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DEPARTMENT OF GAME, FISH & PARKS





South Dakota Conservation Digest

DEPARTMENT OF GAME, FISH & PARKS

Volume 81, Number 2

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Governor of South Dakota



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Opposite Page: Photo © Chad Coppess | TravelSD.com

Back Cover: Photo © SD GFP

Brookings, SD is home to a new facility working to provide youth, young adults, active seniors, sportsmen and women and outdoor enthusiasts with the education, skills and experiences related to our Dakota Heritage.



South Dakota has so many opportunities for outdoor activities. However, if it isn't colder than a tin pillow, it's hotter than a burnt stew pot. Some of us like that way. Some of us have a little more sense. Either way, enthusiasts can shoot and play at the new, indoor shooting sports facility in Brookings, The Outdoor Adventure Center of South Dakota.

The Outdoor Adventure Center of South Dakota (OAC) is a 29,530 square foot regional facility located on 3.8 acres of land in the Dakota Nature Park with indoor archery and firearm ranges, classrooms, conference space, and meeting rooms. It provides youth, adults, active seniors and sportsmen

and women of all ages with the education, skills and real world experience related to our outdoor heritage.

The indoor archery range can accommodate up to 48 archers at a time shooting at targets up to 20 yards away. OAC holds archery workshops for archers to improve their marksmanship or for beginners to learn how to operate a bow. In addition to instruction, OAC archery range hosts leagues, tournaments, and other special events like 3D target shoots as well as open shooting. One archery lane accommodates crossbows of 130 pound draw or less.

The OAC indoor gun range offers twelve 25-yard shooting lanes with

electronic target retrieval systems. The chopped-rubber berm can take firearms and ammunition with up to 3,600 foot pounds of pressure. Phase Two of the gun range includes four 100m rifle tubes with camera fed screens to show shooters their target, eliminating the need for walking down range to see your mark. Phase Two construction should begin within the next year.

Between our two ranges sits a concourse area that sets us apart from other facilities, called Adventure Alley. Adventure Alley uses two large classroom spaces to hold educational programming focused on outdoor skills and knowledge. The hope is for these classrooms to be a launching point for

people to get outside and active in their chosen activity whether it be fishing, hunting, geocaching, paddling, kite flying, cross-country skiing, snow shoeing, mountain biking, or any other outdoor adventure. These classrooms also house HuntSafe as well as college student programs. Many other workshops and events also take place in Adventure Alley and its classrooms.

The Outdoor Adventure Center of South Dakota was built through donations and operates from membership fees and sales in the concession stand and gun range. The generosity displayed



New Outdoor Adventures Facility: The Outdoor Adventure Center of South Dakota

*By Shaun Feilmeier,
Executive Director -
Outdoor Adventure Center
of South Dakota*

by donors proves the area's commitment to South Dakota's outdoor heritage. No other facility in the country offers firearms, archery, and education as a non-profit staffed mostly with volunteers. OAC has over 100 volunteers trained to be archery instructors and Range Safety Officers. Some of the training is in house, but other types of training come through 3rd parties like USA Archery and the National Rifle Association.

The OAC of SD resides in Dakota Nature Park, a series of interconnected ponds can be fished year-round, but remember to put the fish back after



you catch them because these ponds are catch and release only. Bike trails, bridges, and groomed cross-country ski trails bring visitors close to the mature trees that serve as shelter for native birds and animals. Brookings' Park and Recreation department hopes to complete a special dog park near the entrance at 22nd avenue soon.

South Dakota State University also shares Brookings as its home. Unfortunately, many students stop participating in shooting sports when they start college due to on-campus restriction of weapons. In order to help keep legacy shooters and new shooters in the sports, OAC offers on-site lockers to store firearms or bows. The bow lockers are located adjacent to the archery range near work benches and shelving for bow cases. The gun lockers are held in a vault near the gun range and can be accessed much like a safety deposit box at

your local bank.

In addition to weapon storage, the Junior Olympic Archery Development program works to take young archers to the next level of competition. OAC also hosts a Shooters Club from campus. The Shooters Club, sponsored by SD Game, Fish and Parks, holds workshops focused on shooting and hunting for club members and gets college students into the ranges practicing archery or firearm marksmanship.



**A schedule of events,
membership and day-use
rates, as well as hours of
operation can be found at:
www.oacofsd.org**



Story and Photos by Chris Hull - SD GFP Communications Specialist

A 12 hour trip on GOOD roads (which these were not promising to be), 30 mph winds, temps in the -20 degree range (without the windchill) and leaving Pierre at 3 am... usually not the formula to help me anticipate a trip.

These were the conditions ahead of me for the next five days as I kissed my slumbering 5 year old daughter goodbye (I didn't wake my wife. I'm not crazy.), and hit the road for The Outdoor Campus West. It was there I was going to meet a crew of South Dakota Game, Fish and Parks wildlife biologists headed up by Regional Wildlife Manager, John Kanta.

Kanta, SD GFP biologists Kris Cudmore and Steve Griffith, two members of the Oglala Sioux Tribes Parks and Recreation Association and I were pointing our wheels to the northwest for Havre, Montana, our base of operations for the next four days.

"Perfect weather to move bighorn sheep," Kanta laughed as I pulled into the parking lot of Rapid City's Outdoor Campus. He slapped his hands together to keep them warm. "Unfortunately it's terrible weather to travel in and even worse to try and fly a helicopter!"

This "motley crew", yours truly included, was headed to the Rocky Boy

Indian Reservation, near Havre, to capture 40 bighorn sheep and relocate them to South Dakota. If all went according to plan, 20 would make their home in the Badlands areas of the Pine Ridge Indian Reservation and 20 would be released in the Hells Canyon area of the southern Black Hills.

Before we could capture, we had a long, white knuckled drive ahead of us. There is no fast or direct way to get from Rapid City to Havre, Montana. It is a long way and we were driving in 30-40 mph winds that were pushing fresh snow. Not ideal, but with a big four door, four-wheel drive, even pulling a trailer (A trailer specifically

designed to move big game even!), we didn't have much of a problem. Billings, Montana, was an ice skating rink, but we eventually pulled into Havre with everything in tact but our nerves. Our plan was to meet up with the Rocky Boy Fish and Game's head wildlife biologist, Leeland Topsky, to scout out a suitable place to set up "camp" and to get a better layout of where the sheep were.

We met Leeland in the small town of Box Elder, about 20 miles from Havre, at a store/restaurant called June Bugs. We got to June Bugs before Leeland did, and I went inside to get a pop. The lady behind the counter looked at me and asked "You're not from around here. What are you doing outside on a day like today?"

I told her what we were doing. She said, "Sounds cool, but you guys are crazy to be out in this weather."

When the locals think you are crazy, it might be time to rethink what you are doing...

Being outside in sub-Arctic temperatures isn't easy. Getting digital cameras and video cameras to work in those conditions is even harder. Batteries don't like really cold weather. Just turn the key on your car in -20 degrees and you know what I mean. Small batteries in devices like cameras take the cold even worse. One trick I learned is to tape handwarmers to the batteries

to help block out the cold. I had purchased 50 different sized handwarmers before I left Pierre, thinking it was overkill. Little did I know that everyone in our group would be using them in our gloves and boots the very first morning. I was going to have to find more before the trip was over.

Leeland pulled up in his truck a few minutes later. Nobody was in a real hurry to get out of the truck, but after a quick group meeting we followed Leeland to nearby Centennial Mountain. After a quick stop to scout a potential home base, and agreeing it would be workable, Leeland wanted to take the group partway up the mountain to give us a better lay of the land and to see if we could spot any bighorns. We picked our way up a snowy gravel road and stopped at a beautifully wooded pass when the group spotted a herd. Everyone excitedly got out of the vehicle with binoculars, me with my camera.

Cold, clear mornings can be awesome for photography. Frosty trees, bright blue skies, breath rising off of talking people...but this was ridiculous. After shooting photos of the scenic beauty and some shots of distant bighorns, my camera made an audible groan and shut down. It was at that point I decided if it was too cold for my camera, it was probably too cold for yours truly. I slinked to

the comfort of our warm truck and let the rest of the group stand in the deep freeze.

As we made our way up higher, the wind picked up. The next scouting meeting was drastically shorter as now it was too cold for everyone. We had a solid plan in place and being outside any longer just seemed like torturous overkill.

That evening, we had dinner with members of the Montana Game and Fish Department. (They were on hand to help with the capture), Leeland and the four man crew from Native Range.

Native Range is the helicopter capture company that would be running the show. Based on the West Coast, this crew is busy capturing big game critters across North America from September to April on an average year. They have captured pretty much every critter on the continent, from coyotes to musk ox.

After a steak dinner and a meeting about the capture, I sheepishly approached Native Range's main chopper pilot, Mark Shelton, to ask him if he would be willing to wear or mount a GoPro video camera for the capture. "No worries mate," (Did I mention he was from New Zealand?) Mark replied. "Let me see how things are going in the morning, then just grab me if it is going well and we will make it happen."



Mark's reply was a big weight off of my shoulders. Footage of the aerial portion of the capture was pretty important if I was going to tell an effective story. Plus I wanted to see it myself. These guys have perilous jobs and they need to be "on point" at all times. They fly at high speeds, often low to the ground, and in areas where winds can change in a heartbeat. To have to deal with a video camera is an extra worry they don't really need, but Mark and his guys were affable enough to the idea and I was ecstatic.

I went back to the hotel and checked the weather forecast. The local Great Falls TV meteorologist was calling for a high of 15 degrees on Monday. A veritable heatwave compared to what we experienced already. I plugged in all of my cameras; which consisted of three GoPro cameras (GoPros are small, high definition video cameras that can be worn or mounted on just about anything), a high definition video camera and my digital camera (Which rebounded nicely after our freeze-up earlier in the day). I had resupplied my hand warmers and had extra batteries for everything...I was ready.

"Helicopter is gonna try and be up on the mountain at 8 am," Kanta told the group as we scarfed down a hotel breakfast. "We need to be at the

site, with everyone ready, long before then."

Kanta, along with the rest of us, was on edge. His crew had put a lot of leg-work on this project and today would be the day it all came to fruition. With wild animals, you never can tell, however. Add a helicopter and winter weather, - all the variables that make any project much more difficult.

The sun was still hidden behind Mt. Centennial when we heard the hammering of helicopter blades in the distance. Kanta's radio crackled "We got two coming in," Mark's New Zealand lilt came through the speaker.

Off in the distance, we could see the small blue helicopter buzzing toward us, two bundles dangling precariously underneath the undercarriage. As they got closer, the image "Flying sheep tacos" came into my mind. The sheep's white head with an orange blinder stuck out of large tarped bundles.

