

Spirit Mound Trust News

P. O. Box 603 | Vermillion, SD 57069 | info@spiritmound.org | www.spiritmound.org | December 2020

The Gift of Special Places

By Meghann Jarchow

One of my former students, Emily Roberson, created a new word: *placefulness*. She defines placefulness as the practice of expanding one's understanding of and relationship to the built, historic, natural, and cultural environment of a place. She sees placefulness as "helping us all to fall in love with the places that define us."* Spirit Mound plays an important role for me in my placefulness.

This year has been an anomaly in most of our lives: 2020 – the year of the pandemic. We have not been able to gather with our friends and families as we normally would. With these restrictions has come a silver lining – we have had more time for placefulness. From our backyards to national parks, many people have explored places in ways that they had not in the past. As Jason Baumann, District Supervisor for Spirit Mound, notes, an estimated 44% more people have visited Spirit Mound so far this year than last year.

Spirit Mound is a special place for many of us and for many different reasons. In 2019, we put a journal in a box at the top of Spirit Mound and invited people to put comments or reflections in the journal.** The people who wrote in the journal were from all over – our area, near and far states, and other countries and continents. Most of the entries were in English, but some were not including children's scribbles, drawings and artwork, and offerings in other languages. Many people described the connection that they felt to nature when they were at Spirit Mound. "There has always been a sense of peace, tranquility, and love in this spot. Being one with the land, wind around this sacred spot." Others described how Spirit Mound provides opportunities to be in our bodies. "The rustling of the grasses gives the perfect opportunity to quiet your mind and enjoy the world around you." People noted the tension inherent in this place. "Wanted to honor the land my ancestors stole so many years ago and today still. Beauty and frustration in tandem." The Mound was a place to reminisce – "Reminds me of late nights laying here watching the stars and listening to the coyotes howl in the distance," – and mourn "I needed a place to just sit... offer up prayers on behalf of my son, and know that it is going to be OK," – and reset "Spirit Mound gave me a place to run away to today... I needed space, fresh air, an open place to think and get rid of the bad." People felt the presence of God and the Creator.



Photo by Mark Wetmore

"As the sun sets, I reflect on God's awesomeness and beauty. I feel His presence here." Children brought their enthusiasm. "I had the best day of my life! We brot some milkweeds to the top and let them go! I love this plase." Many appreciated the opportunity to spend time with their dogs, children, and relatives. Multiple people also commented on one of Spirit Mound's conspicuous attributes – the wind!

Just as the pandemic has differentially affected us all – tremendous losses for some and inconvenience for others – I encourage us to remember that Spirit Mound may offer something different to each of us. Although our relationship(s) with this place vary, one commonality among us is the importance of special places like Spirit Mound in our lives.

*You can sign up for Emily's newsletter about placefulness at placeful.substack.com.

**We did not put out the journal in 2020 since it would have been shared among people.

Stories in the Stomach of a Fish

By Jeff Wesner

In 1926, Louella Cable completed the first master's thesis in Zoology at the University of South Dakota. Her topic was the food of Black Bullheads (*Ameiurus melas*). If you're not familiar with bullheads, you're not alone. In 2012, a measly 0.1% of anglers in Minnesota admitted that they targeted bullheads, members of the catfish family whose length rarely exceeds 8 inches.

But when Cable published her thesis, she had little trouble explaining a need to study bullheads. In 1926, 1.3 million pounds of bullheads were harvested from South Dakota, making them the most popular recreational and commercial fish in the state (the next most popular fish, buffalo fish, yielded only 293,000 pounds). Much of that catch was shipped east to markets in Chicago, where it sold for 15 to 20 cents per pound.

While the commercial heyday of bullheads is gone, you can still catch a glimpse of them in Spirit Mound Creek. In a 2019 study, our team from USD collected 14 fish species from Spirit Mound Creek, a surprisingly high number for a creek that is only 4 feet wide and a few inches deep. In addition to bullheads, other common fishes were Creek Chub, Johnny Darter, Bigmouth and Smallmouth Buffalo, Green Sunfish, Common Shiner, Fathead Minnow, and Central Stoneroller.

