

# Spirit Mound Trust News

P. O. Box 603 | Vermillion, SD 57069 | info@spiritmound.org | www.spiritmound.org | December 2023

## Spirit Mound: A Small Park with a Lot to Offer

By *Meghann Jarchow*

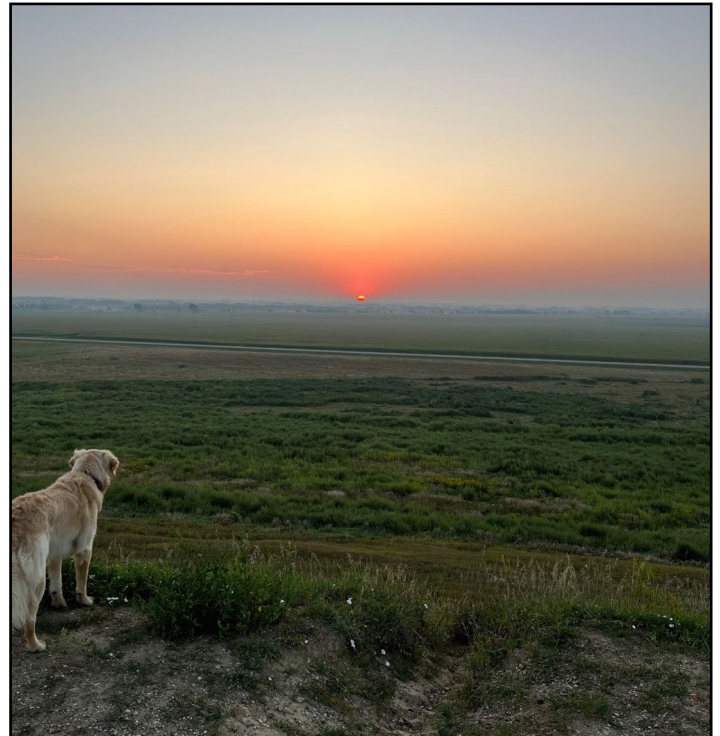
As an educator, I often think about the educational opportunities that different places provide. There is so much that Spirit Mound can teach us about geology, ecology, history, culture, and spirituality.

I use Spirit Mound to talk about the geology of the region starting from ~100 million years ago when our region was under a large, inland ocean. Before the final climb to the top of Spirit Mound, there is some exposed yellow-ish rock—

Niobrara chalk that was formed from the tiny marine organisms that lived in this ocean during the time of the dinosaurs. Earlier on the trail, there is a large Canadian rock that hitched a ride to Spirit Mound within the glaciers from ~20,000 years ago. From the top of Spirit Mound, we can see the Loess Hills, which formed when wind blew the “glacial flour” of ground-up rock produced by the glaciers, to the east and created jagged hills above the glacially flattened landscape surrounding Spirit Mound.

Spirit Mound offers many teachings about ecology. I think it is a little easier to imagine the expansiveness of the tallgrass prairie of the past when standing at the top of Spirit Mound. There we can imagine the “Buffalow & Elk feeding upwards of 800 in number” that Captain William Clark described seeing from the top of the Mound. In addition to enabling us to imagine the prairie of the past, the 320 acres of prairie that we have today is impressive because it is difficult to find hundreds of acres of continuous tallgrass prairie on land that is suitable for crop production, and Spirit Mound spans the range from wet to dry prairie areas. The Spirit Mound Creek and the ephemeral wetland at the north part of the site support plants and animals that need wet conditions. Mesic plants that require a moderate amount of moisture grow in the flat areas of the prairie, and dry-adapted plants are more common on the Mound. Spirit Mound allows us to see and do restoration ecology—from cutting young trees throughout the site to reseeding the prairie near the creek to the ongoing 20-year work of establishing prairie on a former feedlot.

I am not especially knowledgeable about the human aspects of Spirit Mound’s history, culture, and spirituality, but I enjoy continuing to learn more about these topics. Because it exists at such a geologically unique location (e.g., southern edge of a glaciated area, close to the longest river in



Viewing the sunrise atop Spirit Mound.

