

BC's Coast Region: Species & Ecosystems of Conservation Concern

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

Global: G4 Provincial: S3 COSEWIC: N/A BC List: Blue



Notes on *Corynorhinus townsendii*: This member of the family Vespertilionidae (“vesper bats”), also known as “evening” or “common” bats is most notable for its exceptionally long ears and warty protrusions found on either side of the rostrum (snout). Members of the genus *Corynorhinus* were formerly referred to as “Lump-nosed” or “American Long-eared” bats. The genus is restricted to North America where it is represented by three species - “Rafinesque’s Big-eared Bat”, “Mexican Big-eared Bat, and Townsend’s Big-eared Bat (restricted in Canada to BC).

Description

Length 9-11.2 cm, weight 5-13 g. This species earns its name from the very large ears (3.0-3.9 cm) which join across the forehead. Dorsal fur is somewhat long and wavy and can be slate or grey with pale cinnamon-brown to blackish-brown tips that contrast little with the base; the belly is slate, grey, or brownish, with brownish or buff tips. Two large fleshy lumps on the rostrum and hairs on the toes that do not project beyond toenails distinguish this species

Diet

Over 90% of this species diet is composed of various species of moth. Other prey items include various flying insects. Insects are captured by scooping them into the tail or wing membranes. This species also grabs prey directly by mouth, a method that creates an erratic flying pattern as the bat darts and snaps at insects in flight. Water is taken on the wing by taking short drinks as the bat flies along the water’s surface.

Look’s Like?

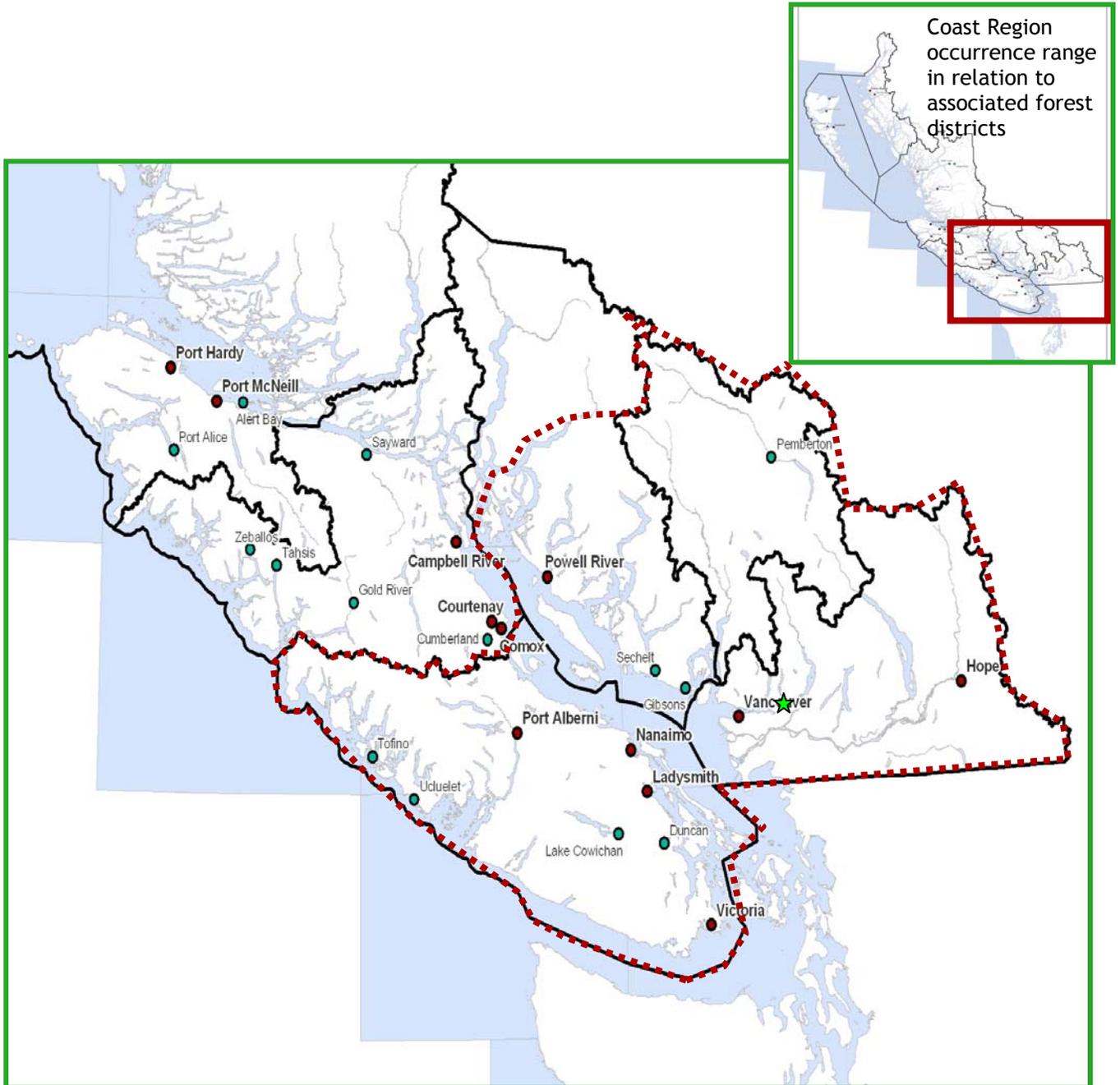
There are a number of “long” or “big-eared” bat species from various genera in BC (e.g. Keen’s *Myotis*), that may be mistaken for *C. townsendii* (especially in flight). Pallid Bat and Spotted Bat are the only other species with comparably large ears. Spotted Bat is readily identified by its distinctive markings and Pallid Bat is larger (forearm length 4.5-6.0 cm) with more amber fur; neither have rostrum lumps.