Like Cable, we wanted to know what their diets were. We knew that most of them ate insects, and that the most common insects in their stomachs were probably midges (Chironomidae), a diverse family of minute insects that look like mosquitos but don't bite. Our bigger question was related to how nature maintains its biodiversity- *How can so many fish co-exist on that single type of food?*

One answer is that there are a lot of midge species, so maybe each fish eats a different species. That is what ecological theory would suggest, since a common rule in ecology is that two species that share the same diet cannot co-exist. But the answer we found was different. Instead of simply partitioning the midges by species, these fish fed on different life stages of the midges. Some fish, like Johnny Darters, ate larval midges that develop on the creek substrate. Other fish, like Common Shiners, ate pupal midges that rise through the stream before hatching as adults and flying from the surface. Most fish, like Creek Chubs and bullheads, ate a mix of larval, pupal, and adult stages of insects. Eating different prey life-stages is one way to explain how so many types of fish can eat the same food but still live in such a small stream.

Our study was funded by the National Science Foundation and led by Abraham Kanz, then a graduate student at USD (now a Ph.D. student at Oklahoma State University). Using low-tech gear under a hot summer sun, we saw what the fish were eating by flushing their stomachs with a squirt of water before releasing them back to the stream unharmed. Nearly all fish had midges in their stomachs.

A threat at every turn. That is how it must feel for the



Black Bullhead Catfish caught by USD researchers in the summer of 2019.

midges and other aquatic insects in Spirit Mound Creek. Aquatic insects live most of their lives in the water, feeding on tiny prey while avoiding hungry mouths of less tiny fish. If they're lucky (most aren't), they'll hatch from the surface and live as winged adults. But they won't live for long. Some adult aquatic insects, like dragonflies, can live for days or weeks and feed on other insects before mating. But most adult aquatic insects can't feed. They might live for only a day, looking for mates and waiting for the energy reserves they attained as aquatic larvae to run out. The females will lay eggs in the stream, starting the cycle over.

You've probably seen the mating dance of these insects. They appear as small clouds. Swarming hordes. Chaos above water. The birds at Spirit Mound also watch these hordes, swooping to grab an easy meal. For many of those birds, adult aquatic insects are irresistible small packets of high-quality food. Distracted food.

For an ecologist, a single insect in the stomach of a single fish does not just represent data. It represents a story of linkages- between life in the water and life on land, life in the prairie and life in the mountains, life in South Dakota and life in the world. It's an infinite loop, but ink and attention spans are finite.

I need to stop this essay.

But here's one last story...at Spirit Mound Creek we also collected young fish called Smallmouth Buffalo. Those fish won't remain in the creek for long. They'll grow over the summer and return to the larger tributaries and to the Missouri River. Their parents brought them here for safety in the spring but are now back in the bigger rivers. A few years ago, researchers at North Dakota State University discovered that Smallmouth Buffalo can live for up to 120 years, making them the longest living freshwater fish in the world. We don't know who the parents of these young fish were. It's possible, just possible, that they once swam in Spirit Mound Creek as young fish 100 years earlier. It's also possible that they heard the rush of a seine net from a young biologist. Like us, she was searching for the stories that awaited her in the stomach of a fish.

Astronomy at the Mound

By Nick Lamkey

Since I moved to South Dakota I've found few astronomy spots better than Spirit Mound. There's little light pollution, a parking lot to set up a telescope and a high vantage point on top of the mound. This year a particularly exciting event occurred on March 27th when comet NEOWISE (C/2020 F3) was discovered by NASA's Near Earth Object Wide-field Infrared Survey Explorer (NEOWISE).

Neowise was the first comet in years to be visible by the naked eye and even more so with binoculars or a telescope. I was able to view the comet on the evening of July 22nd when the comet made its closest approach to Earth. It appeared as a bluish-white fuzzy ball with an impressive tail. Watching it reminded me of the 5th grade science experiment where you take dry ice (frozen carbon dioxide), water, dirt and ammonia and mix it up in a garbage bag forming a ball. The result is a gaseous dirty snowball which is a surprisingly accurate representation of what a comet is, minus a few other ingredients like methane.

