



# "Current" News

Newsletter of the Missouri National Recreational River  
Resource Management Division

Winter—Spring 2011

## Inside this issue:

Mass Movement along the Missouri River	2
What is the Wild and Scenic Rivers Act?	2
At Risk: Least Terns and Piping Plovers	3
Oral History Project nears Completion	4
Meridian Bridge: A History	4
Volunteers Help Promote Native Plants	5
Did You Know?	5
Upcoming Events	6
Who's Who of the MNRR	6

## Fun Facts:

- The Northern Leopard Frog lays between 1,000 and 5,000 eggs.
- The Northern Leopard Frog eats almost anything it can fit into its mouth, including: beetles, worms, small frogs (including their own species), garter snakes, and even birds.

<http://animals.nationalgeographic.com/animals/amphibians/northern-leopard-frog.html>

<http://www.env.gov.bc.ca/wld/frogwatch/whoswho/factshts/northlep.htm>

## Welcome

Welcome to our first newsletter. The Resource Management Division is the science, cultural, maintenance, and permitting branch of Missouri National Recreational River (MNRR). We perform a wide range of projects and activities from maintaining public areas to monitoring for the presence of zebra mussels. As a unit of both the National Park System and the Wild and Scenic Rivers System, we strive for the maximum level of natural and cultural resource protection and restoration while also providing for the highest quality visitor access and experience possible. We hope this newsletter will provide you with both some fun and useful information about the science of this beautiful region. If you have ideas for an article or questions about our Resource Management programs, please contact us. We'd love to hear from you.

## Northern Leopard Frog (*Rana pipiens*): A Rare Species?



The western population of the northern leopard frog is found throughout the MNRR. Despite its local prevalence, the frog species is being considered by the Fish and Wildlife Service for listing under the Endangered Species Act. Habitat loss, disease, encroachment of non-native species, pollution, and climate change have resulted in population declines, local extinctions, and disappearance from much of its historical range are reasons for the potential listing.

## To Watch For: New Trail Signage

The Missouri National Recreational River Water Trail will have a new addition this summer. Fourteen signs will be installed along the trail to provide users with distance (in river miles) to the next checkpoint, features to look for, as well as historical and scientific information. The signs will also include maps of the water trail. To learn more about the MNRR water trail visit <http://www.mnrrwatertrail.com/>. Nine additional signs will also be visible from the water, to alert users of upcoming river access points.



## What is the Wild and Scenic Rivers Act?

The Wild and Scenic Rivers Act was passed October 2, 1968, establishing the National Wild and Scenic Rivers System. It was created to preserve rivers that are nationally significant and have exceptional natural, cultural, and recreational characteristics in their free-flowing condition. Each river is classified as either wild, scenic, or recreational based on its level of use and development.

The 40<sup>th</sup> anniversary of the Act was celebrated in 2008 with 166 rivers in the system for a total of 11,000 preserved river miles.

<http://www.rivers.gov/>  
<http://www.fws.gov/laws/lawsdigest/wildriv.html>

Photo: <http://upload.wikimedia.org/wikipedia/commons/thumb/0/0e/US-NationalWildAndScenicRiversSystem-Logo.svg/140px-US-NationalWildAndScenicRiversSystem-Logo.png>

## Mass Movement along the Missouri River

Mass movement, also known as mass wasting or slumping, is common along the banks of the Missouri River. This downslope movement of soil and earth is caused by gravity. The stress on the earth is greater than the strength of the forces holding that earth in place. As the land becomes unstable, large amounts of earth slump downward.

There are many factors that can increase the chances of a mass movement occurring: removal of lateral support through erosion; addition of mass from rainfall (soil saturation); earthquakes, and removal of underlying support due to undercutting by the river or weathering.

Several mass movement areas are visible along the Nebraska bluffs between Bow Creek and Ponca State Park (RM 788-753) on the 59-mile reach of the MNRR. These slumps are likely the result of the loss of lateral support due to erosion by the river and the additional weight from rainfall. The surface deposits are loess, or wind deposited sand, silt, or clay over bedrock composed of Carlile Shale of Cretaceous age (65-144 mya).

Lewis and Clark mention seeing slumps throughout their journey. Mass movement will continue as a natural process along the Missouri River.

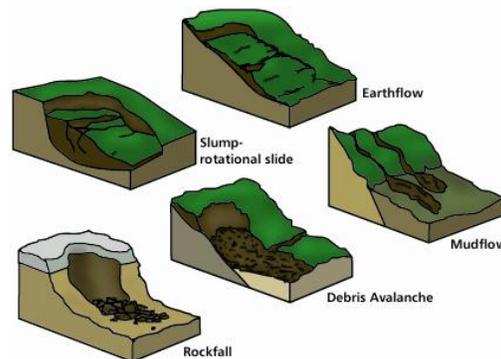


Photo: <http://www.heritage.nf.ca/environment/slope.html>



*Slumps near Bolton RM 763-764 (Numbers correspond to photographs below)*



*Area 1*



*Area 2*



*Area 3*

## At Risk: Least Terns and Piping Plovers on the Niobrara River

The National Park Service monitors nesting and populations of the endangered least tern (*Sternula antillarum*) and the threatened piping plover (*Charadrius melodus*) on the lower 27 miles of the Niobrara River. Least tern and piping plover pairs attempting to nest on the lower Niobrara River experienced several natural events in 2010 (e.g., heavy rain, flood water



