



BADLANDS NATIONAL PARK 2017 RESOURCE BRIEF

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Bat Acoustic Monitoring

Overview

Badlands National Park (NP) is a 244,000-acre park in southwestern South Dakota that conserves the rugged badlands topography, rich fossil beds, and the largest, protected mixed-grass prairie in the U.S. Surface water is scarce at the park; bat foraging and drinking habitat can be found at Sage Creek, a sediment-laden drainage, and multiple bison stock ponds. The unique, highly eroded badlands provide roosting 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 (2014–2017):

- Nine species were confirmed present in the park.
- Big brown bats, silver-haired bats, and western small-footed myotis were recorded most often.
- There were no significant changes in number of bat recordings from 2014–2017.
- The unique physiographic environment of the park supports a bat community very different from other network parks.



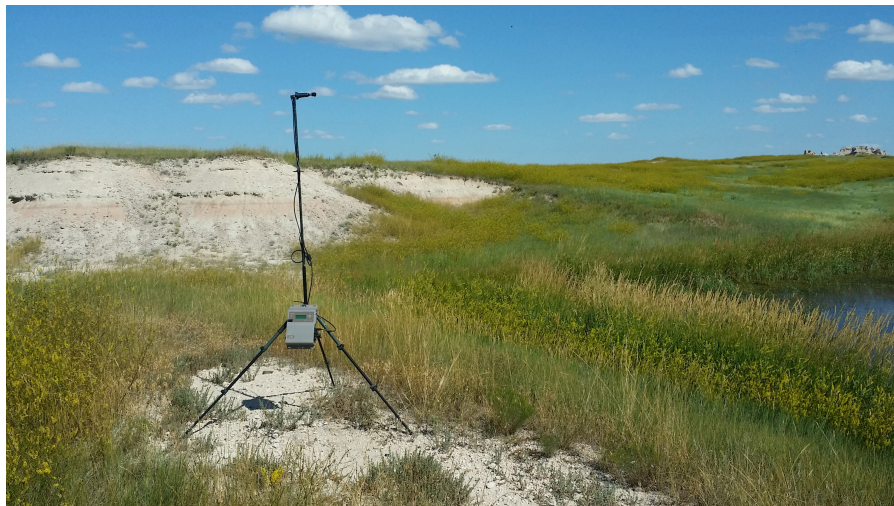
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The tri-colored bat is a new detection for Badlands NP.

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 Badlands NP. 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.



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A bat acoustic monitoring station near a stock pond in Badlands NP.

Bat Species Detected at Badlands NP, 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	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
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

Twelve stationary recording stations and six mobile recording routes were established in 2014 in three areas (Sage Creek Road, Conata Basin, and Cedar Pass areas) at Badlands NP for long-term bat monitoring. A total of 293,639 bat call recordings across all survey nights from 2014–2017 were analyzed to identify bat species using specialized software. The average number of nightly bat detections from 2014–2017 were not significantly different.

Two of the nine species detected were new to the park: Eastern red and tri-colored bats. The threatened northern long-eared bat (*Myotis septentrionalis*) was not detected in this study, though it may still be present; it was mist-netted on the park in 1999.

Stations near water (stock ponds, park sewage ponds, or the wetland in the Conata Basin)

or large trees had the most bat detections. More eastern red bats were detected near the park sewage ponds than in other areas of the park. Preferring arid treeless environments with rugged topography, the western small-footed myotis was found most frequently in the rugged Conata Basin area.

Mobile road surveys near water and badlands had more detections than roads in flat prairie. Interestingly, bats were frequently seen in the vehicle headlights foraging over the road itself. The warm black-top surface may attract insects which in turn attracts bats.

Thus far, we have not detected white-nose syndrome at Badlands NP. Continued monitoring—and 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:

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The big brown bat is one of the three most frequently recorded species at Badlands NP. The big brown bat call can be heard at <https://www.nps.gov/subjects/bats/big-brown-bat.htm>.

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

Resource Brief created by: Tani Hubbard

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