The helicopter hovered over the drop site, gently placed the critters on the ground, released the cable tethered to the ship and quickly shot back towards the mountain.

The team in the helicopter consists of three people. The pilot's job is obvious; use skill and nerves to find and haze the sheep from mountain outcroppings or trees into open territory. He then flies low and close to the run-

ning sheep.

The net gunner is next. His job is to use a contraption that looks like a four sided road hazard cone and shoot a net over the running critter. (When I asked the gunner if he ever missed, he replied "I better not, but you would never know if I did.")

Now it's time for the mugger to spring into action. The pilot lands the ship as close to the netted animal and the mugger's job is to hobble the animal's legs, get a blindfold on it and get it out of the net tangled around it. Easy-peasy right? Wild sheep can't be that strong can they? Muggers typically are big, strong, tough and a little bit crazy. (The three I have met have all admitted to the previous four characterizations by the way.)

The pilot then came back, (He has probably been off looking for more sheep, possibly netting more, in which case, the net gunner becomes a mugger as well.) and the sheep are tethered to the bottom of the chopper and then flown down to the waiting crew below.

Back on said ground, several members of the Montana Game Fish Dept., helpers from the Rocky Boy Game and Fish, Oglala Sioux Tribe Parks and Recreation Association and South Dakota veterinarian, Scott Kammack, Cudmore, Griffith and Kanta scrambled to get to the sheep.

We had plenty of help, so my job was to stay out of the way, let the crew do their job and make sure I did mine.

Once a sheep is carried from the landing zone, a vet or helper takes the animals temperature to make sure it isn't too stressed. Animals are vaccinated and given an antibiotic, the mouth is forced open and they are swabbed to test for bacteria, mainly pneumonia.

After those procedures are completed, ewes are given an ultrasound to test for pregnancy. We were primarily after ewes. They seem to handle being transplanted better and will typically stay in the areas where they are trans-



planted. Rams are more difficult to work with and tend to wander off.

Somewhere along the way, the sheep are fitted with radio collars. This will help keep track of the transplanted critters and make them easier for the biologists to find once back in the state.

Of course there is a ton of record keeping and paperwork to be done during the process. All sheep are ear tagged and their information is written on corresponding forms. This can get confusing, especially when there are multiple sheep on the ground and three different people are yelling for five different things.

Finally, the sheep are carried in their tarp taco shell, to be weighed. This is the final information recorded before they are moved to the trailers to wait for transport.

On this trip, the Oglala Sioux Tribe and SD GFP would each be getting 20 sheep. Each trailer took turns getting sheep, dividing them equally. Our trailer mounted GoPro camera later showed that these sheep were quite calm in the trailer, but getting them into the trailer requires the sheep to have their hobbles and blindfolds removed. This process can be a little bit like opening a jar containing a tornado. The once docile critter explodes once its legs are free and eyesight restored.

The crew caught 40 sheep in a little over seven hours. It was hectic and cold, but it was an impressive sight. Once a routine was established this group of strangers worked like clockwork. Once the last sheep was on the ground, the crew from Native Range gathered their gear and headed off into the sunset for their next project.

You would think that is the end of the story...but we needed to get the sheep back to South Dakota. Living by the old adage, "No sleep for the wicked," the sheep were then swept back home in a marathon, all night



driving session. I guess you can't really leave wild sheep in an AmericInn parking lot overnight, so we hightailed it for home, taking turns driving and staying awake. You learn a lot about a guy in the middle of Montana-in the dead of night. Maybe too much!

We pulled into the entrance of the Black Hills' Hells Canyon about an hour before sunrise. Word of our arrival beat us there and several interested SD GFP staff and public were waiting for us. Just after sunrise (and a quick nap by yours truly), we got cameras set, and threw open the doors. The sheep seemed hesitant to leave at first, but eventually they couldn't resist and the entire group of 20 bolted for the beauty of their new surroundings.

They quickly and gracefully scrambled up the rock wall of the canyon, exploring their new home. Word from Pine Ridge is that their sheep are adapting well to their Badlands surroundings. These new sheep should add a needed shot of genetic diversity to existing herds.

As they the sheep disappeared over the canyon wall, I still am not sure who was more amazed and bewildered about the whole ordeal...me or the sheep. I know it was one of the coolest journeys I have ever been a part of and I hope the bighorns like their new digs.



Getting footage of GFP staff in the field is a pretty gratifying experience. Watching staff

gather data on fish, critters or habitat is usually a learning experience for me. Getting aerial footage of a big horn sheep capture is amazing and we thank the crew from Native Range for taking the time to get us some incredible stuff. You can watch the video at this link. www.gfp.sd.gov/agency/video.aspx

Lake Trout are a highly regarded sport fish in North America. Like Brown Trout and Brook Trout, Lake Trout spawn in the fall and their eggs hatch the following spring. Unlike many other trout species, however, Lake Trout are 'late bloomers', and often don't mature until they reach 7 to 13 years of age. While most Lake Trout typically live to be 20-30 years old, they are known to reach ages greater than 50 years old. They can grow to reach 50 pounds, and occasionally get as large as 100 pounds. The largest Lake Trout on record was captured by gill net in Lake Athabasca, Canada and weighed 102 pounds. The largest Lake Trout reported by angling was a 63 pound fish caught from Lake Superior. As a cold-water fish, Lake Trout prefer water temperatures around 50°F and are commonly found at water depths of 60 to 180 feet. Smaller Lake Trout, less than 18 inches, generally eat aquatic invertebrates and small fish found near the lake bottom. As Lake Trout grow larger, however, their diets increasingly consist of more fish, such as ciscoes, smelt and sculpins.

PACTOLA'S FORGOTTEN FISH
Until about 10 years ago, Lake Trout in the Black Hills were somewhat forgotten. They had been stocked into Pactola Reservoir in the late 1970s and left to their own devices. Luckily for the Lake Trout, they were introduced into a very suitable new home. Pactola Reservoir has provided them with the cool, deep, well-oxygenated waters that they need. They have also had access to prey fish, such as Rainbow Smelt, that make perfect meals for Lake Trout. More importantly, since the initial stocking in the 1970s, Lake Trout have established a naturally reproducing population. However, being a slow growing and late maturing fish, Lake Trout in Pactola Reservoir swam under the radar during the 1980s and 90s.

COMING UP FROM THE DEPTHS
It was not until the early 2000s that Lake Trout came up from the depths and started showing their potential to be a prized sport fish in Pactola Reservoir. In 2003, a 22 lbs. 7 oz. Lake Trout was caught, tying the current state record of the time that had been caught in Lake Oahe. A few weeks later, another large Lake Trout was landed, but this time it surpassed the old record, weighing in at 27 lbs. 14 oz. With the news that there were state record Lake Trout coming out of Pactola the fishery gained popularity and the South Dakota Department of Game, Fish

and Parks responded with supplemental stockings of Lake Trout in 2003 and 2005. A few years after the initial increase in popularity, the state record was broken yet again in 2009 with a 28 lbs. 5 oz. fish. The most recent state record was caught in January 2013 and weighed in at an even 30 lbs.

While we know that Pactola Reservoir is home to large, trophy Lake Trout there are many things that we do not know about this game fish in the reservoir. How many of them are there? What is the average size? What are they eating? How fast are they growing? How will harvest regulations influence the Lake Trout population? The answers to these questions will aid in the proper management of Lake Trout in Pactola Reservoir.

In 2012, the USGS Cooperative Fish and Wildlife Research Unit at South Dakota State University teamed up with South Dakota Game, Fish & Parks to help answer questions about Lake Trout in Pactola Reservoir. This study involved seasonal sampling for Lake Trout investigating their age, growth, condition, and diets. Starting in the spring and running through the fall Lake Trout were captured in short-term gillnets which were set for 1 to 2 hours before sunrise. Gillnets were set at depths of up to 100 feet. Lake Trout are capable of safely coming up from these depths because they do not have the same type of air bladders as other fish that live in shallower wa-

LAKE TROUT

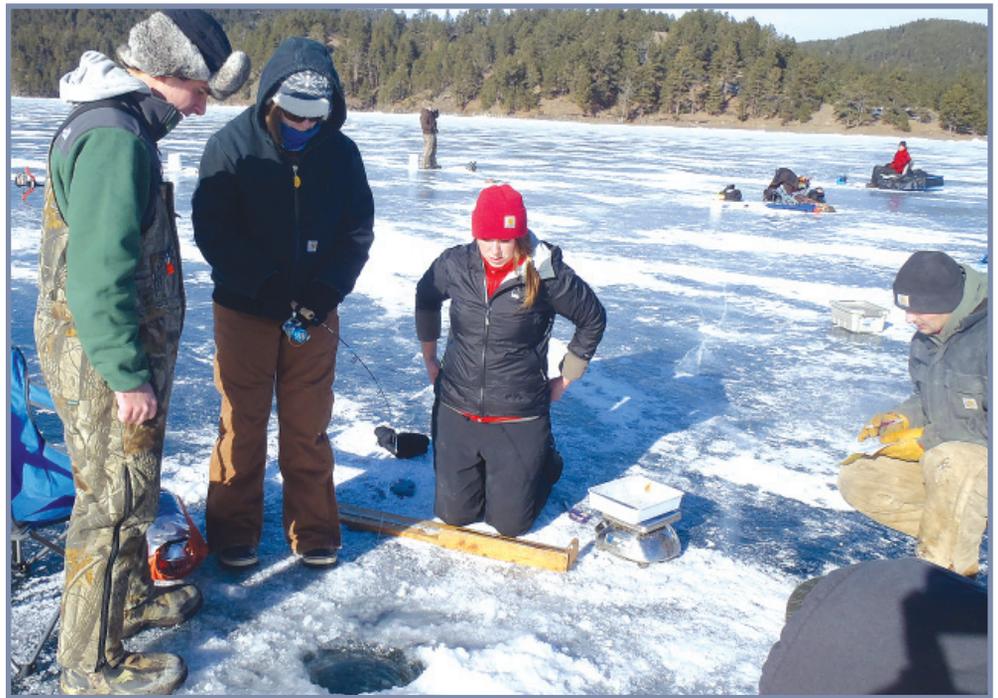
in South Dakota

By Natalie Sheibel and Steve Chipps, Department of Natural Resource Management, South Dakota State University.



ter, such as Bluegills or Yellow Perch. Once Lake Trout were caught, their lengths and weights were measured. Scale samples were gently removed to help age the fish. The scales can be read like the growth rings of a tree, each ring on a scale represents a year of growth. To look at what the fish were eating, a gastric lavage, or a water pump, was used to flush out the fish's most recent meal without sacrificing the fish. Before releasing the Lake Trout they were marked with Floy T-bar tags, which is similar to a price tag on clothing. The tag was injected near the dorsal fin on the fish's back where it will stay up to several years. Each tag has a unique identification number that helps to keep track of individual fish, and a contact phone number that can be called if someone recaptures a tagged fish while angling. Once winter hit the work was not done, ice fishing provided another very effective way to measure and tag more Lake Trout.

