

Spirit Mound Trust News

P. O. Box 603 | Vermillion, SD 57069 | info@spiritmound.org | www.spiritmound.org | December 2019

Managing a Prairie with Weather Extremes

By Meghann Jarchow

Twenty-nineteen has been a year of multiple extreme weather events in our region, and many of those events posed challenges for land management. On the 13th- 14th of March, Vermillion was on the edge of the bomb cyclone that hit the west-central United States. We received more than 2.5 inches of rain in addition to melting snow over frozen ground. This storm was responsible for massive flooding in our region due to the rapid pulse of water and the inability of the soil to absorb it. March was followed by above-average precipitation in April and May around Vermillion. All of this extra water led to additional flooding. As a result, South Dakota led the United States in the amount of unplanted cropland at 3.9 million acres according to the U.S. Geological Survey.



Flooding at the base of Spirit Mound

Spirit Mound Creek was flooded on at least two separate occasions this spring including following the March storm. Because of this, during much of the spring, the soil was too wet for tractor-based management. When South Dakota Game, Fish and Parks began mowing the former feedlot, the tractor got stuck and was damaged, and that area could not be mowed. This continued the challenges posed by the former feedlot area, which will likely be re-seeded to prairie again – for the fourth time – in 2020.

The Monarch Meadows along Spirit Mound Creek was another area that was not mowed this year due to the wet conditions. However, the wet conditions did not preclude all prairie management. Stewart Hines, the new caretaker at Spirit Mound, was able to cut hundreds of saplings throughout the prairie. The upland areas were dry enough for the Department of Game, Fish and Parks to conduct a successful spring burn during the first week of May over much of the southern portion of Spirit Mound.



Southern portion burned

Although managing the prairie can be a challenge when we have extreme weather events, prairie plants and animals have evolved to tolerate a wide range of environmental conditions. In years such as this with ample precipitation, there is abundant plant growth, and many animal species are able to take advantage of the extra water resource. In other years, such as the drought of 2012 when Vermillion received less than half of the precipitation available during this growing season, plants and animals that are more efficient with water-use have an advantage because they can better tolerate the dry conditions.

We can enjoy the beauty of Spirit Mound throughout this range of conditions – although it certainly is inconvenient if getting to the top of Spirit Mound requires using a kayak to cross the creek! This year thousands of people visited Spirit Mound, and we engaged with hundreds of people at Spirit Mound Trust education and outreach events. We look forward to continuing to engage with you all in 2020 and beyond.

Persistent Silphiums

By Brian T. Hazlett

What a thousand acres of Silphiums looked like when they tickled the bellies of the buffalo is a question never again to be answered, and perhaps not even asked.

Aldo Leopold poses this idea in his essay, "Prairie Birthday." Those familiar with this part of *A Sand County Almanac* know that Leopold refers to the Compass Plant (*Silphium laciniatum*). If a few of the "numerous herds of buffalo... seen feeding in various directions" (as observed by members of the Corps of Discovery from atop the hill) were to graze near Spirit Mound today, their bellies would be tickled by both Compass Plants and Cup Plants (*Silphium perfoliatum*).

Whereas the two Silphiums have similar flower heads, today's Mound visitors (perhaps along the mowed path a short distance from the parking lot) can easily compare and distinguish them by differences in their leaves and stems. The Compass Plant has (as noted in *Flora of the Great Plains*) distinctive "deeply pinnatifid to lacinate" basal leaves. Some prairie visitors might even imagine these leaves, typically oriented in a north-south direction, as two-dimensional seaweeds in an ocean of prairie. The Cup Plant, conversely, has a square stem with leaves arranged opposite each other, thus enabling them to hold water. The Cup-plant also tends to grow in moister places. Leopold wrote:

The Highway Department says that 100,000 cars pass yearly over this route during the three summer months when the Silphium is in bloom. In them must ride at least 100,000 people who have taken what is called history, and perhaps 25,000 who have 'taken' what is called botany. Yet I doubt whether a dozen have seen the Silphium, and of these hardly one will notice its demise. If I were to tell a preacher of the adjoining church that the road crew has been burning history books in his cemetery, under the guise of mowing weeds, he would be amazed and uncomprehending. How could a weed be a book?