(Photo by Dan Christopherson)

the United States, surrounded by multiple eco-regions), Spirit Mound was known and likely visited by many different Native American tribes who lived in the region over the previous millennia. Different Native American people had—and still have—a range of beliefs and values regarding Spirit Mound as a place of cultural and spiritual significance. Stories about spirits at Spirit Mound that were told to Captains Meriwether Lewis and William Clark near Council Bluffs drew the two most famous visitors to the Mound. Clark wrote in his journal that it was said to be a place inhabited by little “deavels... in human form with remarkable large heads, and about 18 inches high.” On 25 August 1804, Lewis, Clark, and some of their crew visited Spirit Mound, which is the source of the earliest known written record of the site. Rather than spirits, Clark saw “a large assemblage of birds,” as well as the animals mentioned earlier.

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In 1868 Nathan Hixson homesteaded on the north half of the Mound. By the end of that century, multiple settler families had lived there. In the 1870s, the Spirit Mound Baptist Church was built on the northwest corner of the section, and after the building was abandoned, it was used as a schoolhouse. Once the township was formally organized, it served as Spirit Mound Township Hall.

As in the past, Spirit Mound still builds community, although in a different way than before. It has become an icon of Vermillion and Clay County. Images of the Mound visible throughout the surrounding community bring people together

to learn about this place. In the past year, Spirit Mound has hosted more than a dozen groups to do star gazing, prairie management, professional development, formal and informal educational experiences, historical reenactments, and visitor tours. If you have a group wanting to learn more about any of the topics described in this newsletter, let us know at [info@spiritmound.org](mailto:info@spiritmound.org).

We—The Spirit Mound Trust Board members, SD Game, Fish and Parks staff, and Missouri National Recreational River staff—are happy to share our knowledge about Spirit Mound.

## Spirit Mound in Review, and a Look Forward

*By Jason Bauman, District Supervisor, SD Game Fish and Parks*

As with every year 2023 brought new challenges and opportunities for Spirit Mound Historic Prairie. We were still in recovery from the spring fire in 2022 at the start of this year, but we caught up quickly. The insurance claim finally came through, and we were able to get the shed repairs done thanks to staff from Newton Hills State Park and Adams Homestead. They made the repairs, and the shed looks as good as new! At the same time we were putting the finishing touches on the shed, we welcomed Bill Ranney back as a seasonal worker, and Geoffrey Gray-Lobe joined our staff. In hopes to get some more natural resource management work done it was necessary to have two part-time employees. We made some headway in controlling the weeds and tree removal off the prairie, but the job is never done. The list is still long for next year when we hope to put more hours into managing the prairie. Now that the training for the job is out of the way, I'm confident that we can make some strides.

We worked on some exciting projects over the year. The steps at the last bit of trail going to the top were a bit over-built and awkward, so people had walked along side of them creating soil erosion. We replaced them, and hope the new steps will allow water to be absorbed by the landscape and will be more comfortable for people so that they will avoid creating a side path. A project we tackled late in the summer was a new trail bench on the west side of the Mound. The location allows for a nice rest before you reach the top and gives you time for reflection and an amazing sunset if you're there at the right time.

As this season is winding down, it's time to look ahead to the next year. To continue trail maintenance, I hope to replace the bridge with a slightly longer one with gradual approaches. This would make the trail more stable, minimizing soil erosion and trip hazards. With two seasonal staff persons, I hope we



Spirit Mound Trust management meeting, July 12, 2023  
(Left to right) William Ranney, Meghann Jarchow, David Swanson,  
Jason Bauman, Patrick Gross and Mark Wetmore .

(photo by Norma Wilson)



can gain some ground on the weed control, mowing, and sapling tree removal. We are in the process of getting new soil samples of the old feed lot/ag field to help us determine what is preventing the growth of native plants. We will use this data to develop a plan to reconstruct this area back to prairie. This will be part of the natural resource plan that we will be developing over the winter to better guide us in managing the prairie. We will identify management goals, techniques, time frames and a multiyear approach that will be interactive and updated at end of each year.