During this study, Lake Trout have been caught in water over 100 feet deep and ranged in size from 11 to 33 inches. Smaller, juvenile Lake Trout diets show that they eat mostly invertebrates they



find on the bottom of the lake and zooplankton. Once they are large enough they start to consume other fish, mainly Rainbow Smelt and Bluegill. Adult Lake Trout feed mostly on Rainbow Smelt in the spring and as the summer progressed they relied mostly on Bluegill. There have been almost 300 Lake Trout tagged since August 2012.

WHY TAG FISH?

Studying fish has some inherent challenges; the obvious one being that they live underwater and people do not. This complicates even simple things like getting an accurate population estimate or seeing how much they grow in a given time. That is why tools have been developed to help overcome these

challenges. Tagging is a commonly used technique when studying fish populations. By tagging Lake Trout a wide variety of information can be gained about these fish. Better estimates of the size of the population, how much they are growing, and how many fish are being harvested can all be attained from tagging studies. The tags used in this study are quick and easy to attach to the fish. Once these tagged fish have been released it is the next step that plays a critical role to getting answers. Information from tagged fish is needed in order to get estimates of the number of fish in the reservoir and to measure growth. Tag reports by anglers are an integral part of the study and are much appreciated. Please report the tag number, when and where on Pactola Reservoir the Lake Trout was caught, length of the fish, and whether or not it was kept. Anglers may call in or report tagged fish via the South Dakota Game, Fish, and Parks website or email the information to Natalie Scheibel (Natalie.Scheibel@sdstate.edu).

Special thanks to South Dakota Department of Game, Fish and Parks. Funding for this project made possible by the Sport Fish Restoration Act.





Stocking trout at
Oahe Downstream Recreation
Area near Pierre.

The Contribution of **Stocked Fish to South Dakota Fisheries**

In 2013, South Dakota's state fish hatcheries produced 54 million fish that were stocked into 153 different waters across the state. This illustrates the importance of stocking as a management tool for maintaining abundant fish populations in our lakes and streams. Stocking is used to introduce fish into new waters or fish communities, to re-establish fish populations after a fish kill, to maintain populations where natural reproduction is lacking and to supplement numbers in waters with inconsistent natural reproduction. Whatever the reason for stocking, it is one of the most effective tools a fisheries manager can use to improve fishing in South Dakota.



A pair of successful trout anglers.

Photo © Mike Barnes | SD GFP

Background Image: Newly hatched Walleye fry.

Photo © Ryan Rasmus

By Matthew Ward, David Lucchesi,
Michael Barnes and Todd St. Sauver

Fisheries managers decide which waters to stock based on information collected during surveys. Lakes with few adult fish and poor production of young fish are good candidates for stocking. The presence of required habitat, such as aquatic vegetation for Bluegills and bass, is also an important consideration in the selection process. Managers avoid stocking fish into lakes with good natural reproduction because it is unneeded and often unsuccessful. Competition for food and habitat between stocked and naturally-produced fish can negatively impact the survival of both. As a result, those hatchery-raised fish are better used where natural reproduction is not able to sustain fish populations.

The South Dakota Game, Fish and Parks (SDGFP) maintains three state fish hatcheries (SFH), two spawning stations and natural rearing ponds to meet South Dakota's stocking needs. Blue Dog Lake SFH, located near Waubay, is the state's only cool and warm water fish hatchery. Cool water fish raised include Walleye, Yellow Perch, and Muskellunge and warm water fish include Largemouth Bass and Channel Catfish. The cold water hatcheries that raise trout and salmon are Cleghorn Springs SFH in Rapid City and McNenny SFH west of Spearfish. Two Federal hatcheries, Gavin's Point National Fish Hatchery in Yankton and the D. C. Booth National Fish Hatchery in Spearfish also produce fish for stocking state waters.

Blue Dog Lake SFH produces about 40 million Walleyes each year. The majority are typically stocked into large lakes as newly-hatched fry. Small fingerlings (1-2 inch fish) are reared in hatchery ponds for stocking into lakes and reservoirs with existing fish populations to increase their chance of survival. Cool and warm water fish like Walleyes, Yellow Perch and Largemouth Bass are stocked at a smaller size, but in greater numbers than coldwater fish like trout. This is done to maximize hatchery production, stock more waters, and utilize the high productivity of South Dakota lakes to quickly grow stocked fish to larger sizes. For example, South Dakota Walleyes will



Walleye fingerlings being transferred to a stocking truck.

often grow to a desirable length of 14 inches in about three years.

The coldwater fish hatcheries at Cleghorn Springs and McNenny raise fewer fish but more pounds than Blue Dog SFH. Although hundreds of thousands of 4 to 10 inch salmon are produced each year for Lake Oahe, most trout are raised to 11 inches, with a few over 14 inches and are immediately available to anglers. Between Cleghorn and McNenny, over 60 tons of trout are stocked each year into Black Hills waters, West River farm ponds, Missouri River tailraces, and urban fishing waters across the entire state.

A successful hatchery program is not measured only by fish production. After all, if none of the stocked fish survive to be caught by anglers, there would be no need to have the hatcheries. Thus, it is very important to evaluate the survival of hatchery-raised fish after they have been stocked. To evaluate stocking success, managers must be able to tell the difference between stocked and naturally-produced fish. Fish marking techniques such as fin clipping, coded-wire tagging, visible implant tagging and oxytetracycline (OTC) immersion are commonly used. OTC marking involves immersing fish in an OTC solution for up to six hours. The OTC is absorbed by bony structures such as otoliths (ear bones), spines and vertebrae and is visible as a gold band when looked at under a microscope. This allows us to tell whether or not a fish was stocked and whether stocking, natural reproduction, or a combination, was responsible for producing the fish sampled during netting or electrofishing surveys. Fin clipping is a common technique used on adult fish, such

as Rainbow Trout, to tell the difference between stocked and wild fish. For example, biologists have clipped the small fin on top of the tail on all Rainbow Trout stocked into Deerfield Reservoir so they can tell which were stocked and which were hatched in the wild.

Combined with fish marking, creel and angler surveys can also be used to evaluate stocking success. The number of fish caught and harvested, combined with the number of marked fish caught, can be used to determine the return of stocked fish to the angler. We can also collect information on angler satisfaction with their fishing trip which is often a reflection of fishing success and the success of a stocking program.

Has the stocking of hatchery-raised fish improved fishing in South Dakota? The answer is a resounding YES! For example, introductory stockings created many of the excellent Walleye fisheries currently found in the recently “expanded” waters of eastern South Dakota. Before the mid-80’s, these lakes were shallow wetlands incapable of supporting game fish populations. As these lakes filled and became deep enough to support Walleye popula-



The coldwater habitat found in Lake Oahe allows for Chinook Salmon growth and survival, but the lack of suitable habitat for natural reproduction means that stocking is needed to maintain the fishery.

tions, they were stocked with fry and ultimately lakes like Thompson, Bitter, Lynn, Antelope, Horseshoe, and Dry (Clark County) became excellent fisheries. Walleye fry stockings are also very effective for reestablishing populations following winterkill, a common occurrence in many shallow South Dakota lakes like East and West Oakwood, Albert, Pelican, and Grass/Dry. In small impoundments located

in western and central South Dakota, frequent stockings of Largemouth Bass are necessary due to fluctuating water levels and frequent fish kills. Other species such as Smallmouth Bass, Muskellunge and Channel Catfish have also been introduced into several state waters for the purpose of expanding angling opportunities.

The introduction of Chinook Salmon into Lake Oahe has created a unique op-

portunity for anglers. The coldwater habitat found in the reservoir allows for salmon growth and survival, but the lack of suitable habitat for natural reproduction means that stocking is needed to maintain the fishery. The number of salmon stocked each year is adjusted depending on the availability of cold water habitat and forage, primarily rainbow smelt. When forage abundance was low and predator abundance was high, biologists determined that stocking nine inch salmon resulted in better survival than four inch salmon. In addition, coded wire tagging studies have shown that rearing techniques have a huge impact on post-stocking survival. For example, if the fish were raised with fewer fish in the tanks, significantly more of them survived after stocking. By reducing the rearing density by half, up to six times more salmon were caught or returned to spawn. So fewer fish can actually be stocked to produce better fishing! This is just one example of how SD GFP is working to improve efficiencies in hatchery operations and provide a better return to the angler.

Research has shown that many Walleye populations can be improved by stocking when natural reproduction



Creel surveys are one of the many tools used to evaluate the success of stocking on any body of water.

is inconsistent. For example, in the last 17 years, Brant Lake was stocked with Walleyes seven times, Lake Madison was stocked eight times and Lake Herman was stocked nine times. OTC marking showed that on average in years of stocking, hatchery-raised fish accounted for about 80% of the Walleye production in Brant Lake, 85% in Lake Madison and 94% in Lake Herman. However, stocking is not always as effective or needed. For example, stocking produced only a fraction (29%) of the Walleyes in East Vermillion Lake in the two years it received hatchery fish. Natural reproduction alone supported the premier Walleye fishery in Lake Thompson for many years. Only recently, following years of drought and lower water levels did it need supplemental stocking. However, many South Dakota waters need Walleye stocking in order to maintain consistent fishing.

Yellow Perch are the second most popular fish with South Dakota anglers. However, perch fishing is often not as good as it could be because of inconsistent natural reproduction. This was a classic situation of how stocking was needed to improve fishing but the hatchery-rearing techniques for Yellow Perch were not available. Over the last few years, Blue Dog SFH has been working to develop the techniques for raising Yellow Perch for stocking into eastern South Dakota lakes and biologists are working to evaluate these stockings using OTC marking. So far, stocking contributions have ranged from 0%-100% and the numbers of fish produced were often low, indicating a low overall contribution by stocked fish. Additionally, perch production in years with no stocking was as high as or higher than stocked years. Continued evaluation will be needed to ultimately determine whether Yellow Perch stocking can significantly improve fishing in South Dakota.

Some of the best benefits come from stocking urban lakes. Recent creel surveys on five small lakes in



Photo © Jake Davis



Photo © Northwest Marine Technology



Photo © Vermont Department of Fish and Wildlife

In order to tell whether or not a fish had been stocked, biologists utilize several techniques to tag fish, including; visible implant tagging (left), coded-wire tagging (top right), and oxytetracycline (OTC) immersion (bottom right). Not pictured is fin clipping.