The deep-rooted Compass Plant embodies Leopold's vision of the persistence of prairie flora (often considered weeds) notably in places inadvertently protected from grazing and regular mowing—cemeteries and railroad rights-of-way. Prairie Birthday grieves a lone Silphium, perhaps the county's last, which recently lost its century-old protection due to a road project. Unlike Leopold's anonymous country cemetery, Spirit Mound's history is immediately evident. The Lewis and Clark adventure attracts visitors, yet stories of plants, ants, and prairie restoration are also portrayed. Our small signs (assuming they are accurate and sited well) assist in telling the broader story of this place.

Few grieved when the last buffalo left Wisconsin, and few will grieve when the last Silphium follows to the lush prairies of never-never land, wrote Leopold.

Bison no longer graze at Spirit Mound, yet prairie icons including Compass Plant and Cup Plant thrive. Our landmark has much to offer. In the long-term it will offer significantly

more. Whether prairies could be reestablished on land that formerly had been converted to farms was a mystery in Leopold's day. Although not complete, the science and methods of restoring prairie ecosystems have matured since his time. Mysteries remain. How prairie can be established on a site that was once a feedlot will be answered, in part, by what happens at Spirit Mound. Having asked that question, we will need the patience and persistence of Silphiums to await the answer.



Compass Plant / *Silphium laciniatum*



Cup Plant / *Silphium perfoliatum*

Spirit Mound Rattlesnake

By Stewart Hines

I met a Minnesota family descending the Spirit Mound Trail. The mother was quite animated, describing their encounter with a prairie rattlesnake. I told them that would create a sensation if it was truly a rattler. Apparently, it shook its tail tip and rose up striking at them in typical fashion. I asked their teenage boy to text me the photo they had taken, and I submitted it to iNaturalist, my iPhone nature identifier. That was inconclusive, but I hit the “Share” button to send the photo out to the “Community.” I was thinking Bull Snake, but Aaron Mayer with the SD Archeological Department in Rapid City emailed that it was a Fox Snake. The “Community” started chiming in with the same identification. Although a robust snake of up to 4 feet, the fox snake does not hunt fox or vice versa. It is named for its fox-like odor. My brother was trying to domesticate a fox years ago. It urinated on his wife’s coat. The coat could not be cleaned odor free. The fox was released. So there you go.



Fox Snake at Spirit Mound

Black Swallowtails at Spirit Mound

By Mark Wetmore

The article to the right is a slightly condensed version from the 2011 Spirit Mound News. We are reprinting it in honor of the 2020 Spirit Mound black swallowtail pin. The butterflies are still at the summit. One can imagine they’ve been there for thousands of summers, and hope, with the help of all the readers of this newsletter who support the Mound, that they will be there for thousands more.



Photographs by Mark Wetmore

Black Swallowtail Butterfly

Hilltopping Butterflies on the Mound

By Mark Wetmore

The next time you climb Spirit Mound in the summer, watch for a large black butterfly with yellow markings, at the summit. Very often, there is a black swallowtail (*Papilio polyxenes asterius*), usually just a single individual, flying back and forth or resting at the top of the hill. Google the term *hilltopping* and numerous references come up. The best short discussion is this:

Many butterflies and other insects fly to hilltops in order to mate. Hilltopping is in many aspects similar to lek behavior shown by many birds. It is believed to increase the mating efficiency of individuals... (Though) it is not obvious why hilltops would become rendezvous points for any species. It has been noted that these sites generally do not contain food resources for adult butterflies, nor are they locations where females emerge, lay eggs, or even rest. There are only males waiting to mate.

(<http://lepidopteraresearchfoundation.org/journals/PDF29/29-134.pdf>)

So resist the temptation to imagine the black butterflies as familiars of the little spirits, and enjoy the phenomenon of the hilltopping black swallowtails on Spirit Mound.

Fall Picnic and Hike at Spirit Mound

By Norma Wilson

On the cloudy afternoon of September 8th around twenty-five people from the Vermillion, Yankton and Sioux City area enjoyed a generous potluck picnic provided by the members of Spirit Mound Trust. While eating the delicious homemade salads, main dishes and desserts we got to know each other better, and that afternoon we gained several new members.