I'm sure next year unforeseen issues will pop up at the prairie. We will adjust and continue to do the best we can to preserve the place that allows you to put yourself back in time by walking on the site where Lewis and Clark once stood.



Seasonal Employee Geoffrey Gray-Lobe

## Clay County Solar Zoning Ordinance Being Developed

By Pat Gross, Mark Wetmore and Meghann Jarchow

Multiple solar development companies have explored land in Clay County for potential solar projects, up to 2,000 acres in size, and land around Spirit Mound has been an area of interest because of its proximity to the Spirit Mound peaking station that generates electricity during periods of peak demand. Clay County currently does not have zoning guidelines for utility-scale solar farm development.

Members of the Spirit Mound Trust Board strongly support solar energy production as a renewable source of energy. We, along with the National Park Service, also support a utility-scale solar zoning ordinance that considers the unique and significant viewshed of Spirit Mound. *Our position in no way reduces the likelihood of solar development in Clay County.*

The Clay County Planning Commission may send a solar zoning ordinance recommendation to the Clay County Board of Commissioners by the end of 2023, possibly after their December 18th meeting and public hearing. The current draft of the ordinance would create a 125-foot setback from Spirit Mound, whereas the Trust and National Park Service recommend a 2-mile setback. Once the solar zoning ordinance recommendation is sent to the Board of Commissioners, they will consider it and solicit public input before developing the final ordinance. All interested parties are encouraged to attend the Board of Commissioners meetings to provide their input about the ordinance.

## Mary's Bench

When Mary Stewart passed away early this year, her family dedicated memorials to the Mound. This fall Parks staff installed a custom built bench in her memory, made by Bow Creek Metal in Yankton. From the bench you can see the Hood homestead less than a mile away, where Mary and her sisters visited their grandmother most Sundays, and often walked with cousins to the Mound.



# Eastern Meadowlark – A Recent Addition to the Spirit Mound Bird List

By David Swanson

Eastern Meadowlarks (*Sturnella magna*) are a bird of eastern North American grassland, pasture, and savannah habitats. Their range occurs from Maine, west through southern Ontario and the Great Lakes states, to west-central Nebraska, and south to the Gulf Coast and eastern Mexico. Historically, this species was exceedingly rare in southeastern South Dakota. For example, no Eastern Meadowlarks were recorded during extensive bird surveys of Spirit Mound during the breeding seasons of 2003 and 2013. Indeed, Eastern Meadowlarks were very rare in all of eastern South Dakota prior to about 2017, when observations began to increase in the southeastern part of the state. Since 2017, Eastern Meadowlarks have been observed in the arc of southeastern counties in South Dakota, from Bon Homme to Lincoln, during the late spring and summer. Multiple individuals now occur regularly at several sites in Clay and Union counties, including Spirit Mound. This past summer, up to six individual Eastern Meadowlarks could be heard singing from the trail on a hike to the top of the Mound, suggesting that the species likely breeds here now. Reasons for this expansion of the range of Eastern Meadowlark into southeastern South Dakota are currently unknown but could potentially involve changes in temperature and precipitation associated with climate change.

Eastern Meadowlarks look very similar to Western Meadowlarks (*Sturnella neglecta*), and Western Meadowlarks are still the common meadowlark species in South Dakota, including the southeastern part of the state. So, how do you tell an Eastern from a Western meadowlark? There are several subtle visual features that you can use to tell the two species apart, but these traits vary within each species, so vocalizations may be the best method for distinguishing the two species. Nevertheless, I'll provide a few tips for visual identification. One thing to look for is the relative darkness of the crown stripes. In Eastern Meadowlark, the stripes bordering the pale crown on the top of the head are relatively darker and in more contrast with the pale stripes on the crown and above the eye than in Western Meadowlark. The cheek area also tends to be whiter and less streaked with dark on Eastern than on Western meadowlarks. The yellow of the throat on Eastern Meadowlarks tends to stay restricted to the throat area, while on the Western Meadowlark, the yellow of the throat typically bleeds up onto the whitish malar streak (i.e., the pale stripe extending from the base of the bill toward the back of the neck). Finally, Easterns tend to show slightly more white in the tail of flying birds than Westerns. These differences are subtle and require a good view to see well, so the best way of distinguishing the two species involves vocalizations.