Brookings and on Family Park Pond in Sioux Falls demonstrated that aggressive stocking can produce good fishing and generate high angler use. Fishing pressure at the 28-acre Family Park Pond was similar to use on lakes 40-50 times its size. The highest fishing pressure was documented at waters receiving hatchery-raised Rainbow Trout. For example, the tiny 1-acre Indian Hills Pond in Brookings received nearly 1,600 hours of fishing pressure in a single month with anglers harvesting about 90% of the trout stocked. Additionally, anglers fishing for trout tended to be more satisfied with their fishing trip than those targeting other fish species.

Northern Pike and White Bass, netted from larger lakes and stocked into urban waters, also were popular with urban anglers. Even though many anglers released their catch, return of

Pike and White Bass to the angler has often exceeded 50%. Studies showed that urban waters attract young anglers and may serve as a recruitment tool. These lakes must be frequently stocked with catchable-size fish in order to maintain good fishing to keep anglers satisfied.

If you have enjoyed catching a Walleye, trout, salmon, Musky, or Smallmouth Bass, there is a good chance that your catch, or at least their ancestors, originated in a South Dakota hatchery. Stocking is not always successful, but it is an important tool to improve the quality of fishing. A complete list of stocked waters is found in the Tacklebox section of the Game, Fish and Parks website, www.gfp.sd.gov/fishing-boating/tacklebox or more information is available by contacting your local Game, Fish and Parks Fisheries Office.

*Find a complete list
of stocked waters
in South Dakota by visiting:*

www.gfp.sd.gov/fishing-boating/tacklebox



Partnerships **BLOOM** at Oahe Downstream

By Pat J. Buscher,
Oahe Downstream District Supervisor

Take it outside!

This is something my mother used to tell us kids when we got too wild inside, when our activities were confined by the walls of our home. Often times, the breaking of my mother's wall-hangings, or some other item she deemed valuable, led to our expulsion from the family dwelling.

But what was ultimately a break for my mother and a cost savings for her décor often turned into wonderful outdoor experiences I recall to this day. Once outside, the prior inside activity no longer seemed fun, so we would often take the opportunity to explore. Growing up in a small community in the Midwest, we didn't have to travel far to find the outskirts of town and those exploratory journeys.

Many times these journeys would result in wet shoes, muddy pants, and some form of critter making its way back home (to my mother's displeasure). The life lessons learned by wandering through river bottoms and grass pastures are irreplaceable and provided me a greater sense of our natural surroundings.

This message my mother, and many others, would tell their children—"take it outside" – is echoed today as the South Dakota Department of Game, Fish and Parks strives to re-connect people and our youth with outdoor learning experiences. The SD GFP and many other organizations worked to develop these outdoor learning experiences so they can be accessed by

most—although muddy, wet shoes are optional.

The effort to lead our youth outside led to a new exciting development at Oahe Downstream Recreation Area near Fort Pierre: the interactive South Dakota Prairie Butterfly Garden.

The project was brought forth with a creative idea which utilized a grant from the U.S. Fish and Wildlife Service's Connecting People with Nature – Let's Go Outside fund. To create this outdoor learning opportunity, additional funding came from the South Dakota Chapter of The Wildlife Society, SD GFP's Division of Parks and Recreation development funds, and a SD GFP Wildlife Diversity Program Small Grant.

The idea was simple: create a space for visitors of all ages to come, enjoy and learn about a prairie garden. With this in mind, a group of individuals and agencies cooperated and agreed to plan the construction.

Team Butterfly soon took flight, comprised of members from the U.S. Fish and Wildlife Service, South Dakota Game, Fish and Parks, SDSU Extension, and Oahe Child Development Center. Several members of the local community also contributed in the areas of curriculum development, research, and photography.

Planting of the South Da-

kota Prairie Butterfly Garden at Oahe Downstream was completed June 15, 2013, and is comprised of approximately 3,000 perennial South Dakota native plants. As you can imagine, it takes quite a few people to plant this many plants. Volunteers of all ages showed up to lend a hand. The project also incorporated local teachers and approximately 500 students who started seeds as indoor classroom work. The annual flowers grown by these local school children were planted in the garden during a week of school field trips.

Now a full year since Team Butterfly first gathered to conceive the outdoor



Photo © SD GFP



classroom, the garden is established. It is attracting butterflies and open for guests of all ages. Since the garden was planted with primarily South Dakota native perennials, guests can count on the garden to be alive and expanding for years to come.

This is great news for our local butterflies, as butterfly populations and pollinators are decreasing across most of this country. Butterflies and bees are insects that pollinate plants. Many plants, including those that grow our food, require pollinators. Pollination by insects is moving pollen from one plant to another so the plant can produce fertile seeds and fruit.

Most people would easily recognize the name of the Monarch butterfly. Did you know that due to genetically modified crops, pesticide use, reduction of milkweed (food source for Monarchs), urban sprawl, weather trends, and reduction of butterfly winter habitat has led to a steady decline in Monarch butterflies?

A report released by the World Wildlife Fund shows that since 1996, the Monarch's annual migration to Mexico has severely declined. In 1996 the black and orange butterflies took up approximately 44.5 acres outside Mexico City. That dwindled to a mere 1.65 acres in 2013. So remember, every little space for natural flowers to bloom can help.

To learn more about pollinators and this butterfly garden visit www.fws.gov and search for the South Dakota Prairie Butterfly Garden. You can

learn more about South Dakota's butterflies by purchasing Gary Marrone's book, *Field Guide to Butterflies of South Dakota*.

Online, you'll also find an Activity/Curriculum Guide, free for teachers to download for classroom use. Members of the Butterfly Team felt strongly that the garden required a strong educational component so that visitors and classrooms across the country could come to learn, understand and possibly grow their own butterfly gardens.

You can also find photos and updates on the garden on the Oahe Downstream Facebook page. Follow the page for news about the garden and photos of the butterflies that visitors have seen.

A guest visiting the prairie garden at Oahe Downstream can find 17 different species of native perennials and a handful of annual plants that add color and flavorful attractants. The garden has an interior trail for viewing plants and animals as well as other special areas. There are puddling areas, locations where butterflies can drink water and receive nutrients from the soil, as well as rocks, where butterflies find rest and absorb heat from the sun and the warmed rock. A classroom area provides a place to gather, work from curriculum, and discuss plants and inhabitants.

At the entrance to the garden, a ki-

osk displays information about the garden and its inhabitants. Benches allow you to stop and rest or just sit and watch wandering butterflies. Remember to bring your binoculars or check some out from the park office, as the butterflies are best viewed while at rest or pollinating.

The butterfly garden is located near the entrance of the Oahe Downstream Recreation Area with parking adjacent to the park's Welcome Center. Guests can find checklists of what butterflies to watch for throughout the spring, summer, and fall.

The butterflies won't be the only critters using the garden as different species of wildlife can be seen each visit. The garden offers another area where wildlife can come for food, water and shelter. Please remember this garden is for viewing only; what's seen in the garden stays in the garden.

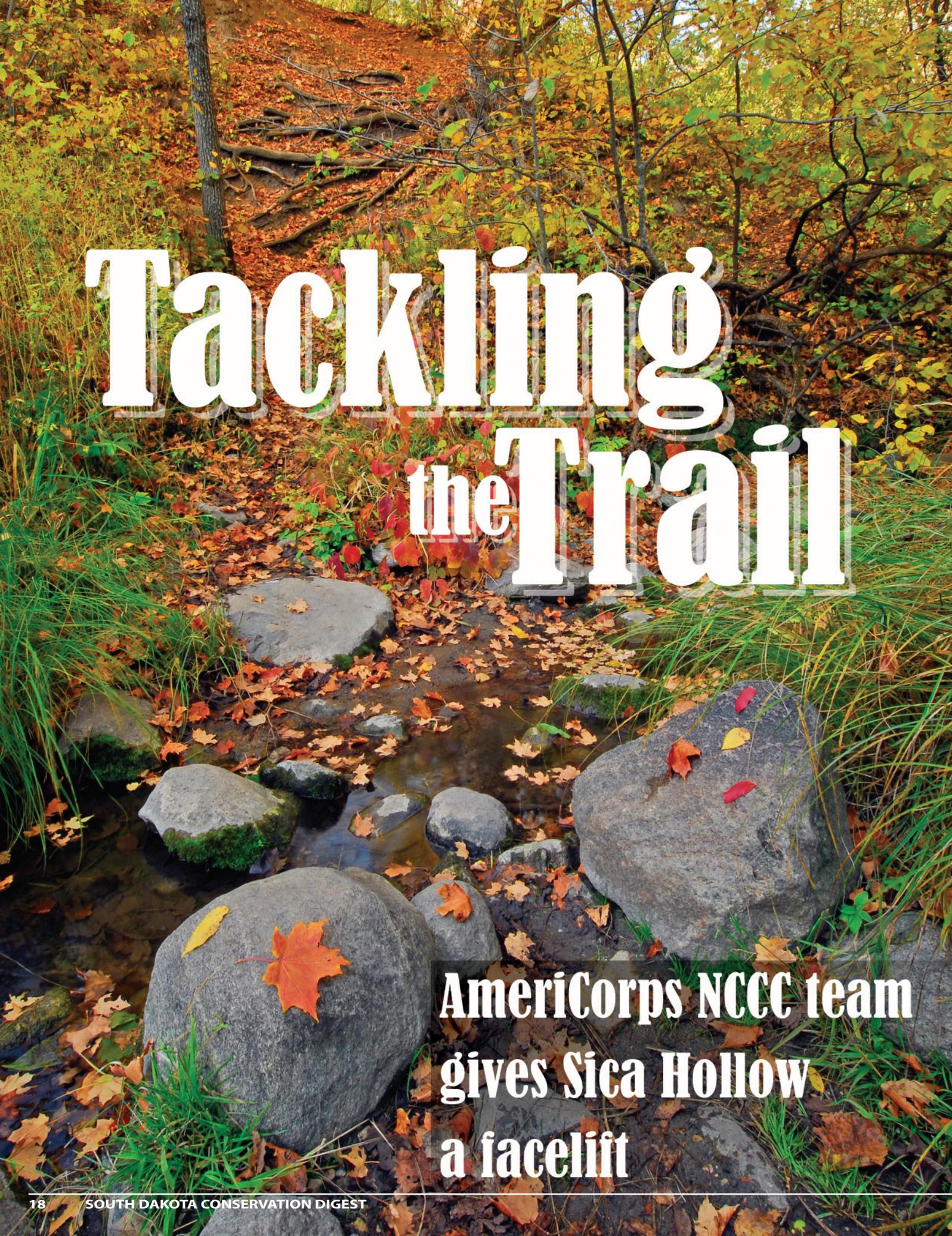
This project is truly an example of how government agencies, school groups and dedicated volunteers can work together and develop an area for outdoor learning and exploration.