*Crew documenting and aging a nest*

inundating sandbar habitat, erosion of existing sandbars, and predation) that resulted in nest destruction. Two major flood events dramatically impacted these two rare bird species, one in June and the second in July. In both instances, when flood waters retreated to allow for safe surveying (<5,000 cfs), no evidence of any nests or colonies were found. Several other minor weather/flooding events influenced some, but not all, nests present at the time of the event.

The Niobrara River is a dynamic and generally unregulated river with only one dam. The Spencer Hydro Dam (located on the Niobrara River in Holt County, NE) is designed for

hydroelectric purposes only and spillway gates are opened to prevent dam failure during catastrophic rainfall and runoff events, keeping the Niobrara River dynamic. Historic flow data from the Pischelville Bridge gage station near Verdel, NE (USGS 0646550) indicates the June 2010 flood was the sixth highest on record since 1938 with 14,200 cfs and the July 2010 flood event was the fourth highest on record with 22,200 cfs. The median daily discharge for the past 53 years at Verdel, NE varies between 1,000 and 2,000 cfs.

When not inundated with flood waters, nesting habitat is considered good with sandbars generally dry and free of vegetation. The June flood created ample high level sandbars; however, even these high sandbars were flooded during the July flood event. No birds re-nested after the July flood and only a handful of least terns were spotted in flight after the flood waters retreated.



*A tern chick attempting to hide on the sandbar.*



*A tern egg is floated to determine incubation stage; this egg is about 13 days old.*

Despite the untimely mid-season floods, some nest success was experienced. Piping plovers experienced a 13% nest success (hatched chicks)



*Canoes are used to monitor along the lower Niobrara*

while 38% of least tern nests experienced success. However, due to the July flood event, no fledglings (chicks capable of flying) were recorded within the lower Niobrara.

Peak floods during the 2010 nesting season had negative impacts on the overall productivity and fledgling ratio. However, the high flows also created abundant high sandbars, suggesting ample high quality nesting habitat will be available for the 2011 season.

## Oral History Project Nears Completion

The story of life on the wild and unpredictable Missouri River before the dams were built is the subject of a new documentary film. The program tells the story of how people from Yankton, South Dakota to Ponca, Nebraska remember the Missouri River before it was dammed in the 1950s.



The project began this summer. Filmmakers from USD's Department of Contemporary Media and Journalism are working with the Missouri River Institute to complete the project being funded by a grant from the National Park Service. Production staff includes Don Harris, Dr. Ric Jensen, Todd Mechling, and Dr. Michelle Van Maanen, working in conjunction with Tim

Cowman, Director of the Missouri River Institute.

The documentary captures the memories of people who have lived along the 59-mile section of the river that begins at Gavins Point Dam near Yankton and ends at Ponca State Park in Nebraska. This section of the river was designated a Recreational River by Congress in 1978. It is one of only a few remaining stretches of the Missouri River not impounded behind a dam or channelized.

This documentary will give today's viewers a perspective of what the river used to be like and help them understand how human actions have profoundly changed it. Work will continue through the spring to finish the film. Once com-

plete, it will premiere on South Dakota Public Broadcasting.

To learn more about this project, contact Tim Cowman of the USD Missouri River Institute at 605-677-6151 (tim.cowman@usd.edu) or Ric Jensen of the USD Department of Contemporary Media and Journalism (ric.jensen@usd.edu).



*Gavins Point Dam*

## Meridian Bridge: A History

The Missouri River was a force to be reckoned with for early settlers. Those who resided along the river's south shore desired the goods and services that Yankton provided, and the inhabitants of the north shore were quick to notice the abundance of trees along the Nebraska shore. Thus, a tumultuous era of river crossing techniques began that would eventually culminate in the construction of the Meridian Bridge.

The occupants of the Missouri's shores used rafts, small boats, or simply walked across the frozen river in the winter. As these options proved to be unreliable, the early settlers began exploring other options and, consequently, the first pontoon bridge of the Missouri was built in 1890. The pontoon bridge was a series of small boats strung together, tied to each shore, and covered with wooden planks. Nonetheless,

river crossers still yearned for something more stable as the pontoon bridge occasionally dumped travelers into the Missouri when large chunks of ice or rough waves tumbled the wooden planks.

Local gatherings often sparked discussion of a permanent bridge, and the Meridian is said to have been initiated at a social gathering on June 1, 1919 at the home of L.B. French. The partygoers determined that a bridge could be built with financial support from contributions from Yankton's business owners. On July 5, 1919, the Meridian Bridge Company of Yankton was founded with Deloss Butler Gurney as president. Gurney took a five-year leave from his seed and nursery company to tend to the needs of the Me-



*The Meridian Bridge from the South Dakota shore*

ridian Bridge construction that began on February 21, 1921.