Songbirds, like meadowlarks, typically give two major types of vocalizations. Songs are relatively long and complex



vocal displays with specific repeated patterns and usually serve mate attraction and territoriality functions. Calls are short, simple, vocalizations that function in maintaining contact with other individuals, parent-young relations, or predator avoidance (alarm or distress calls). Both songs and calls differ between Eastern and Western meadowlarks, although songs of the other species can be learned by the opposite species, so a single song may not be completely diagnostic.

Nevertheless, repeated species-specific songs by a single individual are a pretty good clue to its identity. So how do the vocalizations differ? The familiar Western Meadowlark song is described as a rich, descending warble of several notes. In contrast, the Eastern Meadowlark song is a series of simple, clear whistles, with many variations. The common calls are a short, low, staccato chuk, for Western Meadowlark, and a sharp, buzzy dzzert for Eastern Meadowlark. Both species will also give a rattle call, so that call is less useful for telling the two species apart. A good website for listening to the different songs and calls of the two species is the Cornell All About Birds website at <https://www.allaboutbirds.org/>. Given these differences in vocalizations between the two species, make sure the next time that you are hiking up to the top of Spirit Mound from late April through summer, that you listen for the clear, whistling call of Eastern Meadowlark, a new breeding-season resident of the Mound.

# How Native Plants Sustain Biodiversity and Ecosystem Health

By Coral Huber

Restoring and reconstructing the prairie at Spirit Mound has tremendous benefits for sustaining biodiversity and ecosystem health. Native plants, the flora that naturally occur in a specific region and have evolved over time to adapt to local environmental conditions, play a crucial role in maintaining the health and balance of ecosystems. As human activities continue to impact the environment, understanding the importance of native plants becomes imperative for conservation efforts, biodiversity maintenance, and overall ecological resilience.

Native plants are the foundation of biodiversity in any given ecosystem. They provide the necessary habitat and food sources for a myriad of organisms, including insects, birds, mammals, and fungi. Numerous articles in our previous newsletters describe many of these organisms. A diverse range of native plant species supports a variety of life forms, contributing to the richness and complexity of an ecosystem.

Over centuries, native plants have developed unique adaptations to local climate, soil, and other environmental factors. These adaptations make them well suited to withstand natural challenges, such as droughts, floods, and pests all of which we have experienced since our first efforts to restore prairie at the Mound. The resilience of native plants contributes to the overall stability of ecosystems, especially in the face of changing environmental conditions.

Native plants play a vital role in preventing soil erosion. Their deep root systems help bind soil particles together, reducing the risk of erosion caused by wind and water. Areas



Chokecherry blossoms

(Photo by Norma Wilson)

at the mound experiencing significant erosion have benefitted from the return of native prairie plants. Additionally, native plants contribute to soil health by promoting microbial activity and nutrient cycling. The presence of native vegetation helps maintain the fertility and structure of the soil.

Native plants are often more adapted to the local water conditions, requiring less precipitation than do non-native or invasive species. The continued drought in our region has made reestablishment of prairie species at the Mound difficult, but once established they do persist. Their ability to thrive with minimal water is not only environmentally sustainable but also helps to conserve water resources, a critical consideration in regions facing water scarcity.

Native plants have co-evolved with local pollinators, forming intricate relationships that are essential for both plant reproduction and the survival of pollinator species. Bees, butterflies, and other pollinators depend on native flowers for nectar and pollen for food, and on native plant material for egg laying and larval foraging, highlighting the interconnectedness of these species in maintaining healthy ecosystems.

Native plants often hold cultural significance for indigenous communities. They are deeply intertwined with local traditions, providing not only practical resources but also a sense of identity and connection to the land. Moreover, many native plants contribute to the aesthetic beauty of natural landscapes, enriching our surroundings with unique colors, shapes, and textures in all seasons.

