



JEWEL CAVE NATIONAL MONUMENT 2017 RESOURCE BRIEF



The tri-colored bat is a new detection for Jewel Cave NM.

White-nose Syndrome

A rapidly expanding fungal disease called white-nose syndrome is spreading quickly, threatening bat populations in North America. This disease has been associated with more than seven million bat deaths in the last decade. 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 has not yet been detected at Jewel Cave NM. Bat monitoring helps us 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

NPS

Overview

Jewel Cave National Monument (NM) is a 1,274-acre park in the Black Hills of western South Dakota established to protect the third longest cave in the world. While the main visitor area of the cave does not have bats, an entrance enlarged in the early 1900s is now used as a bat hibernaculum (winter home for bats). Surface water is rare in the park where habitat is open ponderosa pine forest mixed with grassland meadows.

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):

- Eleven species were confirmed present or probably present in the park.
- Big brown, hoary, and silver-haired bats were detected most often.
- The threatened northern long-eared bat is present on the park, but was detected in very low numbers.
- The station near surface water had the highest rate of bat detections.



An acoustic recording station in Jewel Cave NM.

NPS

Bat Species Detected at Jewel Cave NM, 2014–2017

Common Name	Scientific Name	2014–2017 Status*	Previously detected?
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Present	Yes
Big brown bat**	<i>Eptesicus fuscus</i>	Present	Yes
Eastern red bat	<i>Lasiurus borealis</i>	Present	No
Hoary bat**	<i>Lasiurus cinereus</i>	Present	Yes
Silver-haired bat**	<i>Lasionycteris noctivagans</i>	Present	Yes
Western small-footed myotis	<i>Myotis ciliolabrum</i>	Present	Yes
Little brown bat	<i>Myotis lucifugus</i>	Present	Yes
Northern long-eared bat	<i>Myotis septentrionalis</i>	Present	Yes
Fringed myotis	<i>Myotis thysanodes</i>	Present	Yes
Long-legged myotis	<i>Myotis volans</i>	Present	Yes
Tri-colored bat	<i>Perimyotis subflavus</i>	Present	No

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

**These species were recorded most often, 2014–2017.

Monitoring

Four acoustic recording stations were established in 2014–2015 at Jewel Cave NM for long-term bat monitoring. A total of 30,450 bat call recordings from stations across all survey nights from 2014–2017 were analyzed to identify bat species using specialized software. There was no significant difference in the number of calls between the four years.

Two of the 11 bat species detected were new to Jewel Cave NM: Eastern red bat and tri-colored bat. These two species are on the western edge of their range here. In 2017, northern long-eared bat calls were recorded and the bat was captured in mist nets. The historically common long-legged myotis made up only a small proportion of the recordings.

The sewage pond likely plays a critical role in bat reproduction as lactating females make

regular use of surface water and the station here had the highest rate of detections.

Differences in species diversity between stations was minor. Little brown bats, known to forage over water, were more common at the sewage ponds and the western small-footed myotis, an arid land species, was more frequent in the dry Lithograph Canyon site.

In addition to our work, park staff are monitoring bats using acoustic recorders, cave surveys, and telemetry. Jewel Cave has a diverse and healthy bat community. Thus far, we have not detected white-nose syndrome at Jewel Cave NM. Continued network and park monitoring—and visitor observations—will help us protect the rich bat communities that live and forage in the park.



Northern long-eared bats, a threatened species, were detected at Jewel Cave NM.

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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