

Townsend's Big-eared Bat

Corynorhinus townsendii

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Disclaimer: The following document was compiled based on a review of information currently available for this species as of November 25, 2005. This document can be used to assist with the identification of this species and to support the development of management recommendations as they relate to forestry activities. For more information on this species, please refer to the reference section or consult with a Species at Risk specialist.

Description

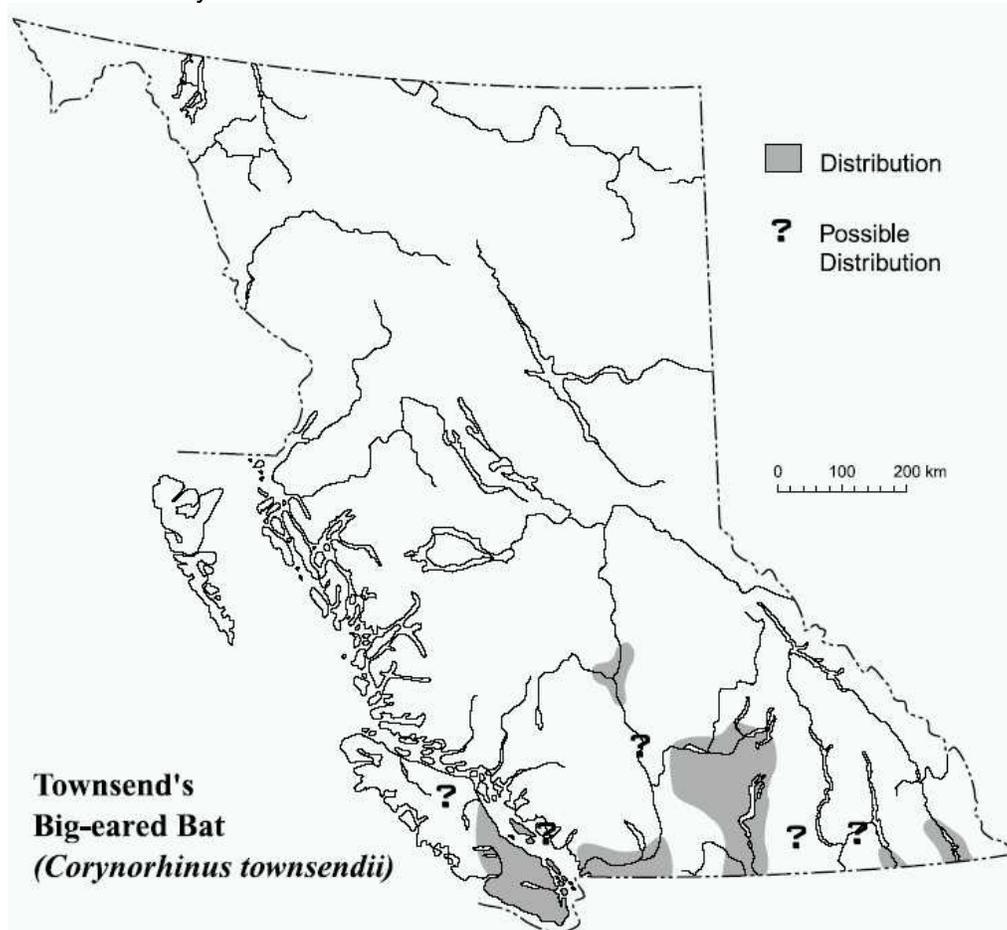
The Townsend's Big-eared Bat is easily distinguished from other British Columbia bats by its large ears, which measure approximately half its body length, and the two fleshy protrusions on its muzzle. These account for its common names of "big-eared" or "lumpnosed" bat. The long fur on the back of Townsend's Big-eared Bat varies from pale brown to blackish-grey, while the hairs in the underfur are paler. Male and female big-eared bats have similar colouring. Bats from coastal areas tend to be darker than bats from the interior of the province. The tragus or earlet, an erect fleshy structure found at the base of the ear in all bats, is about one-third of the ear length and pointed in this species. Townsend's Big-eared Bat is a medium-size species with a wingspan of about 30 cm, a total length of 10 cm and a weight of 8.5 grams¹.