Pallid Bat

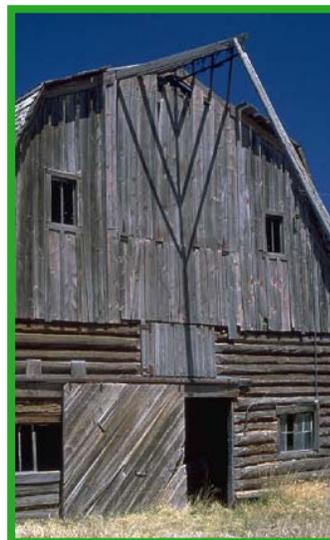
Distribution

Elevations: 0-1100 m. In North America, Townsend's Big-eared Bat is distributed from central Mexico, east to the Great Plains and north into BC where its range extends into central BC and west to the coast and southeast Vancouver Island. The most publicized occurrence was on the South Coast where one of the largest maternity colonies was observed in the loft of a barn at Minnehada Regional Park near Burke Mountain in Metro Vancouver.



Townsend's Big-eared Bat (*Corynorhinus townsendii*), known occurrence range for the Coast Region (Minnehada Farm maternity colony green star)

Habitat Preferences Townsend's Big-eared Bat tends to roost in the open, hanging from walls and ceilings 2-4 meters from the ground. Maternity and other roost sites on the mainland area of the Coast Region have been more commonly associated with built structures rather naturally forming or excavated cave features. However karst caves, talus slopes, old mine excavations or other similar features may be used.



This species utilizes caves, crevices and lava tubes as well as abandoned mine shafts, and agricultural buildings.

Critical Features Proximity to a mosaic of mixed forest, grassland, and/or shrub thickets and riparian areas along with limited human disturbance appears to be the key factor for maternity and hibernacula site selection. Microclimate conditions, i.e. relatively cold sites (e.g. <math><10^{\circ}</math> c.) with good air flow and ventilation are preferred for hibernation. Sites are often near cave or building openings or entrance. Individuals hunt primarily around the perimeter of trees, usually 10-30 m off the ground, between mid-canopy and near the top of the canopy. However conservation planning requires management beyond immediate roost site

locations and should include a range of contiguous protected areas with enhancement of key features such as riparian, wetland and shrub thicket foraging areas based on dispersal information. In Oregon, adults moved up to 24 km from hibernacula to foraging areas although a 16 km distance appears to be a suggested average for a management zone.

Seasonal Life Cycle

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
			Females form maternity colonies (up to 200 individuals) Gestation 2-3.5 months, 1 pup born mid-July, weaned at 6 weeks.					Fall breeding, delayed ovulation and fertilization. Nearly all adult females breed every year			
Hibernation								Hibernation			

Mating takes place from November to February, usually at hibernation sites. Fertilization is delayed until females leave the hibernacula in the following spring for maternity colonies.

Threats

- ◆ This species dependency on abandoned, built structures or cave features for hibernacula, maternity and roosts make it vulnerable to large-scale disturbance from human activities (e.g. recreation, mineral exploration and redevelopment, recreational caving). Potential logging in areas supporting karst cave sites also increases disturbance risk
- ◆ Cave dwelling bats are sensitive to minute changes to moisture and temperature micro-climate conditions within caves. Disturbance can alter these regimes as well as causing bats to rouse from hibernation or flee from maternal sites using up critical energy reserves or abandoning young. This species in particular appears to quickly abandon any form of roost area impacted by human disturbance and will not return even well after the disturbance ceases.
- ◆ White-nosed syndrome, a fungal pathogen potentially spread by human activities, though not yet documented in BC, is decimating cave dwelling bat populations in eastern North America and is of significant concern.
- ◆ As insectivores, bats are also vulnerable to pesticides used to control insect pests, many of which may be part of the bats diet. Either through prey loss or pesticide build up in the food chain, bats can be affected by silviculture/agricultural pest control practices.

Conservation & Management Objectives

- ◆ In the absence of legislated conservation and management guidelines for this species, apply criteria (where applicable and based on *C. townsendii* life history) as set out for other bat species (e.g. Keens Myotis) through the Identified

Wildlife Management Strategy for BC. Integrate complimentary measures and recommendations identified from work on this species in the Kootenay's and South Okanagan as well as Washington State and California.

