

# WILDLIFE DIVERSITY NOTEBOOK: Virginia big-eared bat



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There are more Virginia big-eared bats in West Virginia than any other state. One cave has the largest concentration of bats anywhere in the world.

**Scientific Name:** *Corynorhinus townsendii virginianus*

**Status:** This bat, a subspecies of Townsend's big-eared bat, is listed as federally endangered by the U.S. Fish and Wildlife Service. The total population is probably less than 20,000 individuals.

**West Virginia Status:** More Virginia big-eared bats occur in West Virginia than in any other state. Caves are very important for this bat, and most of the significant caves are protected in some way. As a result, populations in the state are increasing. Populations in some caves have increased as much as 512 percent from 1983 to 2006.

**Description:** The Virginia big-eared bat is a moderate-sized bat weighing less than 1/2 ounce (about the weight of two nickels). The fur is brown, and the underparts are

buff-colored. The large ears are over one inch in length. There are two prominent lumps on the nose. The hairs on the toes do not extend much beyond the ends of the toes. The only bat it can be confused with is Rafinesque's big-eared bat, but this bat has white belly fur and long toe hairs.

**Habitat:** Caves are used by Virginia big-eared bats in both winter and summer. During the winter, these bats hibernate in caves that provide cold, but above freezing, temperatures. Most of the world's Virginia big-eared bats hibernate in just three caves. One cave in West Virginia harbors over 5,360 hibernating Virginia big-eared bats, the largest concentration of these bats anywhere. Female Virginia big-eared bats form maternity colonies in caves where they rear their young. Warm caves are most suitable for

maternity colonies.

Virginia big-eared bats forage in a variety of habitats including old fields, hay fields, and forested areas. Radiotelemetry studies in West Virginia have shown that these bats travel up to 6.5 miles from the cave roost to feed. Individual bats often return to the same feeding area night after night.

**Threats And Prospects:** The number of Virginia big-eared bats declined sharply from the 1950s to the early 1980s. Most of the decline has been attributed to human disturbance of these animals in their cave roosts. During winter, these bats are more sensitive than most bats to disturbance, and they are easily awakened from hibernation. Because the bats must survive the winter on a limited amount of stored fat, each arousal uses up some of the fat reserve the bats need to survive. If they are

disturbed repeatedly throughout the winter, they can starve to death before spring arrives.

In the summer, disturbance of maternity colonies causes the females to panic. Young dropped to the cave floor may not be recovered, and the bats may abandon the site altogether. Although pesticides have impacted other bat species, they do not seem to have played a significant role in the decline of this species. Fortunately, Virginia big-eared bat numbers have increased since the early 1980s. This is the result of the protection of cave roosts. Critical caves are closed to human travel during the time when the bats are using the cave. Gates and fences have been built at some cave entrances.

**Range:** There are five recognized subspecies of Townsend's big-eared bat. Two of these subspecies occur in the western United States, and one subspecies is found in Mexico. Another subspecies is found in the karst region (an area characterized by limestone and associated sinkholes and caves) of the Ozark Mountains. The fifth subspecies, the Virginia big-eared bat, occurs in the southern Appalachian Mountains. Populations exist in Kentucky, North Carolina, Virginia and West Virginia.



DNR biologists use nightscopes to observe the number of bats exiting cave colonies. To see a video of this behavior, go online at [www.wvdnr.gov/wildlife/RETspecies.asp](http://www.wvdnr.gov/wildlife/RETspecies.asp) and choose Virginia big-eared bat in the dropdown menu.

**Life History:** Mating takes place in the fall and winter, but the sperm is stored and the ova are not fertilized until the next spring. Pregnant females start to appear in the maternity colony as early as mid-March, but most do not arrive until later. The number of bats in maternity colonies in West Virginia ranged from 131 to 1,175 bats in June, 2006.

The gestation period for this species varies from 56 to 100 days, depending on the ambient (outside) temperature--the young develop more quickly during warm springs. In West Virginia, most young are born in June. Each female has a single young, known as a "pup." The pups are quite large and may weigh as much as 25 percent of the mother's weight. The young are capable of flight by the time they are three weeks old; by six weeks of age they are weaned.

The location of most males during the summer is not known, but a few "bachelor" colonies have been found. Virginia big-eared bats do not leave their cave roost until quite late in the evening. For this reason, they are rarely seen as they forage. During the night the bats punctuate feeding bouts with periods of inactivity when they digest their food. During these periods of rest, the bats often roost near their foraging areas. They have been observed night-roosting in old sheds, in trees, under bridges, and even in an old chicken coop.

These bats do travel long distances; the largest movement recorded is around 40 miles. The oldest known Townsend's big-eared bat on record was 16 years, five months in age. In the autumn, the bats put on



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*The Virginia big-eared bat has distinctive ears.*

fat to get them through the winter when the insects they feed on are not available. Some bats begin to return to the hibernation site in September, but they still continue to feed each warm evening. By December, the bats have entered hibernation. During hibernation the bats form dense clusters on the cave ceiling.

**Diet:** Like all bats in West Virginia, the Virginia big-eared bat feeds exclusively on insects. Small moths make up the largest part of this bat's diet.

**Help:** Do not go into any cave that is closed to protect endangered bats, and report anyone who enters a closed cave to your local conservation officer or call the WVDNR Operations Center at (304) 637-0245. Report all sightings of big-eared bats to Bat Report, P.O. Box 67, Elkins, WV 26241 or call (304) 637-0245.