



Bat Monitoring

Craters of the Moon National Monument and Preserve

Winter Hibernaculum Surveys

Bats are defined as one of Craters of the Moon National Monument and Preserve's "vital signs" as part of the Upper Columbia Basin Network (UCBN) inventory and monitoring program. This vital sign status combined with the looming threat of the bat fungal disease known as white-nose syndrome has highlighted the need to gather baseline data on bats, specifically where and in what numbers bats hibernate in CRMO caves.

Winter hibernation is a critical time for bats. Bats rely on built up fat reserves to survive the winter insect shortage. Survival is a delicate balancing act, as natural arousals to drink, urinate, mate and relocate consume about 90% of a hibernating bat's winter fat. Additional arousals due to white-nose syndrome or human disturbance can quickly tip the energy balance toward starvation and deprive female bats the energy they need to raise pups during summer. An additional stress, accelerated climate change, is also expected to affect bats across the western US as thermal profiles of caves change and as drought conditions reduce the availability of water to lactating bats. Regular monitoring of winter cave use by bats will contribute to a regional understanding of bat population trends over time, and will enable Craters of the Moon staff to better manage cave resources.

Preliminary Results

In the winters of 2012 and 2013, forty-one caves were surveyed at Craters of the Moon. Most of these caves proved to be unsuitable for hibernation, but 20% of caves thought to be suitable proved to contain bats. 3 new hibernacula were documented. All bats in the newly discovered hibernacula were identified as Townsend's big-eared bats (*Corynorhinus townsendii*). A new high count of 33 bats was recorded in Arco Tunnel in 2013, possibly including two bats not previously recorded hibernating at Craters of the Moon. These 2012-2013 surveys have reinvigorated the Craters of the Moon bat monitoring program and a protocol documenting methods and data management strategies is in development.

In a supplementary effort, an acoustic detector was deployed outside of Arco Tunnel in April 2013 to try and document species emerging from hibernation. During the first 17 days of deployment, only sporadic, light bat activity was recorded. On April 20 between 9:00 pm and 10:00 pm, over 200 bat calls were recorded. These calls were identified to be 5 different bat species. While there is no way to say definitively that these calls were from bats hibernating in the cave, it is suggestive of the possibility.

Objectives

- Estimate status, distribution and trend of bat use in safely accessible lava tube caves in Craters of the Moon National Monument and Preserve during winter hibernation.



One of two clusters of bats in Arco Tunnel found during the 2013 hibernaculum survey. The bats with longer ears may be long-eared myotis.



The Townsend's big-eared bat was one of the most commonly recorded bats hibernating at Craters of the Moon. The above photo of a Townsend's big eared bat was taken during the summer, when the bat is active.