After the meal our President Meghann Jarchow and members Brian Hazlett and Dan Peterson spoke to us. Then we set off to hike along the trail to see the flowers still in bloom and to learn about the flora, fauna, history, management, culture and preservation of the Mound area. Volunteers were stationed at various points along the trail to share their knowledge and skills: Molly Rozum (history), Mark Wetmore (ants), Dave Swanson (birds), Tom Schoening (video), Mike Greiner (photography), Brian Hazlett (plants) and Dan Peterson (National Park Service).

Board member Dianne Blankenship describes it best: "I simply enjoyed meeting so many people as I was the person officially accepting new memberships and membership



Picnic at Spirit Mound

renewals along with selling the pins. There was such a nice mix of people who had never been involved at the Mound, plus those who have cared about it for so long, and it was wonderful that some of them lived so nearby and through this event became members and acquainted with so many natural and historic aspects of the area."

Monarchs Again

By Mark Wetmore

Mound supporters may get tired of hearing about monarch butterflies. It's true that they're a popular topic now, and unfortunately, our efforts to restore a monarch meadows in the low-lying west-central area of the site are very slow to succeed.

But monarchs are beautiful, gentle, iconic creatures. Spirit Mound is a wonderful breeding ground and refuge for them. Four different species of milkweed, necessary hosts for monarch caterpillars, grow there; especially a large population of their most preferred, the common milkweed. And many late-blooming wildflowers, including various sunflowers and several different asters, serve as crucial sources of nectar for the migrating butterflies.

In fact, the combination of flowers and the sheltering trees near the parking lot, have created an idyllic layover spot for migrating monarchs.

Visit the area in late afternoon on a sunny day, from mid-August through September. The asters and sunflowers host hundreds of monarchs. Then rest at the picnic bench as the sun begins to set. One by one by maybe a couple at a time, the monarchs, gently, gradually, like fairies in a Disney movie, flutter from the flowers to the trees, where they roost in groups during the night.



Photograph by Mark Wetmore

Monarchs over asters

Facts and Figures about Spirit Mound Historic Prairie

By Mark Wetmore

Joyce Harrell, former Vermillion resident and long-time Mound supporter, suggested that a summary of Spirit Mound facts and figures would be appropriate for the newsletter. So, Joyce, here they are:

- five miles north of the Vermillion Hwy 50 by-pass, on SD 19
- one-half section, 320 acre site
- west one-half, section 14, Spirit Mound Township, Clay County, SD
- co-ordinates 42°52'29"N, 96°57'31"W
- land form shaped by the last glacier about 15,000 years ago
- summit 1,308 feet above sea level
- approximately 90 feet above the surrounding farm land
- visited and documented by Lewis and Clark, August 25, 1804
- purchased by South Dakota in 2001
- owned by the Parks Division of SD Game, Fish & Parks
- designated an *Historic Prairie*, the only one to date in South Dakota
- no hunting or trapping allowed
- parking lot to summit trail, 3/4th mile, one way
- estimated 21,200 visitors in 2018

How many frogs can you find in this photo by Spirit Mound Creek?



September 4, 2019

Photograph by Mark Wetmore

Spirit Mound Pins

In 2016 Spirit Mound Trust started offering collector pins. The first series of pins honored migrating birds returning to the restored prairie habitat.

The first pin in 2016 was the *Bobolink*. A limited number are still available.



The second pin was the *Northern Harrier* in 2017.



Followed the third and final bird pin in 2018 the *Upland Sandpiper*.



A New Series Has Been Added

The new series of pins showcase the beauty of the butterfly that inhabit the area around the mound.

The first pin in the new series is the 2019 *Monarch* Butterfly



Today we are excited to announce the addition of the *Black Swallowtail* Butterfly for 2020.



The 1" by 2" hand painted enamel pins cost \$10 each, plus \$4 shipping for one, or \$5 shipping for two or more pins.

To order the pins, you may use the for on the back of this newsletter, or the pin(s) may be purchased and/or picked up at Pressing Matters, 102 East Main Street, in downtown Vermillion. If you email to info@spiritmound.org, we can arrange pickup or delivery.