Photo courtesy of U. S. Fish and Wildlife Service

Distribution

Townsend's Big-eared Bat is restricted to the Southern Interior north to the Williams Lake area. Wintering big-eared bats have been found in caves or mines in the South Okanagan Valley, at Kamloops Lake and along the Fraser River near Williams Lake. The summer nursery sites of bats from these locations remain unknown¹.



Distribution of Townsend's Big-eared Bat in British Columbia²

Forest Districts³

- Arrow Boundary Forest District (DAB)
- Central Cariboo Forest District (DCC)
- Chilcotin Forest District (DCH)
- Chilliwack Forest District (DCK)
- Campbell River Forest District (DCR)
- **Cascades Forest District (DCS)**
- North Island - Central Coast District (DIC)
- **Kamloops Forest District (DKA)**
- Kootenay Lake Forest District (DKL)
- Okanagan Shuswap Forest District (DOS)
- Rocky Mountain Forest District (DRM)
- Sunshine Coast Forest District (DSC)
- South Island Forest District (DSI)
- Squamish Forest District (DSQ)

Biogeoclimatic Units³

- BG - Bunchgrass
- CDF - Coastal Douglas Fir
- CWH - Coastal Western Hemlock
- ICH - Interior Cedar -- Hemlock
- IDF - Interior Douglas-fir
- PP - Ponderosa Pine

Elevation

A study in Utah found that the bat roosts at elevations between 1350-2440m⁴.

Map of Known Locations

Townsend's Big-eared Bat occurrence data is considered sensitive by the Conservation Data Centre (CDC). Therefore, known location data for this species is not available to the public. Please contact the CDC to request this data at:

Phone: (250) 356-0928

Fax: (250) 387-2733

Biology

Reproduction

Townsend's Big-eared Bats hibernate from September to May. Mating takes place during hibernation and sperm is stored all winter in the female reproductive tract, a strategy called delayed fertilization. Ovulation and fertilization occurs in spring. Females are sexually mature in their first summer while males do not reach sexually maturity until their second year^{3,4}.

In the spring, females form summer maternity colonies, usually returning to the same site each year; males roost singly at night in scattered locations. The gestation period is controlled by temperature and varies from 50 to 100 days; cool temperatures induce torpor (a lowering of body temperature and metabolic rate) and a longer gestation period. Female bats give birth to one young per year in late June to mid July. Young grow extremely fast and begin to fly at 2.5 to 3 weeks of age and are weaned at about 6 weeks⁵.

Foraging

The diet of the Townsend's Big-eared Bat consists of small moths, flies, beetles, lacewings and sawflies⁵.

Habitat

Although the Townsend's Big-eared Bat occurs in a wide variety of habitats including dry grasslands, coniferous and deciduous forests⁵, its distribution is strongly correlated with availability of caves or cave-like roosts⁶.

Important Habitats and Habitat Features

Townsend's Big-eared Bats are dependent on close proximity of roosting and foraging sites. Summer maternity colonies and hibernation sites are usually within few kilometres⁵. This species prefers relatively cold places for hibernation, often in well-

ventilated areas. They do not use crevices or cracks but rather, hang from the ceiling, generally near the zone of total darkness⁷. For night roosts, the bats use caves, old mines, buildings, and tree cavities^{4,6}.



Bat hibernacula (photo courtesy of Trevor Moelaert)

Foraging

Foraging habitat includes insect-rich riparian areas, wetlands, forest edges and open woodland⁵.

Conservation and Management

Status³

Provincial Status: S2S3 (Provincially Imperiled/Apparently Secure)

BC List: Blue (Special Concern)

Threats

Townsend's Big-eared Bats are very sensitive to human disturbance in hibernacula and nursery colonies⁶. Disturbing females with young can severely lower breeding success. Repeated disturbance at winter hibernacula can cause energy loss, abandonment of the caves and death. When roosting in hibernacula, Townsend's Big-eared Bats do not hide in crevices like many bats do and so are very susceptible to disturbance. Various land use or industrial activities near bat colonies or in their foraging areas can adversely affect Townsend's Big-eared Bat. Insecticide spraying on agricultural or forest lands is of particular concern, because it can potentially destroy the bat's food supply¹.

