



AGATE FOSSIL BEDS NATIONAL MONUMENT 2017 RESOURCE BRIEF



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The tri-colored bat is a new detection for Agate Fossil Beds 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 Agate Fossil Beds 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

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Overview

Agate Fossil Beds National Monument (NM) is a 3,058-acre park in western Nebraska established to protect Miocene Epoch mammal fossils and the prairie ecosystem. The Niobrara River is stream-like as it passes through the center of the park which is comprised primarily of Northern Great Plains mixed-grass prairie habitat. The small grove of old cottonwoods in the floodplain of the Niobrara River provides good roosting and foraging habitat for bats.

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 (2015-2016):

- Nine species were confirmed present or probably present in the park.
- Silver-haired, hoary, and big brown bats were recorded most often.
- There were four newly detected species: hoary bat, long-legged myotis, evening bat, and tri-colored bat.
- The highest rates of detection were at stations near trees and water where good roosting and foraging habitat can be found.
- The cottonwood grove and trees planted near the park buildings likely bring more bat activity to Agate Fossil Beds NM.



A bat acoustic monitoring station along the Niobrara River in Agate Fossil Beds NM.

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Bat Species Detected at Agate Fossil Beds NM, 2015–2016

Common Name	Scientific Name	2015-2016 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	No
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**
Long-legged myotis	<i>Myotis volans</i>	Present	No
Evening bat	<i>Nycticeius humeralis</i>	Probably Present	No
Tri-colored bat	<i>Perimyotis subflavus</i>	Present	No

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

**Previously reported as probably present

Monitoring

Forty-three acoustic recording stations were set up in 2015 and 2016 at Agate Fossil Beds NM to study bat summer habitat use. A total of 53,370 bat call recordings across all survey nights were analyzed to identify bat species using specialized software. An average of 191 bat calls were detected per night per station. This is low compared to other parks, but many stations were in the prairie where there are fewer resources for roosting and foraging.

Nine bat species were recorded (see above). Most frequently recorded were silver-haired, hoary, and big brown bats. The park was previously considered outside the range of big brown bats. Four species were new detections for the park: hoary bat, long-legged myotis, evening bat, and tri-colored bat.

Northern long-eared bats (*Myotis septentrionalis*) were previously reported as probably

present, but could not be confirmed in this study. Since this species has suffered a dramatic decline in recent years, it may no longer be present or may be an infrequent park visitor.

The highest rates of detection were at stations near trees and water where more roosting and foraging resources are found. The station in the cottonwood grove averaged 915 detections per night, significantly higher than the average. Without the cottonwood grove and trees planted near the park buildings, there would likely be less bat activity at the park.

Thus far, we have not detected white-nose syndrome at Agate Fossil Beds NM. Continued monitoring—and observations by park staff and visitors—will help us protect the rich bat communities that live and forage in the park.



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For More Information:

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The silver-haired bat was one of the most commonly identified species at Agate Fossil Beds NM during this study. A silver-haired bat call can be heard at <https://www.nps.gov/subjects/bats/silver-haired-bat.htm>.

Bat population monitoring to detect changes helps us conserve bat communities.

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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