



MISSOURI NATIONAL RECREATIONAL RIVER 2017 RESOURCE BRIEF



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The big brown bat was the most commonly recorded bat. The call of the big brown bat can be heard at <https://www.nps.gov/sub-jects/bats/big-brown-bat.htm>.

White-nose Syndrome

A rapidly expanding fungal disease called white-nose syndrome is spreading quickly, threatening bat populations in North America. First documented in a New York cave in 2006, this disease is associated with more than seven million bat deaths. It spreads from bat to bat and perhaps by humans who carry nearly invisible fungal spores on their shoes and clothing from one cave to another.

This disease was detected in 2017 near Missouri NRR. Bat monitoring helps the park to understand the spread of this devastating fungus. To learn more and see a map of white-nose syndrome in national parks, go to www.nps.gov/articles/white-nose-syndrome-in-national-parks.htm.

Bat Acoustic Monitoring

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Overview

Missouri National Recreational River (MNRR) is comprised of 69,124 acres along the Missouri River in South Dakota and Nebraska. Managed by multiple state and federal agencies, this national park is divided into a 39-mile upper reach and a 59-mile lower reach. Riparian forest, wooded uplands, and prairie remnants provide good bat foraging and roosting habitat. Bats eat thousands of mosquitoes each night making them important for insect control in croplands along the river.

The Northern Great Plains Inventory & Monitoring Network monitors bats to detect long-term trends in bat populations at the park. Acoustic recorders detect the unique ultrasonic calls bats use for echolocation.

Highlights (2014-2017):

- Eight species were confirmed present or probably present in the park and all were detected on both the 39-mile upper and 59-mile lower reaches.
- Big brown bats were recorded more often than other species throughout the park.
- The threatened northern long-eared bat was detected on both reaches of the park.
- White-nose syndrome was detected near MNRR in 2017.



This bat acoustic monitoring station along the 59-mile lower reach of the Missouri River had some of the highest bat activity in the park.

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Bat Species Detected at Missouri NRR (Both Reaches), 2014–2017

Common Name	Scientific Name	2014–2017 Status*	Previously detected?
Big brown bat	<i>Eptesicus fuscus</i>	Present	Yes
Eastern red bat	<i>Lasiurus borealis</i>	Present	Yes
Hoary bat	<i>Lasiurus cinereus</i>	Present	Yes
Silver-haired bat	<i>Lasionycteris noctivagans</i>	Present	Yes
Little brown bat	<i>Myotis lucifugus</i>	Present	Yes
Northern long-eared bat	<i>Myotis septentrionalis</i>	Present	Yes
Evening bat	<i>Nycticeius humeralis</i>	Present	Yes**
Tri-colored bat	<i>Perimyotis subflavus</i>	Present (59-mile reach); Probably Present (39-mile reach)	Yes

*Status based on acoustic recording classifications in specialized software and researcher expertise.

**Previously reported as probably present

Monitoring

Twenty-two acoustic recording stations and five mobile survey routes were established in 2014–2015 in the 39- and 59-mile reaches for long-term bat monitoring at MNRR. Several of the monitoring stations were on state and private land and we share results with these network partners. A total of 256,687 bat call recordings from stations across all survey nights were analyzed to identify bat species using specialized software.

The threatened northern long-eared bat and the eastern red bat, an eastern species, were detected in higher numbers at MNRR than in other network parks. Evening bats, another eastern species, were present on both reaches in the park. This species may be expanding westward. They were not found in national parks west of MNRR until detections in 2017 at Niobrara National Scenic River and Scotts Bluff National Monument.

Areas with lots of large trees and surface water had the highest bat activity at MNRR, likely due to good roosting and foraging habitat. There were substantial differences between number of recordings each year, but no apparent long-term trend from 2014–2017. Mobile surveys through forested areas had more bat detections than surveys through the large amounts of cropland.

MNRR is on the western edge of the white-nose syndrome range. In 2017, this disease was detected on bats near the park for the first time. Threatened northern long-eared bats, little brown bats, and tri-colored bats are particularly vulnerable to white-nose syndrome. The latter two species have been recommended for federal listing. Network monitoring, along with park staff and visitor observations, will help us protect the rich bat communities that live and forage in the park.



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For More Information:
Dan Licht
Midwest Region Wildlife Biologist
dan_licht@nps.gov

Northern long-eared bats, a threatened species, were detected at MNRR.

Pete Pattavina/USFWS (<https://creativecommons.org/licenses/by/2.0/legalcode>; cropped)

Bat monitoring helps to conserve bat communities.

Resource Brief created by: Tani Hubbard

National Park Service &
Northern Rockies
Conservation Cooperative



Northern Great Plains Network
231 East St. Joseph Street
Rapid City, SD 57701
<http://science.nature.nps.gov/im/units/ngpn/>

Network Parks: Agate Fossil Beds NM • Badlands NP • Devils Tower NM • Fort Laramie NHS • Fort Union Trading Post NHS • Jewel Cave NM • Knife River Indian Villages NHS • Missouri NRR • Mount Rushmore NM • Niobrara NSR • Scotts Bluff NM • Theodore Roosevelt NP • Wind Cave NP