As fun as that experiment is, it doesn't explain how a comet's tail forms which is really the bulk of what is observed when looking at a comet. I was only able to see one tail when I observed Neowise, but there are actually two tails that form on comets. The tails form as comets approach the sun. The ice on the surface begins to vaporize, releasing particles from the comet's nucleus. Solar radiation then pushes the particles away from the comet forming a dust tail. The second tail is formed when some of the vaporized gases released are ionized by the sun forming an ion tail.

Comet Neowise isn't due to return to earth for another

6,800 years so for those of you who didn't get to see it, Susanne Skyrms was able to capture an amazing photo. If anybody is interested in viewing the planets, moon and maybe some galaxies at the mound this coming year please send me an email at nclamkey@gmail.com.



There were clouds in the northern sky when we went out to see the comet Neowise at Spirit Mound. The sunset was beautiful, with shades of pink and orange painting the sky, and darkness descended gradually. No comet was visible for an hour after nightfall, and the spectators who had come to the area to view it gradually got in their vehicles and left. I stayed out until midnight and was rewarded when the clouds lifted enough to offer a faint sighting of Neowise. This photo is a composite of the sunset and the comet, seen at different times, but imagined as one spectacular moment—Susanne Skyrms

Man-made Structures at Spirit Mound

By Mark Wetmore

The state removed a lot of man-made structures when they cleared the Mound site in the fall of 2001. There were over 20 buildings, several farm roads, approximately 1,500 trees of all sizes, and over five miles of fence. (If we can believe the 2003 *Spirit Mound Trust News*.)

These included farm bins, out buildings, massive concrete bunker silos, and a much-modified, small house. All were cleared with historical preservation authorities and I don't remember much push back at the time.

The most interesting building to go was the Baptist Church/township hall in the northwest corner of the site. It sat on about a one-acre parcel that neighboring farmer Stanley Lewison sold to the state.

According to *Clay County Place Names* (1976) the Spirit Mound Baptist Church was organized in 1896, and I imagine the structure was built at about the same time. The church was discontinued in 1919, and the building, sold to Spirit Mound Township, was used for many years as the township hall. I remember a concrete vault installed inside to the right of the door, for township papers and valuables, I guess. It was always an abandoned relic in my memory.

The print of a painting by my cousin, Paul Peterson, brought it to my mind recently. Paul grew up not too far away, and was the plein air painter at the 2004 Spirit Mound/Lewis & Clark bicentennial celebration.



Township Hall Painting by Paul Peterson

Mound Meanderings

By Mark Wetmore

Editor's Note: Via email to some of us, Mark occasionally shares his experiences at the Mound, often accompanied by his friend Jeanette Williams, or others. This is a selection from Mark's messages and photographs.

July 30, 2020

Jeanette and I walked up the trail yesterday morning, our first time in at least six weeks. When we stepped on the bridge, two muskrats quietly plunked into the water a little downstream and floated out of site around the bend (I'm sure they were Suzie & Sam, from the song "Muskrat Love" by Captain and Tenille). The creek is low, in spite of the rain we had Tuesday evening. There's a lot of duckweed in it. I associate duckweed with still water and don't remember seeing it in our creek before. It's a fascinating plant. According to a U.S. Forest Service web site, it's the smallest flowering plant known.

Partridge pea was blooming in profusion along the edge of the earlier stretch of the path where the mowing stops and the prairie starts. (A mini ecotone, Jim Heisinger would tell us.) It's an annual legume and a great pollinator plant. Flowers obviously have pollen for bumble bees, and there are glands on the stems that provide nectar for insects. Several toads were enjoying the cloudy, damp morning.

The many small plant ID signs that Meghann and Norma installed recently look great. We talked to a woman from Minnesota, escaping virus lockdown on a camping trip, who told us how much she enjoyed the signs.

Visiting with visitors was fun. A mother from Centerville had her 4th grade son at the summit for the first time. I asked him if he'd studied Lewis & Clark yet and he had. So..., he got my brief lecture about the expedition's day at the mound. Maybe it was too cloudy, but the hill-topping black swallowtail wasn't on the job like he usually is at the summit. But there was a big fly up there on some toad poop.