Plan a visit to Oahe Downstream Recreation Area or check out our website and Facebook page to find out how you can grow your own butterfly garden. Start today to create those backyard memories and explorations you will remember and carry with you throughout your and your children's lifetimes.



Volunteers plant flowers in the soon-to-be butterfly garden last spring, including members of the Capitol City Children's Chorus.

Photo © Doug Backlund | wildphotosphotography.com



Tackling the Trail

**AmeriCorps NCCC team
gives Sica Hollow
a facelift**

Autumn at Sica Hollow State Park draws people from far and wide, seeking out the famous changing colors. The heavily wooded area, located in Marshall and Roberts counties in Northeast South Dakota, stands out like an island among a sea of plains, lakes and corn fields that make up the area's typical geography.

Many visitors enjoy the beauty of Sica Hollow via the horseback and hiking trail. For 15 miles, the trail weaves its way in and out of the trees and fresh springs, peaking at the top of the hollow, providing beautiful views of the vast landscape.

The consistent use of the trail, which is also popular in the spring and summer, created wear that could no longer be held in check by the systems put in place over the years.

Several spots along the trail used water bars, which are outdated methods to prevent erosion. The water bars are 4x4-inch timbers, usually eight feet long, which are laid across the trail and secured with rebar. They were placed in areas where terrain became steep and was vulnerable to erosion. These bars are meant to divert water after heavy rain or snow, but they had undesirable side effects after long-term use.

"The water bars weren't doing their job any longer," said Park Manager Dan Grewing. "They were starting to rot, the soil was washing out from around and underneath the timbers, and we were seeing exposed rebar. This created a potential hazard, especially for horses, which could catch their hooves and trip. We needed to take them out and find another approach to combat the erosion."

Taking out a water bar is no easy task. First off, they're usually on an incline so it's a constant uphill battle. Secondly, they are meant to be nearly perma-

nent, and to hold their place even when they've been pounded by the elements for years.

To remove them, the timber and each piece of rebar have to be manually pried up with a Pulaski, a tool commonly used in trail construction. It resembles an axe with another blade coming off the back of the head, this one perpendicular to the handle.

It takes several tugs and pulls to free the water bar from the years of mud and dirt. However it doesn't end there. The rebar and wood have to then be removed from the trail, which requires the assistance of a Gator or Mule. Many of the water bars were located in rough terrain like steep creek beds and thickets of trees. There were 15 areas on the Sica Hollow trail that needed to be addressed, with at least three to seven water bars in each area.

It's no surprise that the task seemed a little daunting to Grewing and staff members.

"We only have two full-time paid staff here and a handful of volunteers," explained Grewing. "I was hoping to find some extra manpower."



That extra manpower came in the form of a group of 18- to 24-year-olds from all over the country, part of a national service program, AmeriCorps NCCC (National Civilian Community Corps). Members commit 10 months of their lives to team-based national community service in various regions across the United States in exchange for a modest living allowance, housing, a \$5,550 education award, and many other non-tangible benefits.

Knowing of other parks that had benefitted greatly from a NCCC project, Grewing applied and was accepted for a team to tackle the Sica Hollow project.

Many liken the NCCC as a domestic version of the Peace Corps, but the main difference is that NCCC members serve on many different projects throughout their 10 months. The team sent to serve Sica Hollow was Maple 4, made up of nine members from all over the country. They were in their eighth month of service and had already served with five non-profit organizations by the time they arrived at Sica Hollow.

They'd just finished a project on the Pine Ridge Indian Reservation, serving an organization called Earth Tipi, a sustainable homestead hoping to provide model building techniques and methods to community members. They'd also been in northern Michigan building and restoring trail for an 80-mile mountain biking and hiking pathway in the Pigeon River Country Forest. From May to July, they built a goat barn and were camp counselors at One Heartland in Minnesota, a summer camp that has several sessions, including serving kids living in transitional housing and serving kids living with or affected by HIV and AIDS. Maple 4 started their service journey back in March at the North-



A water bar shows exposed rebar and signs of erosion. The team removed approximately 150 water bars from the trail. Photo © Jill Ament

east Iowa Food Bank and Habitat for Humanity of Des Moines.

Ted Sweeney, Team Leader of Maple 4, hails from Portland, Ore. He says coming to Sica Hollow was a pivotal time for their team because of the experience they had already had under their belts.

“To see each person grow as an individual and as a team, it’s something to see,” Sweeney said. “To be a part of these communities and serve with and for people we never would’ve met before, that can be life changing. It’s not easy work. Our service can be really challenging, physically and emotionally. So coming this far, making it to (Sica Hollow), I knew our dynamic was pretty solid.”

It was early September when the Maple 4 caravan pulled up to their project housing, which was located off-site at nearby Fort Sisseton State Park. Immediately, more than anything, they felt the great sense of hospitality possessed by the small, welcoming staff.

“The staff gave us a tour of the house we would be staying in,” said JJ



NCCC member James Wilborn removes a water bar on the Sica Hollow trail. Photo © Jill Ament

Moses of Lyons, Mich., “but they even had ingredients in the kitchen for us to make spaghetti. And it just stemmed from there. A volunteer made us an amazing cake and then throughout the project brought us a turkey and then other staff would bring us cookies and vegetables from their gardens. They invited us to church and told us about different stuff we could do in the surrounding communities. They really made us feel welcomed.”

For three weeks, Sica Hollow staff and the team spent eight-hour days out on the horse trail removing wa-

ter bars, felling trees with chainsaws and using a brush cutter to clear away overgrowth and small shrubs along the entire 15-mile path.

John Kelly, Portland, Ore., joined the program to gain job experience and a better idea of what he wanted to do after graduating college. He and other teammates spent a lot of time cutting brush, clearing nearly 80 percent of the trail within the three weeks they served at the park.

“I think our progress was good,” said Kelly. “I wish we had another week on the trail because we’re almost done, but I think we got enough finished, more than what was set out for us. That’s a good feeling.”

That good feeling is one shared by other members of the team.

“The work was important to us because not only were we able to provide this safe environment for the horses and the riders, but also because of the community the staff provided for us,” added Moses. “They made it fun to serve Sica Hollow.

“We had the chance to hang out with a bunch of great people every day. (Staff) taught us a lot about using the chainsaws and not getting the trees snagged. We hadn’t had much of that experience before this project so having them out there with us was extremely helpful for us.”

Grewing described the progress made on the trail as excellent and much more than he had hoped for. Approximately 150 water bars were removed and 50 percent of impending trees were removed, creating a 12-foot corridor for the trail.

“These folks are young, motivated and eager to work,” said Grewing. “They really got to experience the work it takes to keep the trails in good condition.”

Visitors noticed the impact the team had on the trails, too.

Ernest Richards of Peaver



NCCC member Aidan Potter fells a tree close to the trail. Three members of the team shared this duty, each cutting down an average of 40 small and medium sized trees a day. Photo © Jill Ament

encountered the team while he was out riding one September afternoon. The NCCC team was wrapping up the day’s work, decked out in their uniform gray t-shirts and khaki pants, covered in dirt and mud – some wearing orange chainsaw chaps.

Richards has been riding the horse trials in Sica Hollow for over 40 years, but it had been a few years since his last ride.

“I think removing the water bars from the trail is a good idea,” Richards said. “There’s the risk when riding you know, your horse could trip over

one or get its hoof caught. I’ve been worried myself sometimes. So I think it’s great to see people out here doing that.”

Grewing says the next phase of the trail restoration project is equally daunting. With the water bars now gone they’ll groom the trail with a drag, refill ruts and washouts with gravel and recycled asphalt, and do some landscaping to shed water off the trail more naturally. It will be a lot of hard work, and take a lot of hands.

And Grewing knows just the service group to ask for help.



NCCC Team Maple 4 stands in front of the Roy Lake State Park entrance with park staff. Photo © Jill Ament

MEMORIES TO LAST A LIFETIME



LEFT: Brent and Tyler Bradley after their successful hunt on Lacreek National Wildlife Refuge this past fall.

BELOW: Tyler with his grandpa Clark with a memory that will last a lifetime!

Submitted by Clark Mola “Planning... Execution... Results”

What distinguishes a good plan from a bad are the results, right?

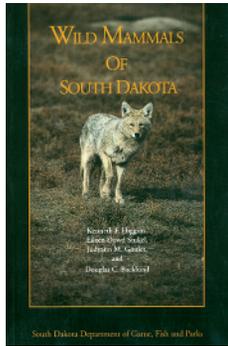
Lacreek National Wildlife Refuge (located near Martin, SD) recently sponsored a special youth rifle antler-less deer hunt in concert with the South Dakota Game Fish & Parks from December 14-29, 2013. Deer hunters were required to possess a South Dakota youth deer license and obtain a Refuge permit in addition to their State Youth Deer License.

Upon arriving at Lacreek Refuge the morning of December 27TH; Tyler Bradley, his father Brent Bradley, and grandfather Clark Mola spotted a group of deer approximately 800 meters from a designated parking area. It was decided that Clark should work himself into a position behind the deer in an attempt to move the deer towards Tyler and Brent who would locate themselves in a shelter-belt. So the trek on foot began and the plan was put into action. It was ‘Textbook’ ... One hour into the hunt, a beaming grandson [OI’-Dead-Eye] was successful with one shot fired from his 6mm rifle and bagged his first deer.



PUBLICATIONS AVAILABLE THROUGH THE SOUTH DAKOTA GAME, FISH & PARKS WEBSITE

Wild Mammals of South Dakota



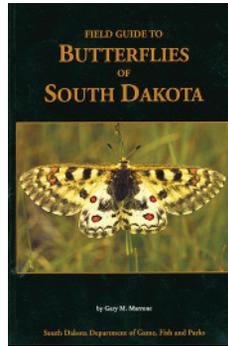
Wild Mammals of South Dakota depicts 95 species of mammals occurring within the state's borders. This reference will serve anyone interested in South Dakota's mammals, from the amateur naturalist to the experienced biologist.

Full color photographs, distribution maps, descriptions as well as habitats and habits for each species!

Published in 2000

\$24.95

Field Guide to Butterflies of South Dakota

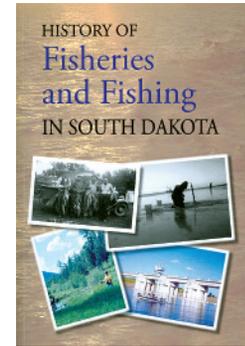


The Field Guide to South Dakota Butterflies is the first comprehensive treatment of South Dakota butterflies. The guide provides an account for each of the 177 species of butterflies known to occur in the state. Details on each species include a description of the adult and caterpillar, as well as information on distribution, habitat, larval host plants, and nectar sources. Maps showing distribution by county for each species is also included. More than 700 color photographs!

