.
Curriculum on trail cameras	Recreation and Education	K-12 students and community scientists	Following Alaska model: <a href="https://www.adfg.alaska.gov/static/education/educators/curricula/pdfs/critter_cam_kit_activity_guide.pdf">https://www.adfg.alaska.gov/static/education/educators/curricula/pdfs/critter_cam_kit_activity_guide.pdf</a>
Program for schools to restore property to natural habitat	Education	Middle and high school students	Following National Wildlife Federation model: <a href="https://www.nwf.org/schoolyard/">https://www.nwf.org/schoolyard/</a>
Program for schools to establish pollinator plots with monitoring matching grade levels	Education	K-12 students	Preference for use of annual plant species to avoid need for maintenance during summer months
Reprint existing brochures and develop new resources to meet public needs and interests	Education	All members of the public	
Increase nongame species classes at Outdoor Campuses	Education	All members of the public	
Landowner workshops as standalone or in conjunction with existing workshops to focus on backyard/small acreage habitats and habitat	Education	Property owners	Example program, Iowa: Mowing to Monarch program – <a href="https://dubuquecountyiowa.gov/187/Education">dubuquecountyiowa.gov/187/Education</a> ; <a href="https://www.dubuquecountyiowa.gov/553/Mowing-to-Monarchs">https://www.dubuquecountyiowa.gov/553/Mowing-to-Monarchs</a>  Example program, North Dakota: Create a Certified Home Pollinator

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diversity opportunities on working farms and ranches			Garden or Bee Lawn: <a href="https://www.ndsu.edu/agriculture/extension/programs/master-gardener/create-certified-home-pollinator-garden-or-bee-lawn">https://www.ndsu.edu/agriculture/extension/programs/master-gardener/create-certified-home-pollinator-garden-or-bee-lawn</a>
Enhanced focus on conservation careers through SDGFP staff attendance at career fairs, to include flyers for handouts	Education	Middle school through college students	
Habitats of South Dakota	Education	Upper elementary and middle school students	Following Habitats of North Dakota Program for K-12 educators model: <a href="https://gf.nd.gov/education/habitats-of-nd">https://gf.nd.gov/education/habitats-of-nd</a> Creation of a series of Educational Teacher Resource Books that specifically highlight habitats found in South Dakota including: Badlands, Prairie, Riparian Areas, Wetlands, and Woodlands. These Curriculum guides would have pertinent content (ecology, history, etc.), activities, and printables that teachers could use to augment their students learning. Books would be written with 3rd-6th grade standards in mind, focus on experiential education, and bring in cross curricular learning.
<b>Naturalist and volunteer training and implementation</b>			
Revamp Junior Naturalist program	Education	All park visitors, with focus on self-led learning	Following Parks Canada Xplorer model: <a href="https://parks.canada.ca/voyage-travel/experiences/famille-family/xplorateurs-xplorers">https://parks.canada.ca/voyage-travel/experiences/famille-family/xplorateurs-xplorers</a>
Support establishment of conservation clubs in schools	Education	K-12 students	Such clubs would provide an opportunity for conservation-minded teens to work together on local and statewide conservation projects, as appropriate, with SDGFP and others. Potential opportunities include planting trees, cleaning up natural areas, and planting gardens.
<b>Check-out Resources</b>			
Explorer backpack with gear to assist with wildlife and plant identification	Education	Kids and adult versions	Following Idaho Parks and Recreation Dept. model: <a href="https://parksandrecreation.idaho.gov/activities/experience-idaho-backpacks/">https://parksandrecreation.idaho.gov/activities/experience-idaho-backpacks/</a>
Nongame-species specific checkout crates for teachers, volunteers, and education	Education	K-12 students	