There's a new wildflower species along the path that, far as I know, we haven't mentioned or anticipated: *Oenothera curtiflora*, aka velvetweed. There are two plants near each other along the path. They're almost six feet tall, an annual that's kin to evening primrose; though I can't see the similarity, except that they flower in the evening. By 9:30 AM the small flowers were starting to close.

Besides the informal, apparently unpreventable, path down from the summit to the south, now there's another well-worn one down straight to the east from the summit. Kids? Young people with a lot more energy than I have? A few years ago there was a smaller path in the same place that continued from the top straight to the west. We blamed those on deer, but the western part is long gone. Now this one is a definite erosion risk.

August 31, 2020

Jeanette and I went on her traditional birthday Mound

picnic (one day late for better weather), and again, we saw many things.

On the way up, a skink quickly disappeared through a gap in the bridge planks as we approached. Skinks may be fairly common, but they're secretive, quick lizards, and seldom seen. (At least by me.) According to Wikipedia, our Prairie Skink feeds on "small invertebrates, preferring spiders, crickets, and grasshoppers, but avoiding ants."

Skink photo from the web site: sdherps.org

Photo by Drew R. Davis



Spirit Mound Creek is dry, which happens very seldom. The duckweed is stranded on drying mud. Phooey. Where does all the aquatic life go when this happens?

In the same area, sawtooth sunflowers crowd the path with a profusion of blooms. Meghann calls it Sunflower Alley.



A bit farther on, we found a most ubiquitous wildflower that's actually scarce on the mound: the common sunflower, *Helianthus annuus*. Previous G,F&P's botanist Dave Ode wrote that "It is a weed, a wildflower, an ornamental, and a world-class crop plant all rolled into one species. ...the Arikaras, Hidatsas, and Mandan, were cultivating sunflowers long before the Europeans came to this continent." It serves as host plant or pollen/nectar source for an enormous number of insects.

It was a perfect evening; very little breeze and beautiful cirrus clouds.

No mosquitoes. Though swallows were finding a hatch of something low to the ground, but only over the prairie remnant on the west side of the hill and a little upslope from there. They stopped where the seeded prairie began.

There are fewer monarchs this year, at the mound and at least in Vermillion also, it seems to me. This time the last couple years, towards dusk large numbers would slowly drift in from the prairie to roost in the parking lot trees. Also, hundreds (or thousands?) of green darner dragonflies feed over our prairie as part of their fall migration.

There were quite a few human visitors. Lots of dog walkers. And families. The moon was one day shy of full, and pretty as it came up.



The Miyuraj Harishchandra family watching the moon rise

We watched a still-spotted, half-grown fawn follow her mother through the grass. A far-away coyote yipped as it got dark.

The unusual white blazing star (*Liatris aspera*, I think) is blooming nicely.

So... there are lots of rewards for a Spirit Mound visitor who brings a mind tuned to nature, and maybe a cell phone camera.



White Blazing Star

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

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*.



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



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



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 form 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. You may email to: info@spiritmound.org, We can arrange pickup or delivery.

Spirit Mound Summary 2020

By Jason Baumann, District Park Supervisor, SDGFP

This year at Spirit Mound was no different from the year anywhere else in South Dakota. Events were cancelled. There was new staffing. There were changes in management direction, and changes in weather patterns from last year, and the use of the Mound changed.

Like all of us the Mound was affected by 2020. To start the season, we had a plan to burn the last of 3 compartments, which included the Mound. Fire crews were mobilized, with a fire plan approved, a date set on the calendar and lodging rented for the crew. As the spring progressed, COVID-19 became more of a threat, affecting more people, the tough decision had to be made. Three weeks before the burn was scheduled, due to a ban on travel, we were forced to cancel the burn. Fortunately, we have a 5-year burn plan, which will allow us to burn the same section in 2021, assuming that all of this is behind us. This fall burn lines were mowed in, and plans are being made to accomplish our burn next year.