Like other bats, this species has a very low reproductive rate. Females bear only one young per year. Thus, even low rates of mortality caused by human disturbance, when added to natural losses can result in population declines and eventual elimination of local colonies¹.

Management Recommendations

Consult with a Registered Professional Biologist prior to implementing the following management recommendations because certain situations may require custom solutions based on specific site characteristics.

- Budget permitting, develop a habitat model to help identify high value habitat found within your areas of interest. The complexity of the model, and therefore its accuracy, will be dependent on budgetary constraints.
- Identify locations where this species is known to occur including active hibernacula and maternity sites: if available, obtain occurrence data from the Conservation Data Centre (<http://srmwww.gov.bc.ca/cdc/>) and if necessary conduct surveys to confirm presence or absence of this species.

In areas where this species is identified:

- Protect hibernacula and maternity sites from disturbance. Bat-friendly gates can be used to stop the public from entering these sites.
- If the area of forestry operations includes sites with cliffs or rock outcroppings which have openings or crevices (especially those which have sunny aspects), then these sites should be incorporated into wildlife tree patches (WTPs) where possible, or some other retention strategy which preserves the integrity of the site. These sites will usually be at lower elevations in the Coastal Douglas-fir and Coastal Western Hemlock biogeoclimatic zones (T. Manning pers comm.).
- Create a buffer zone such as a wildlife tree patch around identified hibernacula and maternity sites. The size of WTPs or other retention patches around hibernaculum or maternity roosts should be a minimum of 3.0 ha (approximately 100 m radius or equivalent area), and if possible be centered on the habitat feature. The WTP may be larger depending on other site factors (e.g., presence of nearby wetlands, lakes or streams as foraging habitat; presence of potential movement corridors for feeding and dispersal to alternate roosts). This will reduce disturbance from machinery as well as maintaining canopy cover near roosting sites⁸.
- Do not blast, remove rock or talus, or construct roads within the WTP or other retention patch surrounding the hibernaculum or maternity roost unless there is no other practical option. Consult with Ministry of Environment staff in this situation.
- Do not harvest or salvage trees within the WTP or other retention patch surrounding the hibernaculum or maternity roost.
- When harvesting in areas immediately adjacent to the WTP or retention patch, encourage a relatively open residual stand structure by using partial harvesting systems that maintain >50% basal area

- Retain a selection of stand structural elements, such as large green trees, snags, logs on the forest floor, and canopy gaps. Where available, snags should have cracks, peeling bark, bird holes, broken tops and hollow interiors⁹.
- Do not use pesticides, particularly near wetlands and riparian areas⁵.

References

- ¹ Blood, D.A. 1998. Townsend's Big-eared Bat. B.C. Minist. Environ., Lands and Parks, Wildl. Branch. 6pp.
- ² *Corynorhinus townsendii* in Rare Amphibians, Reptiles, and Mammals of British Columbia, B.C. Minist. Environ., Lands and Parks, 1999
- ³ BC Conservation Data center. Website: <http://srmapps.gov.bc.ca/apps/eswp/>.
- ⁴ Handley, C. O., Jr. 1959. A revision of American bats of the genera Euderma and Plecotus. Proceedings U.S. National Museum 110:95-246.
- ⁵ Habitat Atlas for Wildlife at Risk: South Okanagan and Lower Silmilkameen. Website: <http://wlapwww.gov.bc.ca/sir/fwh/wld/atlas/species/townsend.html>.
- ⁶ Cannings, S.G., L.R. Ramsay, D.F. Fraser, and M.A. Fraker. 1999. Rare amphibians, reptiles, and mammals of British Columbia. Wildl. Branch and Resour. Inv. Branch, B.C. Minist. Environ., Lands and Parks, Victoria, BC. 198pp.
- ⁷ Schmidly, D. J. 1991. The bats of Texas. Texas A & M Univ. Press, College Station. 188 pp.
- ⁸ Townsend's Big-eared Bat. NatureServe Explorer. Website: <http://www.natureserve.org/>.
- ⁹ Ministry of Environment. Managing Identified Wildlife: Procedures and Measures (http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/other/wild/part2-14.htm#P1276_81861)