Published in 2002

\$39.95

History of Fisheries and Fishing in SD

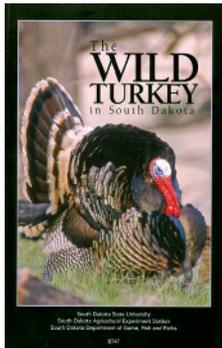


People have harvested fish in what is now South Dakota for several thousand years. Archaeological evidence at campsite digs confirms that Native American Indians were gathering fish to eat, ornamentation and tools. The over-exploitation of fishery resources began with the arrival of the market hunter, the soldier and the settler. With statehood, South Dakota had the legislative machinery to begin controlling fishing and later, to apply scientific management to fish harvest.

Published in 2007

\$10

The Wild Turkey in South Dakota



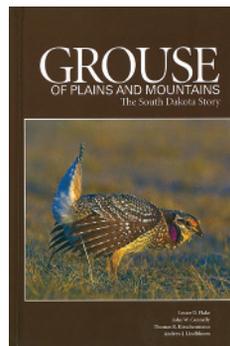
By the 1920s the once abundant eastern wild turkey had been exterminated from South Dakota. Since then, efforts to restore this magnificent bird to its original range have proved successful beyond imagination.

If you enjoy watching, listening to, or hunting wild turkeys, if you host wild turkeys on your land, or if you are a wildlife manager, you will find the historical, behavioral, ecological, and management information in The Wild Turkey in South Dakota a valuable resource.

Published in 2006

\$15

Grouse of the Plains and Mountains The South Dakota Story

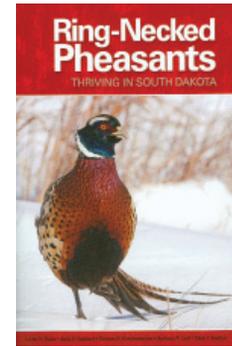


Grouse are among the most treasured and beautiful of South Dakota's wildlife species. Our vision in writing this book was to advance the understanding of and appreciation for these unique and striking birds as well as to encourage conservation efforts in South Dakota and other parts of their geographic range. Pictures and text that will keep you interested.

Published in 2010

\$15

Ring-Necked Pheasants, Thriving in South Dakota



The third and final book of a three book series on game birds in South Dakota. Details on the history of pheasant populations and management back to the early 1900's, as well as information on habitat management, pheasant ecology and biology, reproduction, surveying methods, and hunting are also described. The 254 page book is filled with many photos that readers will find interesting and enlightening.

Published in 2013

\$15

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DakotaFlora

Phlox

by Dave Ode, GFP Botanist

Hood's phlox is one of two low-growing, white-flowered phlox species in western South Dakota. The other is plains phlox which has slightly longer leaves and petal lobes.

Photo © D.J. Ode

This is not a story about the alien creature on the Star Trek Enterprise television show, called Dr. Phlox. Nor is it about the small town of Phlox, Wisconsin near Green Bay. Rather it is about a group of uniquely American wildflowers in the genus *Phlox*. Of the sixty-some species of Phlox all but one (*P. siberica*) are native to North America. Five wild phlox are native to South Dakota ranging from scruffy, little, white-flowered clumps growing out of badland rock outcrops in our western plains, to flaming pink bouquets waving in the wind with the tall grasses of our eastern prairies. All five of these phloxes are herbaceous perennials with showy, “salviform” flowers – meaning that there are five petal-like lobes atop a narrow flower tube. The name “Phlox” is derived from the ancient Greek word for “flame” and was assigned to this group of mostly American plants by the famous taxonomist Carl Linnaeus, in recognition of

their brilliant, flame-colored flowers.

Historically, woodland blue phlox (*Phlox divaricata*) grew in deciduous forests of eastern South Dakota but has not been collected since 1952. The two nearest wild populations that I’m aware of are in Ponca State Park near Ponca, Nebraska and Kilen Woods State Park (named after my wife’s family) near Lakefield, Minnesota about 75 miles east of Sioux Falls. As the common name implies, this phlox has blue to lavender colored flowers arranged in terminal clusters atop one-foot tall leafy stems that grow in rhizomatous colonies. Also called timber phlox or wild blue phlox, this wildflower grows throughout the eastern United States, and has long been cultivated in gardens, sometimes under the name “Wild Sweet William,” which should not be confused with the traditional, European Sweet William (*Dianthus barbatus*).

Our next rarest one is downy phlox,

also called prairie phlox (*Phlox pilosa*). Even though it ranges over a larger portion of eastern North America than any of the other eastern phloxes, in our part of the world it is restricted to tall grass prairie habitats most of which have been plowed up leaving fewer and fewer prairie remnants where it still grows. Based on historical descriptions, this used to be one of our most common phlox. In 1906, Charles S. Harrison published a “Manual on the Phlox,” in which he describes his experiences with this plant genus and recalls his travels through the prairies of western Minnesota in the 1850s. He writes, “One day I drove through a garden of thousands of acres of wild phloxes. I never can forget the scene. All around I was greeted with those happy, smiling faces, and all the air was incense-laden. Far as the eye could reach I was surrounded by those great masses of exquisite loveliness. I was in raptures.” DeAlton Sauders in 1899 and W.H. Over in 1932 both describe downy phlox as growing in prairies of the Big Sioux and Minnesota River valleys.

Downy phlox grows to about two feet tall from a root crown that may produce numerous stems. It begins to bloom in June with flower colors that vary from pink to magenta to occasionally white. Butterflies are common pollinators of phlox flowers and many species have been documented visiting downy phlox including the monarch butterfly (*Danus plexippus*), black swallowtail (*Papilio polyxenes*), clouded sulphur (*Pieris raphae*), variegated fritillary (*Euptoieta claudia*), pearl crescent (*Phyciodes tharos*), common checkered skipper (*Pyrgus communis*), and many others. Because many phlox have flower tubes that might be one-half inch deep, only insects with long tongues or proboscises are able to reach the nectar at the base of these tubes. The flat petal lobes are also perfect landing pads for

pollinating insects. One insect species appears to be entirely dependent upon downy phlox. The phlox moth (*Schinia indiana*) has a reddish forewing that closely matches the color of downy phlox flowers effectively camouflaging this insect when perched among the flowers. More importantly, the larvae of this colorful moth feed exclusively on the tissues of downy phlox. Found in adjacent counties in Minnesota, the phlox moth has yet to be documented in South Dakota.

The wild phloxes of western South Dakota include three species all of which have smaller flowers, smaller leaves and grow closer to the ground than their eastern cousins. Leafy phlox or alyssum-leaved phlox (*Phlox alyssifolia*) is the most colorful of the three with one-inch wide flowers that vary in color from pink to purple, rarely white. It ranges from the eastern slopes of the northern Rocky Mountains eastward to the Black Hills growing in shallow soils of rocky outcrops, grasslands, shrublands and woodlands. It is quite common in Ponderosa pine savannas and rocky prairies at lower elevations of the Black Hills, on the Pine Ridge, and on the forested buttes of Harding County. This phlox is one of the first rock garden plants that Claude Barr sold from his Prairie Gem Ranch in Fall River County. In his book *Jewels of the Plains*, Barr writes how in 1916 he drove a team and wagon 18 miles from his homestead near Smithwick to the Cheyenne River breaks where he collected some pine seedlings for a windbreak and this little four-inch tall, fragrant, pink phlox, which he transplanted into his wildflower garden. That plant persisted for 50 years and spread over about two square yards from which Barr collected and sold offset plants. Plants native to the Black Hills have larger flowers than those farther west and they remain one of the best choices

for a rock garden.

Hood's phlox (*Phlox hoodii*) and plains phlox (*Phlox andicola*) are quite common on the plains, buttes and badlands of western South Dakota. They both have small white flowers, needle-like leaves, only grow two to four inches tall, and form mats or colonies by spreading from a branched crown and slender rhizomes. Of the two, plains phlox has slightly larger flowers and leaves, tends to inhabit sand prairie and other sandy soils, and occupies a much smaller range extending only from the Nebraska sandhills and north-eastern Colorado northward to western North Dakota and southeastern Montana. Hood's phlox, on the other hand, ranges throughout the American West from the western Great Plains, across the Rocky Mountains and Great Basin to the eastern slopes of the Sierra Nevada and Cascade Mountains, northward all the way to Alaska and the Yukon. Hood's phlox is also called moss phlox or spiny phlox and grows in all sorts of sparsely vegetation substrates from our own White River Badlands to butte-top and mesa-top sandstones to volcanic basalts of the Columbia Plateau. Flower color for both species is typically pure white to slightly bluish-white, although Claude Barr reported rare specimens with lavender and even blue petals. These little phloxes can begin flowering as early as late April and may continue producing blossoms well into June. For more information about these and all the rest of North America's phloxes, see the wonderful new book by James H. Locklear titled *Phlox: A Natural History and Gardener's Guide* (Timber Press, 2011). 🌱



Downy phlox still grows wild in tall grass prairie remnants of eastern South Dakota.

Photo © D.J. Ode



Alyssum-leaved phlox inhabits pine savannas in the southern Black Hills.

Photo © D.J. Ode



Dakota Naturalist

WHO'S BEEN HERE?

by Jody Moats, Naturalist at
Adams Homestead and Nature Preserve

A fresh snow has fallen during the night or maybe a quick rain shower has dampened the ground just enough to make the soil wet and soft. You take a look outside and see that your yard has come alive with clues that some nocturnal creature or creatures were very active during the evening while you slept. A backyard mystery has been provided to you and your family to solve. What are some of the things you need to look for that will help you become successful nature detectives? Animal tracks and footprints are a great place to start.

Does the track have two toes? Four toes? Five toes? Claws or no claws? What does the bottom of the foot look like? Is it bumpy? Scaly? Smooth? Flat? Arched? Does it have a unique shape? Does it look like the animal is walking? Running? Galloping? Hopping?

There are many questions to ask to make sure you find the right animal to fit the correct track. Field guides about animals in your area are a great place to start.

By using your field guide, you may find out that both the canines (foxes, dogs, coyotes) and felines (cats, bobcats, mountain lions) have four toes on each foot, but canines have claw marks above the toe pads and have the two front toes side by side. Felines will retract their claws when they walk.

Maybe your family noticed some tracks with two hooves that take on the shape of an upside down heart. Those are likely from deer that decided to take a stroll on your property.