As we look forward to the next growing season and natural resource management of the Mound, one area we are focusing our efforts on is the old feedlot. That section of land has had a long, trying history, but I think we are finally getting close. This late summer I had our local expert Cass on site looking it over. Weed management and planting success have been very difficult, and I was ready to start over once again, but after a site visit, I think we have some hope. There had been a better response to our last planting than we thought, and now we think we have enough growth to manage. So, for the next year Cass from Adams Homestead and Nature Preserve will be mowing and managing this old feedlot in hopes we can have a viable prairie once again, for the first time in many, many years.

Due to COVID, a lot of use patterns have changed as well. There are traffic counters at the Mound to keep track of use. With the virus many people started to seek outdoor escapes and recreation. If you tried to buy any kind of outdoor recreation equipment this summer, you know there was a great demand for anything related to outdoors. Being so close to the city of Vermillion, many local residents rediscovered the Mound. In 2020 the park visitation was up 44% as of September, which means 25,000 people visited the Mound this summer. Hopeful this trend will continue and a new appreciation and understanding for history and the Mound will help us spread the word about this unique place.

With the changing seasons, the seasonal management position has changed at Spirit Mound. Late this summer we were on the lookout for a new seasonal employee. Luckily our search didn't last long. We hired William Ranney who conveniently lives just south of the park. Bill is no stranger to the Mound as he is an archeologist and surveyed the Mound years ago. Bill brings with him a vast knowledge of the area and is very eager to learn what he does not know about the

Mound. I told Bill that my secret to a vast knowledge of the native grasses and flowers is the iNaturalist app. Everyone is an expert with that app. I look forward to working with Bill this upcoming season as he is a great addition to the Mound team.

As the growing season comes to an end, we look back at an interesting year on the Mound and in the area. We truly are blessed to have such a unique natural feature that is deep in history. Many of us have come to rely on the Mound for serenity, peace and a quiet place to reflect on what's going on around us. In those quiet times we can truly appreciate what we have in our life and give thanks to family, friends, our job and places like the Mound knowing they will always be there for us. Happy hiking, and never stop exploring.



Photo by Norma Wilson

Things just need to be fixed

Looks like Jerry Wilson picked a fine day out at the Mound to fix the bench. Visitors are able to sit next to the creek and listen to the frogs.
Thank you Jerry!

Spirit Mound Trust Board of Directors

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and James Heisinger, emeritus.

On Continuity

By Norma Wilson

During the COVID-19 Pandemic, I've been reminded more than ever before of how lucky we are to live so close to the natural world. The longevity and beauty of Spirit Mound helps to sustain us at this difficult time of disease, climate change, and income disparity. Visitors can be physically distanced and safe on the trail up to Spirit Mound, and the long view from its summit gives us hope for the future. Here's a poem from my new book *Continuity* published this year by Gyroscope Press. You may have seen an earlier version of it in the 2010 issue of *Spirit Mound Trust News*.

To Spirit Mound

*Legends of fierce tree dwellers
respected and feared for hundreds
of miles made me want to know you.*

*I pushed through dense sandburs and hemp
to your summit and found there a stone
placed by the Paha Wakan Daughters
of the American Revolution
who appropriated your name.*

*White-faced cattle stared up as I
gazed in awe at the distant, southern
horizon, and listened to the wind,
the meadowlark, and Little Owl's story
of Lone Man, the flood, and the cottonwood
shelter he built on your peak.*

*Pregnant with my first child,
I saw you as a woman in repose,
waiting for birth.
Turtle drum birthplace,
you renewed my spirit.*

*We removed the feedlot to clothe you
in butterfly milkweed, vervain,
Indian grass, blanket flowers,
little bluestem, and meadow roses.
We mowed and burned in spring,
and planted seeds to restore your life.*

*In this time of hunkering down, we
ascend your trail, to look out at Earth's
circle and feel on top of the world.*

Breakfast with the Birds at Spirit Mound

Join us for a morning bird walk at Spirit Mound this coming spring at 7-10 am on Saturday, May 8, 2021. 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 identify 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 co-author 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.



Photo by Lisa Swanson

Dr. Swanson bird watching near the Mound



Photo by Dave Swanson

Lincoln's Sparrow – A common spring migrant at Spirit Mound

Spirit Mound Trust

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Mound photo by Mark Wetmore

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 2021 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.

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