The importance of restoring and reconstructing of the prairie with native plants at Spirit Mound cannot be overstated in the context of preserving biodiversity, maintaining ecosystem health, and promoting sustainability. As we face the challenges of climate change, habitat loss, and environmental degradation, the conservation and restoration of native plant species become a critical component of efforts to protect the natural world. By recognizing and respecting the value of native plants, we take a significant step towards ensuring a harmonious coexistence between human activities and the intricate web of life that depends on these vital components of our ecosystems.



Butterfly Milkweed seed pods

(Photo by Coral Huber)

# Review of On Common Ground

By Jeff Wesner

In statistics, one of the hardest things is to understand undulating data: the rolling, irregular dots you might see in daily rainfall, or in political polls as fortunes rise and fall. The problem is that statistics are built around lines, not curves. What do we do with that? One solution is to use “locally estimated scatterplot smoothing,” better known as a LOESS curve (pronounced “low ess”). It slices the curves into little lines and works out the line equation to each one. Then it pieces them back together. If you step back and squint, all the little lines together look like a curve. Then we can start to make sense of the undulations.

In *On Common Ground* (Ice Cube Press, LLC, 2023), a group of scientists, artists, musicians, conservationists, writers, and theologians try to make sense of a different sort of undulation and a different sort of LOESS. Twelve thousand years ago, retreating glaciers left deposits of fine silt. The silt dried and was picked up by wind. It fell again to form what we now call the Loess Hills (pronounced “luss”) in western Iowa. Human remains as old as 6,000 years have been found there, with other ancient and not-so-ancient settlements continuing since then.

To discover why the Loess Hills continue to draw us in, the group spent a weekend there learning about the management of this fragile ecosystem. Their experiences (prairie burns, bison close-ups) are captured in essays, art, photography, and poems (nicely edited by Ryan Allen and Spirit Mound Trust Board member Brian T. Hazlett). The stories that emerge are as varied as the topography.

The Loess Hills inspire Patrick Hicks to ponder the parallels of colonialism that his family experienced in Ireland to that faced by Indigenous peoples in North America. Spirit Mound Trust Board Member Norma Wilson, in one of several poems, highlights the uniqueness of the Loess Hills: the only other landform like it is in Shaanxi China.

John T. Price’s “Rabbit on Fire” is a rapid-fire series of engaging vignettes. In one paragraph we learn that a member of Lewis and Clark’s expedition called the Loess Hills “the beautifulest...I ever saw” (the Hills were proposed as a National Park forty years before Yellowstone). In the next paragraph a monarch butterfly rises from the smoke of a prairie burn, perhaps to its destination in Mexico, where a grieving mother learns that the monarchs are thought to be “the returning spirits of lost children.”

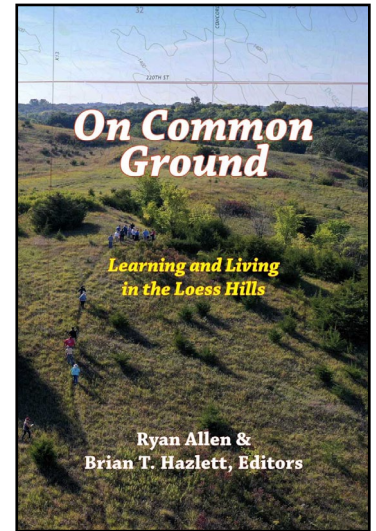
I had heard of the Loess Hills before, but that was it. I couldn’t tell you what they were or where they were. When I consider “Nature,” my mind is always in the mountains of Colorado. Several of the essays echo this easy dismissal of local splendor. William M. Zales writes, “Why Iowa? Why the Loess Hills of all places?” Jim Helfer confesses that he “hasn’t thought of the prairie as wilderness since leaving it as a teenager.” Cornelia F. Mutel recounts her surprise when, upon moving to Iowa, she was asked to write a book on this

glacial silt remnant she had never heard of. It became the popular *Fragile Giants: A Natural History of the Loess Hills*, sending her career, and friendships, on a new path.

