



## Virginia Big-Eared Bat (*Corynorhinus townsendii virginianus*)

### Common Name

Virginia Big-Eared Bat  
Virginia Big-Eared Myotis

### Scientific Name

*Corynorhinus townsendii virginianus*

### Status

This bat, a subspecies of Townsend's big-eared bat, is listed as federally **Endangered** by the US 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 350% from 1983 to 1995.

### Description

The Virginia big-eared bat is a moderate-sized bat weighing 9-12 grams (the common little brown myotis weighs around 6 grams). The fur is brown, and the underparts are buff-colored. The large ears are over 2.5 centimeters (1 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 6350 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, but a few maternity colonies occur in cold caves. In these caves, the colony

gathers in small domes in the cave ceiling where their body heat is trapped, creating a pocket of warm air. Virginia big-eared bats forage in a variety of habitats including old fields, hay fields, and forested areas. Radio-telemetry studies in West Virginia have shown that these bats travel up to 10.5 kilometers (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 1950's to the early 1980's. Most of the decline has been attributed to human disturbance of these animals in their cave roosts. During winter,



(Photo by Joe Miller)

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 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 affected 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 1980's. 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.

### Life History

Mating takes place in the fall and winter, but the sperm is stored and the ova is 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 ranges from 120 to 1350 bats (based on 1995 data). The gestation period for this species varies from 56 to 100 days depending on the ambient (outside) temperature (the young develop quicker 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% 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 57 kilometers (40 miles). The oldest known Townsend's big-eared bat on record was 16 years 5 months in age. In the autumn, the bats put on fat to get them through the winter when the insects they fed 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.

### Additional Comments

The scientific name of this bat was changed recently. In earlier literature this bat is called *Plecotus townsendii virginianus*.

### 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 the number given above (304) 637-0245.