Western Bat Working Group
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Species Accounts
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Myotis thysanodes
FRINGED MYOTIS

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I. DISTRIBUTION: *Myotis thysanodes* ranges through much of western North America from southern British Columbia, Canada, south to Chiapas, Mexico and from Santa Cruz Island in California, east to the Black Hills of South Dakota (Figure 1). *M. thysanodes* occurs from sea-level to 2850 m but is most common at middle elevations 1200 Ð 2100 m. Distribution is patchy. It appears to be most common in drier woodlands (oak, pinyon-juniper, ponderosa pine) but is found in a wide variety of habitats including desert scrub, mesic coniferous forest, grassland, and sage-grass steppe.

Three subspecies have been recognized: *M. t. thysanodes* in the main portion of its range, *M. t. pahasapensis* from the Black Hills of South Dakota, Wyoming and Nebraska, and *M. t. aztecus* from Oaxaca, Mexico. A fourth subspecies, *M. t. vespetinus* has been suggested to occur west of the Cascade mountains in southern Washington, Oregon, and northern California. Recent molecular work has found great genetic variation within long-eared *Myotis* species in western North America. For instance, within species sequence divergence has so far appeared greater across the range of *M. thysanodes* than from *M. evotis* in close geographic proximity. Further, genetic variability has not been consistent with recognized subspecies boundaries.

II. STATUS: Global Rank Ð G4. State Ranks: AZ - S3S4; CA - S4; CO - S3; ID Ð S2; MT -S3; NM - S5; NV Ð S2B; OR Ð S2S3; SD Ð S2; TX - S3; UT - S3B; WA - S3; WY Ð S2; BC - S2S3. *M. thysanodes* is widespread in western North America but distribution is patchy in most portions of its range. It is a Species of Special Concern in California, Idaho, Oregon, Utah, and Wyoming.

III. IDENTIFYING CHARACTERISTICS AND LIFE HISTORY: *M. thysanodes* can be distinguished from other species by a conspicuous fringe of hair along the posterior edge of its interfemoral membrane. It has long forearms and ears relative to other *Myotis* in the region. Pelage color is variable (brown to reddish brown) and often noticeably lighter on ventral side. In some areas, *M. thysanodes* can be difficult to distinguish from *M. evotis*. *M. thysanodes* may also be difficult to distinguish from *M. keenii* in the northwest portion of its range.

M. thysanodes roosts in crevices in buildings, underground mines, rocks, cliff faces, and bridges. Roosting in decadent trees and snags, particularly large ones, is common throughout its range in western U. S. and Canada. *M. thysanodes* roosts have been documented in a large variety of tree species and it is likely that structural characteristics (e.g. height, decay stage) rather than tree species play a greater role in selection of a snag or tree as a roost. Maternity roosts are colonial with colonies ranging from 10-2,000 individuals, though large colonies are exceedingly rare. Much less information is available on roosts of males, but it is thought that they roost singly or in small groups. The information available on hibernation is largely limited to an accounting of the types of structures used as hibernacula including: caves, mines and buildings.

Copulation likely occurs in the fall following break-up of the maternity colony. Sperm are stored over winter and ovulation, fertilization and implantation occur late April to early May. Gestation lasts about 50 - 60 days. One young per female is born beginning in late June but likely varies according to latitude, elevation, and climate. Young are capable of flight at 16 days and fully volant at 20 days.

M. thysanodes feeds on a variety of invertebrate taxa and the relative importance of prey items may vary according to prey availability, geography, or time period. The two most commonly reported orders in its diet are beetles (Coleoptera) and moths (Lepidoptera). However, several potentially flightless taxa such as Phalangida (harvestmen), Araneida (spiders), and Gryllidae (crickets) have been found in its diet. The presence of non-flying taxa in its diet indicates that *M. thysanodes* may glean prey from vegetation in addition to capturing prey on the wing. The potential to glean prey in concert with its wing-loading, flight style, morphological adaptations of wing and tail membranes, and design of its echolocation call indicate that *M. thysanodes* is adapted for foraging within forest interior and along forest edges.

IV. THREATS: Threats identified to date for *M. thysanodes* largely focus on loss or modification of roosting habitat. Specifically *M. thysanodes* may be threatened by: closure or renewed activity at abandoned mines, recreational caving and mine exploration loss of current and future large, decadent trees and replacement of buildings and bridges with non- bat friendly structures. Removal of large blocks of forest or woodland habitat may also threaten the species due to its apparent propensity for foraging in and around trees.

In general, the long term persistence of North American bat species is threatened by the loss of clean, open water; modification or destruction of roosting and foraging habitat; and, for hibernating species, disturbance or destruction of hibernacula. Chemicals in the environment that affect bats or their prey are also a threat. Because of low fecundity, high juvenile mortality, and long generational turnover, many bat populations may be vulnerable to human-induced pressures.

V. SURVEY METHODS: Capture is the most reliable method to identify *M. thysanodes* because of its low-intensity echolocation call and habit of roosting in crevices. Once captured, identification is generally easy, but it may be morphologically similar to *M. evotis* in some regions. Low-intensity makes echolocation calls difficult to detect but, relative to other Myotis, are more readily identified. Identification using echolocation requires experience and humility. Not all calls will be identifiable and confirming species presence with capture is preferable. As *M. thysanodes* is a crevice roosting species it is difficult to detect particularly at natural roosts (e.g., trees and rock crevices). It can sometimes be detected in man-made roosts, but requires capture to confirm species identification

VI. GAPS IN KNOWLEDGE: Knowledge of the following is lacking: 1. Hibernation roosts and winter behavior; 2. migration behavior; 3. range or region-wide population status; 4. foraging habitat selection; 5. adult male life history; 6. breeding locations and behavior; 7. reason that distribution appears patchy.

VII. SELECTED LITERATURE:

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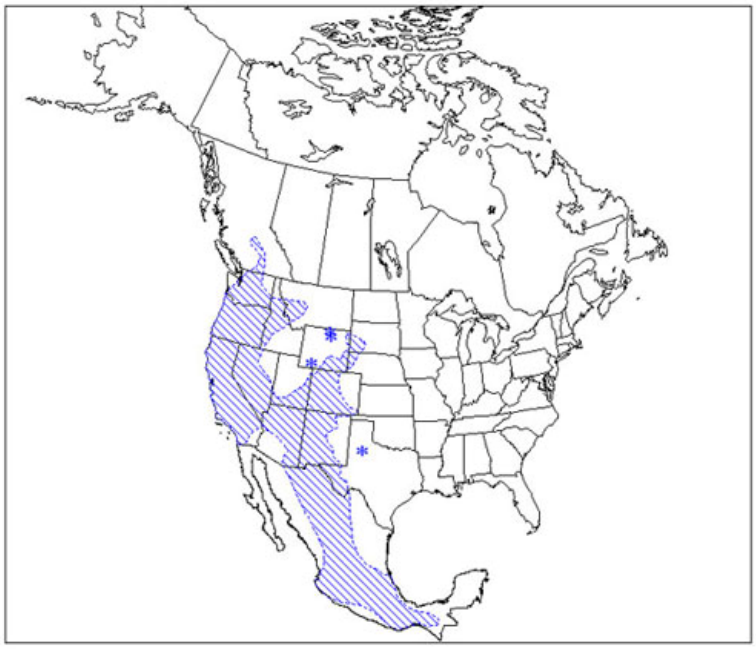

Figure 1. Range map courtesy of Bat Conservation International.
http://www.batcon.org/discover/species/mythysan.html

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