- ◆ Assess, inventory and monitor using methodology set out in the RISC standards #20 Inventory Methods for Bats Version 2.0. Townsend's Big-eared Bat is not readily detected in mist net or acoustic surveys; roost searches are the most efficient survey method for this species. However, roost surveys must be undertaken with caution, disturbance at the roost can result in abandonment by this species.

Specific activities should include:

- ◆ Protect known hibernacula, maternity and other roosting sites as well as adjacent foraging areas and movement corridors (e.g., upland forests and riparian areas).
- ◆ Research is needed into various life history parameters such as reproductive cycle, food habits, roosting sites, migration, and hibernation ecology. Additional morphological and genetic studies are needed to aid in field identification of this and related species.
- ◆ Establish stewardship agreements and/or conservation covenants with industry, private landowners and recreational interests to create no disturbance or special management zones ("SMZ's") around known hibernacula and other roosting sites. Potential disturbance of maternity colonies/hibernacula including recreational use and road construction should be restricted especially during critical usage times (hibernation November-April and maternity May-September).
- ◆ A minimum 150 meter protective buffer has been recommended for hibernacula and maternity colonies. Forage and roost buffer requirements will depend on site-specific factors including the type of feature (cave vs. built structure), location of adjacent roosting trees, presence of wetlands or lakes, and potential movement corridors.
- ◆ Employ integrated pest management practices that reduce the need for chemical applications. Recommended buffers for aerial spraying are anywhere from 3-24 km from roosting sites.

This species is subject to protections and prohibitions under the BC Wildlife Act. Habitat for this species may also be governed under provincial and federal regulations including the Fish Protection Act and Federal Fisheries Act as well as Regional and local municipal bylaws.

Content for this Factsheet has been derived from the following sources

- B.C. Conservation Data Centre. 2010. [Internet] Species Summary: *Corynorhinus townsendii*. B.C. MoE.
- BC Ministry of Environment. 1998. [Internet] Habitat Atlas for Wildlife at Risk Townsend's Big-eared Bat *Corynorhinus townsendii* Beasley, Barbara. 2008. [Internet] Species At Risk within Nuu-chah-nulth Territories Compiled for the Uu-a-thluk Council of Ha'wiih And Nuu-chah-nulth Nations.
- California Department of Fish and Game East Contra Costa County. 2002. [Internet] Species Profiles Mammals Townsend's Western Big-Eared Bat (*Corynorhinus townsendii townsendii*)
- Deschenes, Marc. 2003. [Internet] Fort Shepherd Townsend's Big-eared Bat Project Geological Setting. Columbia Basin Fish & Wildlife Compensation Program and BC Hydro.
- King County Washington State. 2004. [Internet] Critical Areas Ordinance Executive Summary Best Available Science. Chptr 8. Wildlife.
- Miner, Karen L. and Drew C. Stokes. 2005. [Internet] Bats in the South Coast Ecoregion: Status, Conservation Issues, and Research Needs. USDA Forest Service Gen. Tech. Rep. PSW-GTR-195
- Mitchell, Wilma A. 2002. [Internet] Cave-and Crevice-Dwelling Bats on USACE Projects: Townsend's Big-eared Bat (*Corynorhinus townsendii*)
- Pierson, Elizabeth D & William E. Rainey. 1994. [Internet] Distribution, Status and Management of Townsend's Bid-Eared Bat (*Corynorhinus townsendii*) in California. State of California. The Resources Agency Department of Fish and Game.
- Polster, D. et al. 2006. [Internet] Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia. Prepared for the BC Ministry of Environment. Victoria (BC).
- Schovsbo Smyth, Marianne. 1994. [Internet] A Maternity Colony of Townsend's Big-eared Bats, *Corynorhinus townsendii*. UBC thesis.
- Texas Parks and Wildlife Department. [Internet] [Updated June 2 2009] Mammals of Texas - online Townsend's Big-eared Bat (*Plecotus townsendii*)
- Western Bat Working Group. 2010. [Internet]. Species Accounts *Corynorhinus townsendii*

Prepared by: Pamela Zevit of Adamah Consultants for the South Coast Conservation Program (SCCP) in partnership with: International Forest Products (Interfor), Capacity Forestry (CapFor) and the BC Ministry of Environment (BC MoE), E-Flora and E-Fauna the Electronic Atlas of the Flora and Fauna of BC, Species at Risk & Local Government: A Primer for BC. Funding for this factsheet was made possible through the Sustainable Forestry Initiative (SFI): <http://www.sfiprogram.org/>

Every effort has been made to ensure content accuracy. Comments or corrections should be directed to the South Coast Conservation Program: info@sccp.ca. Content updated August 2010.

Image Credits: Townsend's Big-eared Bat; Dave Bunnell Wikipedia, Pallid Bat: M. Hedin Flickr, Habitat: Pamela Zevit. Only images sourced from "creative commons" sources (e.g. Wikipedia, Flickr, U.S. Government) can be used without permission and for non-commercial uses only. All other images have been contributed for use by the SCCC and its partners/funders only.