

Survey abandoned mines for bat use before closing

Abandoned underground mines provide important roosting habitat for more than half of the 47 bat species in the United States.

Bats use mines for rearing young in the summer, hibernating, gathering for social activities such as courtship and mating, night roosting, and for crucial rest stops during spring and fall migrations.

The process of determining whether bats are using a specific mine is not simple, but it can be reliably accomplished by following some basic guidelines, according to specialists at Bat Conservation International (BCI).

Under an agreement with funding from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Agricultural Wildlife Conservation Center (AWCC), BCI developed recommendations for conducting internal and external mine surveys and bat consideration guidelines for mine closures. More complete recommendations are contained in a cooperatively published leaflet entitled *Bats and Mines—Evaluating Abandoned Mines for Bats and Recommendations for Survey and Closure*.

Before a field assessment, it is important to define what will be protected as significant habitat. The assessment begins with a preliminary survey to describe all mine openings and record all information that can be gathered at each opening without underground entry. These data should include entrance dimensions; elevation relative to other openings; airflow direction and temperature; ambient air temperature; obstacles such as rocks, vegetation, limbs, trash, portal, or headframe timbers in the opening; potential hazards; estimated vertical or horizontal depth; presence of internal complexity such as drifts, crosscuts, raises, winzes, or stopes; and observa-

tions of any wildlife or wildlife signs. If a mine cannot be eliminated as wildlife habitat by the initial survey, an external and/or internal survey is warranted.

Internal surveys—the only way to detect hibernating bats—are preferred to external surveys, which are valuable only when bats are present. Internal surveys are the most reliable and least labor-intensive survey for evaluating roost presence and quality.

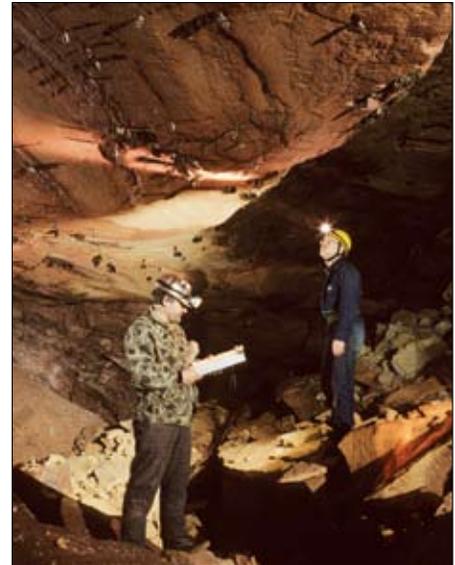
An internal survey should cover most of the mine before concluding that neither bats nor bat signs are present. Generally, if bat use of a mine is significant, bats or evidence of bats will be seen well before the entire mine has been evaluated.

Anyone entering an abandoned mine must have appropriate training and experience. It is seldom possible to examine all areas of a large, complex mine, but also seldom necessary.

If no evidence of bats is apparent, but the mine has potentially important inaccessible areas or authorities will not permit internal evaluation, additional external observations at entrances may be required.

External surveys are useful when combined with internal surveys at large, complex mines. External surveys alone may not detect use of a mine for hibernation, migratory, and reproductive use.

Survey information is used to help determine the importance of a mine to bats and to make informed decisions such as whether a mine should be closed and feasibility of using bat gates, according to Ed Hackett, a wildlife biologist with the AWCC. The AWCC, located in Madison, Mississippi, is a fish and wildlife technology development center.



Photos by Merlin Tuttle, BCI founder Merlin Tuttle (top right) and Bob Doecker conducting bat census in mine; Townsend's big-eared bat (bottom)

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