Observations from the Mound Caretaker

These photos were taken by Stew Hines. He works for the SD Game, Fish and Parks Service. He has been cutting trees and taking care of the Mound since late summer.



Many 'groves' of Chinese Elm and Cottonwoods have been cut down this fall on the North Slope.



The bucks have been rubbing antlers throughout the park. Often there are sleeping spots of pressed down grasses for 1 to 6 deer. Pheasants are also abundant. A covey of partridge have taken residence on the southeast side.



A Niobrara Chalk stone that has rolled down the mound and has landed against a small tree.



Dogs mark their territory with urine and usually at the beginning of the trail. These droppings are from coyotes and fox. They leave their droppings in conspicuous locations, and are smaller and darker (blood in food) with hair and grass.



Burrows are common. This large burrow is from a coyote. A woodchuck has been seen this summer running across the trail on the west side of the park.

Breakfast with the Birds at Spirit Mound

By David Swanson

Join us for a morning bird walk at Spirit Mound this coming spring at 7-10 am on Saturday, May 2, 2020. Early May is nearing the peak of spring migration for grassland birds through the region and this trip at Spirit Mound will introduce participants to the variety of grassland birds migrating through southeastern South Dakota and provide tips on how to indentify them. The trip will be led by Dr. David Swanson, Spirit Mound Trust Board Member and Professor of Biology at the University of South Dakota. David is coauthor of Birds of South Dakota and author of Birder's Guide to South Dakota. A variety of granola bars and breakfast bars will be provided, but bring your own water or coffee.



David Swanson viewing the birds at Spirit Mound

Sunsets at the Mound



Vernal Equinox

Photograph by Mark Wetmore



Sunset

Photograph by Paul Peterson

Mound Membership

Spirit Mound Trust membership is \$10 per year. Additional donations, as well as the purchase of Bird Pins and the Ron Backer prints are welcome. All donations are tax deductible.

Your support helps to develop a better, more diverse historic prairie and fund other programs to make the Mound a more interesting place to visit. Our address is P.O. Box 603, Vermillion, SD 57069. If you live in the Vermillion area and would like to avoid shipping charges on the pins, send an email to info@spiritmound.org to make arrangements.

Thank you for your support.

Spirit Mound Trust Board of Directors

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Spirit Mound Trust

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On August 25, 1804, William Clark wrote in his journal—

“The regular form of this hill would in some measure justify a belief that it owed its origin to the hand of man; but as the earth and loose pebbles and other substances of which it was composed, bore an exact resemblance to the steep ground which border on the creek in its neighbourhood we concluded it was most probably the production of nature—.”

Today, more than two hundred years later, Spirit Mound remains a natural wonder.

Spirit Mound Historic Prairie Membership Renewal and Order Form

Spirit Mound Trust membership is \$10 per year. Additional donations are welcome, and all are tax deductible. Your support helps to develop a better, more diverse historic prairie and fund other programs to make the Mound a more interesting place to visit. If you live in the Vermillion area and want to avoid shipping charges on the pins, send an email to: info@spiritmound.org to make arrangements. Please join us:*

Please add my name to the 2020 membership roll of the **Lewis and Clark Spirit Mound Trust**. I enclosed my check for \$10 (tax deductible*). Members will receive our newsletter. Additional contributions are welcome.

Name _____

Address _____

City _____

State _____ Zip _____

Phone/email (Optional) _____

*Tax exempt 501 (c) (3) organization (No 93-0921345)

Please send me the following:

___ Ron Backer print \$100 ea	\$ _____
___ 2016 Bobolink Pin \$10 ea	\$ _____
___ 2017 Harrier Pin \$10 ea	\$ _____
___ 2018 Sandpiper Pin \$10 ea	\$ _____
___ 2019 Monarch Butterfly \$10	\$ _____
___ 2020 Black Swallowtail Butterfly \$10	\$ _____
+ \$4 shipping for 1 pin / \$5 for 2 + pins	
Shipping on pins	\$ _____
Membership \$10 form on the left	\$ _____
Total Amount Enclosed	\$ _____

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*Thank
You!*