1. Spotted bat (*Euderma maculatum*) roosting in rock crevice (1 of 10)

The spotted bat (*Euderma maculatum*) is one of America's most striking mammals. Initially thought to be extremely rare, the spotted bat is now known to occupy a rather large range throughout western North America from southern British Columbia to northern Mexico. Spotted bats appear to feed almost exclusively on moths, using high-pitched echolocation calls that are audible to humans. This species' population status is uncertain and more information is needed about its habits and life history.

2. Lesser long-nosed bat (*Leptonycteris curasoae*) in flight to saguaro flower (2 of 10)

The lesser long-nosed bat (*Leptonycteris curasoae*) is one of three North American species that feed exclusively on the fruit and nectar of night-blooming cacti including saguaro and organ pipe, as well as many species of agave. Bats are important to the reproductive biology of these plants. For example, in the absence of bats, the seed set of the agave falls to one three-thousandth of normal. Lesser long-nosed bats are found in southern Arizona, southwestern New Mexico and throughout Mexico and Baja California. In 1988, these bats were listed by the U.S. Fish and Wildlife Service as endangered. Roost disturbance and possible effects of habitat loss such as the over-harvesting of agaves in Mexico represent their primary threats.

3. California leaf-nosed bat (*Macrotus californicus*) portrait (3 of 10)

The California leaf-nosed bat (*Macrotus californicus*) is a "gleaning" insectivore that captures prey such as crickets, grasshoppers, beetles and sphinx moths straight from the ground or foliage rather than in flight. These bats do not hibernate, nor do they migrate. They can be found in Sonoran and Mojave Desert scrub habitats in the Colorado River valley of southern California, Nevada, Arizona and throughout western Mexico. California leaf-nosed bats are susceptible to human disturbance in caves, mines and other roosts, especially during summer months when they rear young. Reclamation practices and re-working old mines can further impact populations.

4. Gray myotis (*Myotis grisescens*) in flight (4 of 10)

Approximately 95 percent of the entire known population of gray myotis (*Myotis grisescens*) hibernate in just nine caves each winter. Dense concentrations form in these cold air traps and are extremely vulnerable to human disturbance. In summer exceptionally warm caves are necessary for rearing young. Fewer than 5 percent of available caves are suitable for gray myotis occupancy at any time. Loss of these critically important caves through human disturbance and vandalism, combined with the adverse effects of siltation and pollution of waterways over which the bats feed, resulted in an alarming 80 percent decline of gray myotis in less than two decades. In 1976, this bat was listed as endangered by the U.S. Fish and Wildlife Service. Since listing, several critical hibernation and maternity caves have been gated, leading to stable and growing populations in many areas.

5. Keen's myotis (*Myotis keenii*) portrait (5 of 10)

Keen's myotis (*Myotis keenii*) is found from Alaska south to the coast and coastal islands of British Columbia and to the area of Puget Sound in Washington. It has recently been considered distinct from eastern populations (*formerly Myotis keenii septentrionalis*, now simply *Myotis septentrionalis*) and is now recognized a separate species. Keen's myotis is rarely encountered by biologists, and little is known about its current population status or behavior. It is presumed to be an inhabitant of dense timber stands, apparently roosting in tree cavities, although a population of about 70 individuals is known to inhabit one of the Queen Charlotte Islands. This unique colony roosts in association with little brown myotis (*Myotis lucifugus*) in rock crevices that are heated by a natural hot spring. In response to this species' apparent rarity and the lack of knowledge about its basic biology, Keen's myotis has been placed on the Provincial Red List by the Canadian Ministry of Environment, indicating a proposed endangered or threatened status.
Indiana myotis (Myotis sodalis) are mostly known from their winter hibernation roosts in caves and mines. Until recently biologists only speculated on where they went in summer. Studies now indicate that in summer these endangered bats roost and rear their young under loose bark or in tree hollows, often returning to the same tree year after year. As is true for many bats that use forests, mature trees are favored, both because they provide roost sites and because Indiana myotis often forage around the crowns of large trees. This bat was one of the first to be listed as endangered by the U.S. Fish and Wildlife Service. Despite protection, this species continues to decline in several parts of its range, though some populations in protected caves and mines are now stable or increasing in size.

Townsend’s big-eared bats (Corynorhinus townsendii) are found throughout western North America, from British Columbia south to Oaxaca, Mexico, with two endangered subspecies in isolated areas in the Ozark and Central Appalachian regions of the U.S. In the West, their most typical habitat is arid western desert scrub and pine forests. These bats are extremely sensitive to disturbance at their roosting sites in caves and abandoned mines. Populations in many states are known to be declining, most notably in Oregon and Washington. Human disturbance is the main factor blamed for their decline.

The western mastiff bat (Eumops perotis) is the largest bat in the U.S., with a wingspan approaching two feet (0.6 m.). It is found in California, Nevada, Arizona, Texas and Mexico, though it is rarely encountered in large numbers. Almost nothing is known about the behavior or status of western mastiff bats. Because they roost in cliff-face crevices and feed high above the ground, they are rarely seen and approach the ground only at a few select drinking sites. This bat is severely limited by available drinking water. Its long, narrow wings preclude it from drinking at ponds less than 100 feet (30 m.) long. Apparently due in large part to the loss of large natural springs, western mastiff bats are no longer found in many previously occupied areas and populations may be in decline, though past and present observations are too few to determine their status.

Sights like this illustrate the urgent plight of bats that hibernate in caves and abandoned mines. This mine, located in upper Michigan, was not very dangerous and was therefore a tempting site for local teenagers to explore. Having found hibernating bats less than a hundred yards (90 m.) inside, the youths repeatedly returned to burn the bats while they were hibernating helplessly on the walls. A subsequent trip into the mine by area biologists documented large numbers of dead and dying bats and empty hair spray cans, which had been lit and used as torches. Only 70,000 bats remained alive, less than a third the number earlier recorded.

Deliberate vandalism is not the only threat to bats. Careless human entry into a hibernation cave can cause bats to awaken prematurely, and they can expend anywhere from 10 to 30 days' worth of fat reserves as a result of the intrusion. Repeated disturbance causes thousands of hibernating bats to starve to death before spring each year, a primary cause of population decline. The problem can be greatly reduced through education. Since bats rarely need the same caves year-round, cavers can plan their visits to avoid bat hibernation caves in winter and nursery caves in summer. In many cases, bat-friendly gates like the Hubbards Cave gate have been erected to protect vulnerable colonies from disturbance. The gates prevent humans from entering but allow the bats to come and go easily. Saving Hubbards Cave required a massive cooperative effort initiated by Bat Conservation International and implemented by five other public and private agencies. The 120-ton (109 metric tonnes) gate now protects one of the world's largest bat hibernating populations each winter.
Learn more about bats...

The following resources offer more information about North American bats and conservation issues:


Learn more about North American bat species.
Check out BCI’s educational audio/visual program: *Bats of America*.
Available in slide/tape format ($85 member price) or VHS video ($19.95); 15 minutes, 80 images.
Contact BCI to order your copy at: (800) 538-2287 or order on-line at:


Learn more about bats and the threats they face in their forest and cave habitats and how man-made structures are beginning to help these beleaguered masters of the night skies.
Check out the North American Bat House Research Project on BCI’s Web site at:


Check out the North America Bats and Bridges Project on BCI’s Web site at:


Check out the North America Bats and Mines Project on BCI’s Web site at:


Search the complete text of the back issues of Bat Conservation International’s quarterly magazine via the *BATS* Magazine Archive on BCI’s Web site at:


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