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leaders			
Promote and expand use of birding gear checkout kits	Recreation	Park visitors of all ages	
<b>Infrastructure and personnel</b>			
Build and/or revamp displays at SDGFP Outdoor Campuses to include nongame and nonconsumptive topics	Education	Visitors of all ages	
Hire environmental education seasonal employees	Education	Visitors of all ages	
Hire interns to present “What’s in your backyard?” programs	Education	Program attendants of all ages	
Wildlife viewing structures and associated habitat enhancements on state parks and state recreation areas	Recreation	Park visitors of all ages	
Wildlife viewing structures and associated habitat enhancements on state game production areas where and when compatible with established uses	Recreation	GPA visitors of all ages	
Watchable Wildlife Statewide Coordinator	Recreation	All ages; U.S. and international visitors	Promote opportunities for enhanced wildlife viewing and act as contact for local communities to showcase wildlife viewing and unique outdoor recreation opportunities
Roving Naturalist Intern	Recreation	Parks visitors of all ages	Patterned after First Catch Center intern: A seasonal/intern was hired under the Education section to travel around the state to Parks, municipalities, and schools to teach participants beginner fishing techniques. Intern traveled with a fully stocked trailer that included gear and other equipment. Paid for through a grant from Recreational Boating & Fishing Foundation - <a href="https://www.takemefishing.org/how-to-fish/fishing-resources/first-catch-centers-events/">https://www.takemefishing.org/how-to-fish/fishing-resources/first-catch-centers-events/</a> . A similar roving intern could teach environmental ed classes at parks that lack naturalist staff and to assist in larger events across the state when



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			needed.
Seasonal for wildlife-associated recreation	Recreation	All ages	Additional funding could provide for Education-focused Seasonal Employees across the state to increase programming opportunities. Note Seasonal is recommended instead of Intern because these positions are ideally open to retired teachers.
Statewide Mentor Hunting Program - funding for mentors	Recreation	Adults	Although unlikely to be eligible for expanded funding for rare species, this program can serve as a model for teaching other outdoor skills, such as more advanced birding skills, nature photography, plant identification, and wildlife landscaping.
<b>Interpretive enhancements</b>			
Kids in Parks signage	Education	Younger kids	Kids in Parks is a National Program as part of the Blue Ridge Parkway Foundation. The focus of this program is to choose a trail at Parks to act as “Track Trail”. Track Trails have a variety of brochures that can be picked up at the trail head and used to add learning to time on the hike. Students can “register” their experience to earn prizes through the Foundation. <a href="https://www.kidsinparks.com/seretoma-park">https://www.kidsinparks.com/seretoma-park</a>
Enhanced educational signage in state parks, state rec. areas, and Outdoor Campuses	Education	All visitors	
Virtual reality tours and hotspots specific to locations along trails	Education	All visitors	
Virtual reality tour of fish hatchery	Recreation	Upper elementary and middle schools	Similar to <a href="https://gfp.sd.gov/elk-vr/">https://gfp.sd.gov/elk-vr/</a>
Virtual reality tour – Day in the life of a biologist	Recreation	High school and college students	
Update regional wildlife viewing guides by revisiting all sites to assess accessibility and need for route changes and additions	Recreation	All ages	<a href="https://gfp.sd.gov/userdocs/BHBadlands-birding-trail.pdf">https://gfp.sd.gov/userdocs/BHBadlands-birding-trail.pdf</a> ; <a href="https://gfp.sd.gov/userdocs/glacial-lakes-birding.pdf">https://gfp.sd.gov/userdocs/glacial-lakes-birding.pdf</a> ; <a href="https://gfp.sd.gov/userdocs/great-lakes-birding-trail.pdf">https://gfp.sd.gov/userdocs/great-lakes-birding-trail.pdf</a> ; <a href="https://gfp.sd.gov/userdocs/southeast-birding-trail.pdf">https://gfp.sd.gov/userdocs/southeast-birding-trail.pdf</a>
<b>Reaching the public through media and community science</b>			
Identify topic areas and create educational videos for YouTube	Education	Topic dependent, but potentially all ages	

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Support SD Volunteer Naturalists Program by linking with field opportunities	Education	SD residents 18 years and older	
Professional media campaigns to address misconceptions about outdoor recreation pursuits	Recreation	All ages	
Compile and share lists of community science opportunities, whether sponsored by SDGFP or others	Education	All ages	
Reestablish and expand Wildlife Diversity Small Grants Program to focus on education, research, and monitoring of native species and habitats	Education	18 years and older	Funded by SDGFP from 2009 – 2023. Tapped into extensive expertise and interest among educators and naturalists and resulted in many products and data useful to SDGFP, conservation partners, and the public.