



big brown bats

# Of Bats and Bridges

By Caroline Kurtz and Paul Hendricks

**W**hat isn't known about bats in Montana could fill a book, but a recent study by researchers with the Montana Natural Heritage Program and the Montana Department of Transportation has added a paragraph or two, and perhaps will lead to future chapters.

For decades bat populations worldwide have been on the decline as a result of extermination, deliberate or accidental, and loss of habitat. In particular, the availability of suitable summer and winter roosts may be of major importance to the long-term survival of bats, especially cave or crevice-dwelling species. As bats have been evicted from traditional roosting sites, they have taken to squatting in bridges and culverts. From Canada to Florida, bridges are important roosting sites for at least 24 of the 46 North American bat species, according to Bat Conservation International (see page 7).

A recent BCI survey of 2,421 highway structures across 25 southern and western states showed 17 bat species using bridges and culverts. Montana was not included in that survey because few highway structures here were considered warm enough to meet bats' needs. A quick look at bridges in Yellowstone National Park, however, suggested otherwise and prompted scientists with the Montana Natural Heritage Program and the state DOT to investigate.

Researchers inspected a total of 130 highway structures in Carbon, Stillwater and Yellowstone counties in south-central Montana during the summer of 2003, and again in 2004. They found evidence of bat use in 60 percent. Most sites were used exclusively as night roosts, protected places where bats can rest to digest meals in between foraging bouts. Twelve bridges were day roost sites, sleeping places protected from weather and predators. Four of the 12 sites contained maternity colonies. Big brown bats were the most common daytime bridge users, but researchers also found little brown myotis, western small-footed myotis and a solitary hoary bat as well. Overall, the researchers found that the frequency of bridge use was as high or higher than in many surveyed regions farther south.

Bats used concrete, steel and wood bridges as night roosts in the Montana study, and concrete and wood bridges for day roosts. Bats often chose the vertical faces of girders on the underside of concrete bridges as night roosts, depending on small surface irregularities for footholds and benefiting from the stored daytime warmth of the concrete. T-beam and box beam construction were more popular choices than flat bottom, or slab, bridges, which offered less protection and few places to cling.

Day roosts were generally in more confined and protected locations at greater heights than night roosts. Three of the four



maternity colonies were found in wood bridges. Roosting crevices provided by these types of bridges are similar to those in bat boxes and may simulate preferred spaces bats use in trees or buildings.

The MtNHP and DOT report recommends that because bat use of bridges is relatively common and widespread in south-central Montana, and possibly throughout the state, measures to minimize disturbance or removal of roosts, even for common species, should be considered when it's time to repair or replace bridges. Departments of Transportation in California and Texas have taken this proactive approach, say the authors, which has helped educate people about bats, benefited farmers and provided much positive publicity at little cost to taxpayers. Montana could benefit from similar policies. For specific design and other recommendations, you can access the complete report at [www.mthnp.org](http://www.mthnp.org).

*Paul Hendricks is co-author of the Montana Bats and Bridges study, and a biologist with MtNHP.*

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## The Montana Natural Heritage Program

**T**he Natural Heritage Program ([www.mtnhp.org](http://www.mtnhp.org))

is the state's most comprehensive source for information on native species and habitats, emphasizing those of special conservation concern. MtNHP scientists collect, validate and distribute this information and help natural resource managers and others make effective use of it. Established by the Montana State Legislature in 1983, the program is located in the Montana State Library in Helena. MtNHP is part of an information network of natural heritage programs in all U.S. states and Canadian provinces, plus a number of Latin American and Caribbean nations. For information about plants and animals of North America, go to [www.natureserve.org/explorer](http://www.natureserve.org/explorer).