The bridge's piers were built using caissons or large wooden boxes with two shafts at the top and open at the bottom where the courageous workers, known as the "sandhogs," dug out the riverbed. One shaft was an

*(Continued on page 5)*

## Did You Know?

In April of 1952 the Missouri River had its largest recorded flood. The first warnings came on April 7th for Niobrara to Rulo, NE. By April 13th, a third of Sioux City was underwater and the mayor was urging the city's 5,557 residents to evacuate. Further downstream, on April 16th, President Truman visited Omaha and officially declared it a disaster area. The flood lasted from April 12th to June 29th. In the aftermath, the Corps of Engineers estimated damages at \$11.9 million for the two and half-month flood. The Yankton gage station read 480,000 cfs at the height of the flood. This was the last major flood before the completion of the Gavins Point Dam.



<http://dnr.ne.gov/floodplain/mitigation/mofloods.html>  
[http://www.omahariverfront.com/resources/river\\_floods/mizzrvr\\_floods.htm](http://www.omahariverfront.com/resources/river_floods/mizzrvr_floods.htm)

## Volunteers Help Promote Native Plants

Last fall, 30 students from Vermillion High School helped collect over 15 pounds of local, native, wildflower seed for the National Park Service as part of National Public Lands Day. While 15 pounds may not sound like much seed, at suggested seeding rates that's enough to plant over 40 acres of land and would have cost nearly \$1000 if purchased from a seed company.

Seeds from a dozen different species were collected in just one day. Each species collected has important values such as food for wildlife, nitrogen fixing capabilities, and historical medicinal purposes.

The collected seed will be planted at the Mulberry Bend Scenic Overlook and the Bow Creek Recreation Area this spring. In the future, as these native plantings grow and

produce their own seed, collections can be made from these sources and made available to landowner at no cost for restoration projects and flower gardens. A big thank you goes out to all those students who helped on National Public Lands Day!



*A group of Vermillion High School students collecting native wildflower seed to be used in National Park Service grassland restoration projects.*

## Meridian Bridge: A History

*(Continued from page 4)*

entry point for supplies while the other contained a ladder for the "sandhogs." Compressed air was pumped into the caisson to provide air for the workers and to keep the intense pressure of the water from collapsing the wooden box. As if these circumstances were not dangerous enough, the final piers were constructed under ice that frequently endangered the air shafts to the caissons. Additionally, digging forty feet into the riverbed required the use of dynamite to break up large boulders. Amazingly, no lives were lost during the construction of the Meridian Bridge.

The safety with which the bridge was constructed was one more reason to celebrate as the company prepared to spend \$15,000 to commemorate the event. The Meridian High-

way Bridge, named after the Meridian Highway, was a crucial link in the Pan American Highway (now US Highway 81). The bridge opened on October 11, 1924. Gurney drove a Buick sedan across the upper deck and paid the first fifty-cent toll followed by nearly five hundred more vehicles that made the trip within the first hour of opening. Another twenty thousand would cross the Missouri by the end of the week, thus, starting the busy eighty-four year reign of the Meridian Bridge.

The bridge was closed in 2008 and will reopen as a pedestrian and bicycle trail in 2012. The replacement Discovery Bridge was opened on October 11, 2008, exactly 84 years after the dedication of the Meridian Highway Bridge.

Grow, Kathy K., & Varvel, Lois H. (2004). Yankton, south dakota in vintage postcards. Charleston, SC: Arcadia Publishing.

Grow, Kathy K., & Varvel, Lois H. (2001). The bridge we built: the story of yankton's meridian bridge. Yankton, SD: Vintage Point Press.

Karolevitz, Robert F. (1997). Yankton: a pioneer past. Mission Hill, SD: Dakota Homestead Publishers.



## MISSOURI NATIONAL RECREATIONAL RIVER

Phone: (605) 665-0209

**We're on the Web!**  
[www.nps.gov/mnrr](http://www.nps.gov/mnrr)

**Missouri National Recreational River**  
508 East 2nd Street  
Yankton, SD 57078

Mail to:

### UPCOMING EVENTS and VOLUNTEER OPPORTUNITIES



*Volunteers helping with the Missouri River Clean-Up*

*Help keep the river clean and free of trash!*

- **Wednesday, March 30:** Missouri River Futures Landowner Workshop  
- 4-H Extension Building in Vermillion, SD  
- Call Missouri River Futures at (402)-254-6858 ext. 114 for additional information.
- **Friday, May 6:** Missouri River Education Festival
- **Saturday, May 7:** Missouri River Clean-Up  
- 8 am–Noon, Riverside Park  
- Call Dugan Smith at (605)-665-0209 for additional information.

### Who's Who of the MNRR Resource Division:

Steve Mietz – Superintendent

Gia Wagner – Chief, Resource Management

John Macy – Hydrologist

Lisa Yager – Biologist & GIS

Brian Korman – Lead Biological Technician

Lindsay Cameron – Biological Technician