Animal tracks are the number one clue that will help you identify who has been near your home, but there are some other animal signs you can look for that may also help you solve the mystery.



DEER



CAT



FOX



RABBIT



RACCOON



It may be kind of icky, but animal scat or droppings is an excellent resource to help you find out about the critters that live near you. Scat can tell you the type of animal by its size, shape and consistency. It can give you insight into what the animals has been eating.

Is it a herbivore (plant eater) or carnivore (meat eater)? Does the scat have a mixture of seeds and leaves or does it have bones or fur within it? What is the shape of the scat? Is tubular (dog family, raccoon, skunks, opossum, bear)? Tear drop or tapered (cat family)? Looks like M&Ms (rabbits)? Maybe you found some tiny scat that looks like pencil leads (rodents). Or what you are finding is not scat at all, but pellets from an owl or hawk. These pellets that are regurgitated from a raptor and can be filled with fur, bones and/or feathers.

Animal scat and pellets are interesting finds, but they are one sign that you should keep your distance from. Do not pick up scat with your bare hands and/or put near your face. Inhaling dust from old scat can cause some lung illnesses.

There are other animal signs out there not as gross that would allow you to use all of your senses.

Take a look around the rest of your yard. Is there half eaten nutshells discarded by squirrels? Have leaves been chewed on by insects, snails or other animals? Are there scratch marks on trees? Do you see areas where grasses or shrubs are bent? Can you feel where buds have been snipped off at the tip? Are there holes drilled into the bark of a tree? These normal everyday behaviors are an excellent resource to use or look for when solving the animal identification puzzle.

The art of using animal signs in your environment to discover and identify which animals have recently visited your backyard can take time and practice. It is a great skill that any age can achieve. It is also a fun and educational family activity that everyone can do in the outdoors. So put on your nature detective hats and follow the clues. You will eventually find the answer to the question...who's been here? 🐾

FUN ACTIVITIES FOR FAMILIES

TRACK TRAP

This footprint-catching “trap” lets your kids investigate who’s hanging out in your yard after dark.

Place a white sheet, folded in half, in an area of the yard where animals are most likely to visit (for instance, near your birdfeeder, shrubs, vegetable garden or compost pile). Using a hose or watering can, wet both the sheet and the soil and leave it overnight. The next morning, check your trap to see if any animals have walked a crossed it and then try to identify them by their tracks. Reset your sheet in other spots around the yard. You may attract different animals in different places.

FLIP FLOP TRACKS

Old flip flops
Hot glue
Thick craft foam
(or several layers of thinner foam)

Use a track ID guide to re-draw and cut out different animal tracks out of the craft foam. Hot glue the tracks to the bottom of the flip flops.

When dry, put on your new flip flops and make tracks wherever you go. Work great on a sandy beach.



CREATE YOUR OWN ANIMAL SIGN SCAVENGER HUNT

Items could include:
Spider web
A tree with holes in it
Leaves that have been chewed on
Animal Droppings
Half-eaten walnuts



READ ABOUT ANIMAL TRACKS & SIGNS WITH KIDS

Big Tracks, Little Tracks: Following Animal Prints

by Millicent E. Selsam and Marlene Hill Donnelly

In the Snow: Who's been here? by Lindsay Barrett George

In the Woods: Who's been here? by Lindsay Barrett George

A TRACK IS A WINDOW TO THE PAST OF AN ANIMAL.
LOOK AT THE GROUND AS IF IT WERE A MANUSCRIPT OF THE ANIMALS LIFE.



Natural Heritage

White-nose Syndrome in Bats

By Silka L. F. Kempema,
SD GFP Wildlife Biologist

Taken in February of 2006, a photograph of hibernating bats with strange white fuzz became the first piece of evidence that would be a token illustration of what is now known as white-nose syndrome (WNS) in North America. WNS is a disease that has affected hibernating bats in eastern North America. It is widely thought to be caused by the fungus *Pseudogymnoascus destructans* (Pd). Much has been learned about Pd and the disease since its discovery, but even more remains a mystery. Originally described as *Geomyces destructans*, this cold-loving fungus causes a skin infection and looks like white fuzz on the nose, ears, and membranes of the wings and tail of infected bats. Pd is found in cold and humid (>90%) environments, growing within a temperature range of 40-68 F° making caves and mines ideal environments for this fungus.

Millions of bats have succumbed to WNS, but why is this disease so devastating? Unfortunately, the exact cause of death remains unknown, but there are certain characteristics that make hibernating bats susceptible to WNS. Many bat species eat only insects and adapt to the lack of prey during the winter months by hibernating. During hibernation bats congregate in a cool and moist location (similar to that of the white-nose fungus) and reduce their body temperatures to make efficient use of a limited amount of fat reserves. During this time, a bat's resistance to disease may also decrease. Once a bat is infected with Pd, the fun-

gus erodes through the skin causing discoloration, tears and holes, especially in the wing membrane. Damage to this membrane may disrupt several important functions such as the control of evaporative water loss, body temperature regulation and blood circulation. All of these factors may cause a bat to arouse from hibernation using precious energy stores and decreasing its chance of surviving the winter. Bats are long-lived, with adults typically living from 5 to 15 years, and have low reproductive rates, producing only one young per year. These factors will make population recovery from a disease with an estimated mortality rate of 90-100% difficult.

Bats with WNS often exhibit unusual behavior during the cold winter months. Affected bats have been observed flying outside hibernacula during the day in cold temperatures and clustering near the entrance of hibernacula. Large numbers of sick and dying bats near a cave or a mine should be reported immediately to the South Dakota Department of Game, Fish and Parks in Pierre. Do not handle sick or dying bats. Contact the South Dakota Department of Health if a bat has been discovered in your home and you suspect rabies, especially if it has been

discovered in a room with young children or people that have been sleeping.

Seven bat species have been known to die from WNS in North America (Table). WNS is not a known threat to humans, pets, or livestock. Note that some bat species (hoary and silver-haired) naturally have an overall frosty look to their fur. The hoary bat does not hibernate underground, but migrates south to warmer temperatures for the winter. The silver-haired bat is also typically migratory, but can be found roosting underground during the winter months.

Table. List of bat species currently known to have diagnostic symptoms of white-nose syndrome, a recently discovered fungal disease in cave- or mine-hibernating bats. Asterisk indicates species that can be found in South Dakota.

Big brown bat*
Eastern small-footed bat
Gray bat
Indiana bat
Little brown bat*
Northern long-eared bat*
Tri-colored bat*

As of 28 January 2014, 23 states and 5 Canadian provinces have confirmed the presence of Pd fungus or documented mortalities due to WNS. It is not known to be in South Dakota. The closest con-



Close-up of little brown bat (*Myotis lucifugus*) with fungus on nose, New York, October 2008.

Photo courtesy of Ryan von Linden, New York Department of Environmental Conservation.

firmation of Pd to South Dakota is in southeastern Minnesota at Soudan Underground Mine State Park and Forestville/Mystery Cave State Park.

The fungus is thought to be transmitted most readily from bat to bat. A bat can also be exposed when coming into contact with cave substrates that harbor the fungus. Given the large area in which the fungus is now known to occur and rate at which this area was covered (~100 miles/year), some suggest that humans can transport this fungus. We don't know how or when the fungus arrived in North America but the first signs of the fungus were in a cave frequented by tourists, which suggests it was carried from Europe by a traveler. It is interesting to note that although Pd is found on both continents, the fungus was not known in Europe until after its discovery in North America. No one had surveyed for the fungus and no bat mortalities attributed to WNS have been reported from Europe. Given its presumed recent arrival in North America, bat species here may simply have not had time to develop resistance to the disease.

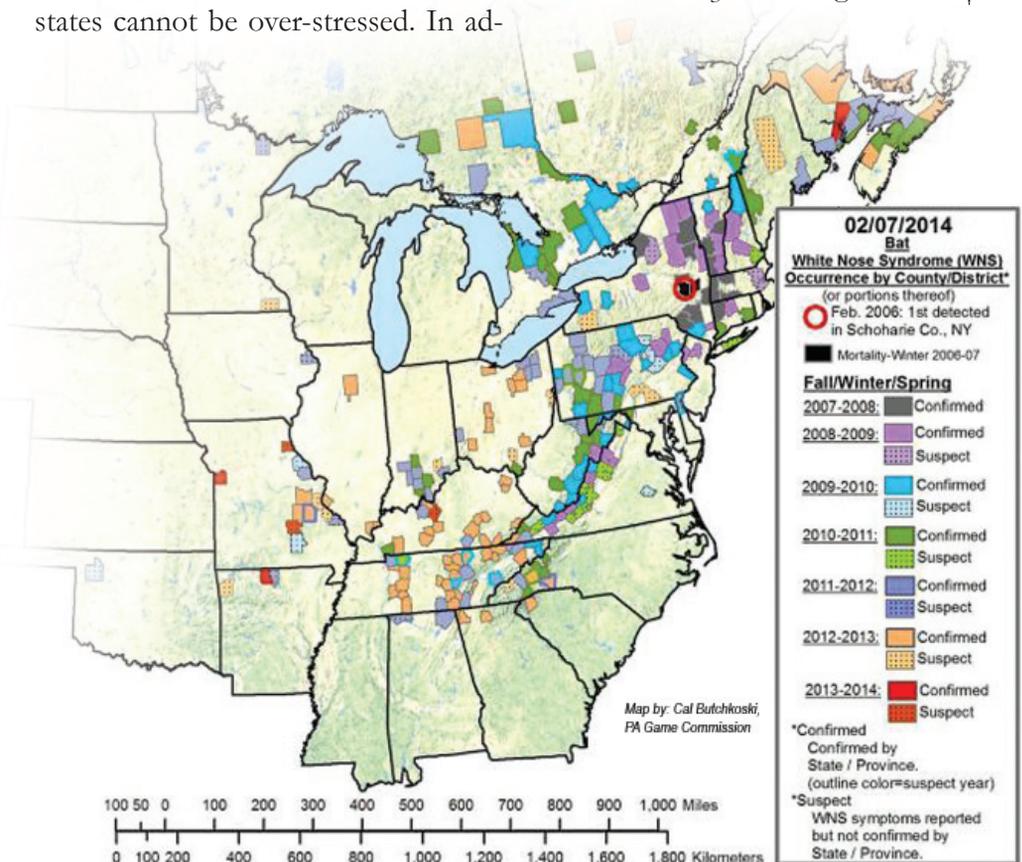
There is one simple thing you can do to help conserve bats and prevent the possible spread of this fungus. Do not disturb hibernating bats! Bats are extremely susceptible during this time period and your simple presence in a cave or mine can decrease a bat's chance at surviving the winter. Whether you like bats or not, they provide an important ecosystem service by consuming night flying insects which helps reduce damage to crops and forests. The economic value of the agricultural pest-control service is estimated to be in the billions. Recognizing the importance of these and other pest control services should create at least a tolerance for, if not an appreciation of, these night-flying creatures.