This collection is a reminder of how important places like the Loess Hills (or Spirit Mound) are. Each attendee, likely with varying degrees of initial enthusiasm, left with a creative thought that perhaps had not been there before. It is that inspiration, expertly documented here, that placed the Loess Hills on my “must visit” list.

I did not expect to enjoy this book as much as I did. I also did not expect to find, among so many fine writers, a shining gem. When reading Melanie Krieps Mergen’s poem “Sugar-Clay,” I scribbled in the margins: “atom recycling,” “ancient carbon,” “so good,” “love.” Those were quick reminders to remember how honestly the poem moves from a “speck of that sediment” to “Why don’t you love me anymore?”

The ancient silts of the Loess Hills sit still, nesting in the roots of prairie grasses. They have stood against the freeze, the thaw, the flood, the plow. Perhaps the silt thinks the bison rumbling above never faced extinction. They just left for a century-long migration. Members of *On Common Ground* know the fragility of these fragile giants. They know the risks they’ve faced. They know the risks to come. They also know the inspiration that remains, as Mergen writes, “Yes, we are dying. But today, let’s delight.”



*On Common Ground*



One of the Tibetan monks who visited Vermillion in early autumn viewed Spirit Mound with Tim Schreiner. The spiritual aspect of Spirit Mound resonates with Buddhist monks and their view of nature and spirituality.

(Photo by Tim Schreiner)

## BURNING TO COOL

By Norma Wilson

*When I was a child  
I dreamed of digging  
a hole in the Earth,  
clear down to China.  
I soon learned there was  
so much heat at  
our planet's center,  
there would be no way  
to get there,  
but before I read about  
the Loess Hills,  
I had no idea  
that the only other place  
where fragile giants like them  
had been shaped  
by rivers and winds  
was on the other side  
of our planet  
in Shaanxi China.*

*When I saw the Hills up close,  
I marveled at their cat steps,  
like the ribs winds sculpt in snow  
on the north bank of the Missouri.  
Like the water and wind,  
we humans shape our places  
and are shaped by them.*

*Following the fire in my mind,  
I cherish our work.  
Though slow to ignite,  
the grass caught fire,  
burned toward the center,  
and left the oval black.*

*Our burn may boost little bluestem  
and other grasses and forbs,  
but there will always be more work  
to be done for our Earth, hands on.*

From *On Common Ground*, ed. Brian Hazlett  
and Ryan Allen (Ice Cube Press, 2023)

## Spirit Mound Trust Board of Directors

Meghann Jarchow, President  
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Molly Rozum, Treasurer  
Norma Wilson, Newsletter Editor  
Patrick Gross, Brian Hazlett,  
Mark Wetmore, and Coral Huber

## Spirit Mound Pins

Spirit Mound Trust collector pins available.  
Start your collection today.

### The Bird Series

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*.



### The Butterfly Series

This series of pins showcase the beauty of the butterfly that inhabit the area around the Mound.

The first pin in the series is the 2019 *Monarch*.



The second pin added in 2020 to the series is the *Black Swallowtail*.



Added in 2021 to complete the series is the *Regal Fritillary*.



Ron Backer 24.5 x 22  
prints are still available

To order the pins or print, use the form on the back of this newsletter. Email: [info@spiritmound.org](mailto:info@spiritmound.org) to make arrangements for local pickup and avoid shipping costs.

# Spirit Mound Trust

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Vermillion, SD 57069

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Bird Feeder at the Mound photo by Mark Westmore

## 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](mailto:info@spiritmound.org) to make arrangements. Please join us:*

Please add my name to the 2024 membership roll of the **Lewis and Clark Spirit Mound Trust**. I enclosed my check for \$10 (tax deductible\*). Members will receive our newsletter.

Name \_\_\_\_\_

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Phone/email (Optional) \_\_\_\_\_

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

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| + \$4 shipping for 1 pin / print or<br>\$5 for 2 + pins / print | \$ _____ |
| Membership \$10 form on the left                                | \$ _____ |
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*Thank  
You!*