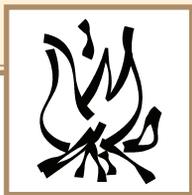
There are legitimate reasons for entering caves or mines. If you normally

enter caves or mines for recreational or professional reasons, make sure you are aware of any seasonal cave or mine closures or permit requirements for the area you wish to enter. Observe these closures. Land management agencies such as the U.S. Forest Service may have seasonal or yearlong closures on certain caves or mines, especially for those that are known to serve as bat hibernacula because of the public safety risk or the potential for harm to bats using these sites is too great. The National Park Service is also implementing actions on their lands that will minimize the risk of WNS spreading to unaffected areas or from infected ones; be aware of and comply with all park-specific plans. Whether or not the cave or mine you are entering is public or privately owned, avoid entering caves or mines in states with WNS and even those found in adjoining states. The importance of not bringing caving gear or clothing from areas known to have Pd into South Dakota and other western states cannot be over-stressed. In ad-

dition, to help reduce the likelihood of fungal spread, always ensure that you clean (decontaminate) all caving gear and clothing after every trip underground. To keep aware of the most up-to-date decontamination protocols visit (<http://www.whitenosesyndrome.org>). Keep in mind that the best and simplest things you can do to help conserve bats during the winter and limit the spread of WNS is to not disturb hibernating bats!

Scientists have learned much about a fungus that was only recently discovered and continue to learn more about the nature of WNS and its cause. Until the mysteries of this emerging infectious disease have been solved, biologist and managers are focused on slowing the spread of the disease and above all, in the pursuit of these endeavors, doing no additional harm to already declining bat populations. For the most up-to-date information about Pd, WNS and the spread of this disease, visit www.whitenosesyndrome.org.





ParkNotes

FORT SISSETON HISTORICAL FESTIVAL FEATURES PERIOD ENTERTAINMENT AND ACTIVITIES

FORT SISSETON, S.D. - Marching infantry, galloping cavalry, American Indian dancers, storytellers, music, family entertainment and more attract thousands of visitors each year to the Fort Sisseton Historical Festival. Activities begin Friday, June 6 and run through Sunday, June 8.

“The Fort Sisseton Historical Festival started over 30 years ago as a way to promote the preservation and restoration of the historic buildings and grounds of the fort,” said Katie Ceroll, park manager. “It has now become a celebration of life at a frontier fort and life on the prairie in Dakota Territory.”

Colorful characters and unique opportunities are what make the Fort Sisseton Historical Festival such a great event. In addition to military re-enactors, firing displays, rendezvous traders, the Fort boasts activities and events that will cover the gamut of frontier life and settlement on the prairie.

Daily admission into the festival is \$5 per person, age 12 and older. Camping reservations will be taken for the festival allowing campers to pay in advance. Those not making reservations can pay when they arrive. Campsites are \$25 per night. A park entrance license is not required during the festival weekend.

For a full schedule of events and times, visit the S.D. state parks website at www.gfp.sd.gov, or contact Fort Sisseton at 605-448-5474.

Fort Sisseton Historic State Park is located 10 miles SW of Lake City off SD Hwy 10.

TAKE A HIKE ON NATIONAL TRAILS DAY

PIERRE, S.D. – National Trails Day is a day set aside to celebrate America’s magnificent trail systems. Several state parks will be hosting trail-related events June 7. Get out and enjoy one of the following hikes!

- Prairie Trail, 9 a.m. MDT; Little Devil’s Tower Trail, 1 p.m. MT; Badger Clark Trail, 4 p.m. MDT, Custer State Park, Information: 605-255-4828
- Searching for Bigfoot!, Big Sioux Recreation Area, 2 p.m. Information: 605-582-7243
- Birding Basics, Lake Poinsett Recreation Area, 9 a.m. Information: 605-983-5085
- Basic GPS and Geocaching, Lake Thompson Recreation Area, 10 a.m. Information: 605-847-4893
- Geocaching 101, Newton Hills State Park, 1 p.m. Information: 605-987-2263

The programs are open to all ages. A park entrance license is required.

For more information on South Dakota state parks and a full calendar of events, visit www.gfp.sd.gov or call 605-773-3391.

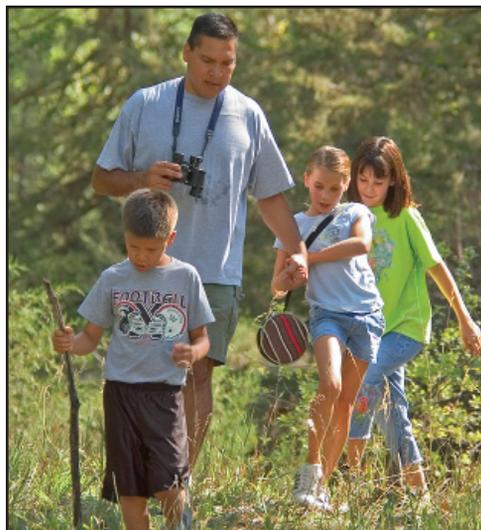


Photo © Chad Coppess | SD Tourism - TravelSD.com

FREE ENTRANCE, FREE FISHING MARK S.D. STATE PARKS’ OPEN HOUSE WEEKEND

PIERRE, S.D. – To kick off summer, the Department of Game, Fish and Parks is encouraging families to spend the weekend outside during the Parks’ Open House Weekend and Free Fishing Weekend May 16-18.

During the annual three-day event, anglers can fish without a license anywhere in the state, and entrance fees are waived for all visitors to South Dakota’s state parks and recreation areas. Camping fees still apply. Fishing regulations and limits apply.

Parks will be hosting a variety of Open House Weekend special events across the state.

Custer State Park will also be hosting a number of family activities both Saturday and Sunday, including cookouts, nature hikes, free hayrack rides, a fishing derby, nature programs and demonstrations. A full schedule of events can be found on the state park’s website.

State Park camping reservations can be made online at www.campsd.com or by calling 1-800-710-2267.

South Dakota state parks offer a wide variety of outdoor fun, including camping, picnicking and boating. Many parks also offer trails for hiking, mountain biking and horseback riding.

For information on fishing, fishing license and fishing regulations or the South Dakota state park system, visit the GFP website at www.gfp.sd.gov.

National Trails Day is a great way to get loved ones outdoors! Try one of the events listed above.



SAGE-GROUSE PLAN AVAILABLE FOR REVIEW

PIERRE, S.D. - The S.D. Game, Fish and Parks Department is offering the public the opportunity to review and provide comment on a five-year draft management plan for greater sage-grouse.

The Sage-grouse Management Plan for South Dakota 2014-2018 describes how the state proposes to manage sage-grouse in South Dakota. The draft will be available for review through March 30. Interested parties are asked to submit comments on the plan by the deadline.

"GFP will hold two public meetings to inform the public and gather additional input, as well as answer questions on sage-grouse management in the state," said Tom Kirschenmann, chief of terrestrial resources.

Both public meetings will be held in the northwest part of the state within the primary sage-grouse range in South Dakota. The meeting locations, dates and times are as follows:

Belle Fourche, March 11, First Interstate Bank (41 5th Ave.), 7 p.m.

Buffalo, March 12, Harding County School Commons Area (102 Allison St.), 7 p.m.

To view the draft management plan and provide feedback online, visit the following link: www.gfp.sd.gov/hunting/small-game/sage-grouse.aspx.

Please send requests for printed copies of the draft report or written comments to: Game, Fish and Parks; 523 E. Capitol Ave.; Pierre, S.D. 57501.

GOVERNOR MAKES APPOINTMENTS TO GAME, FISH AND PARKS COMMISSION

PIERRE, S.D. - Gov. Dennis Daugaard has appointed Scott Phillips of Herford and Paul Dennert of Columbia to the South Dakota Game, Fish and Parks (GFP) Commission.

The Governor also reappointed John Cooper of Pierre to the Commission.

"The work of the Game, Fish and Parks Commission is invaluable to the management of our public resources," Gov. Daugaard said. "I thank Scott, Paul and John for their willingness to serve."

Phillips is a rancher and co-owner of River View Lodge in rural Meade County. He will serve the remaining two years of former Commissioner Bill Cerny's term and be eligible for reappointment to a full four-year term in 2016.

Dennert is a farmer and cattleman. He served in the state House of Representatives from 1993 - 1997 and 2005 - 2013, and in the state Senate from 1997 - 2005. He will fill the position held by former Commission Chair Susie Knippling.

Cooper is a former GFP Department Secretary who has served on the Commission since 2010.

All three appointees will be subject to Senate approval.

JAMES RIVER WATERSHED CREP ENROLLMENT SUSPENDED UNTIL FURTHER NOTICE

The South Dakota Department of Game, Fish and Parks (GFP) and the USDA Farm Service Agency (FSA) announced today that enrollment of new acres into the James River Watershed Conservation Reserve Enhancement Program (CREP) has been suspended. Additional contracts will not be accepted because current contracts have consumed all available funding from the state of South Dakota for this program. With 82,173 acres of high quality wildlife habitat currently enrolled, CREP has proven to be a popular program.

"This program is extremely popular with both hunters and landowners," said Tony Leif, GFP Wildlife Division director. "The enrollments we have are a testament to the successful partnership between the state and federal governments and between landowners and hunters."

Although the acceptance of new acres for the James River CREP has ceased, currently enrolled acres will not be impacted.

"Our agency is fully committed to fulfilling the existing CREP contract obligations," noted Leif.

With recent passage of a new farm bill and reauthorization of the Conservation Reserve Program (CRP), South Dakota landowners will still have future opportunities to enroll land in CRP.

"We are encouraged with the passing of a new farm bill and the conservation opportunities that will again be available for interested landowners," said Leif. "We will continue to work with landowners and our conservation partners to maximize those program opportunities once the farm bill is implemented."

Game, Fish & Parks
20641 SD Hwy 1806
Ft. Pierre, SD 57532

Periodicals
Postage Paid
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57501

A man wearing a blue hoodie with 'A.E.' on it, a blue baseball cap with a red 'B' logo, and yellow sunglasses is kneeling on rocks by a lake. He is smiling and holding a large, spotted muskie fish. The background shows the blue water of the lake and some rocks.

**In 2013, SD Game, Fish & Parks
stocked 154 million fish into 153
lakes and ponds across the state.**

**View which bodies of water,
and which species were
stocked on this webpage.**



Use the QR code on your smartphone, or
visit: www.gfp.sd.gov/fishing-boating/tacklebox