

# California myotis

*Myotis californicus*

Class: Mammalia  
Order: Chiroptera

**Review Status:** Peer-reviewed

**Version Date:** 19 December 2017

## Conservation Status

*NatureServe:*      *Agency:*

G Rank: G5      ADF&G: Species of Greatest Conservation Need      IUCN: Least Concern      Audubon AK:

S Rank: S4      USFWS:      BLM:

<b>Final Rank</b>		
Conservation category: <b>IV. Orange</b>		
unknown status and high biological vulnerability and action need		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status	-20 to 20	0
Biological	-50 to 50	-7
Action	-40 to 40	16
<b>Higher numerical scores denote greater concern</b>		

**Status** - variables measure the trend in a taxon's population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing).

**Score**

*Population Trend in Alaska (-10 to 10)*

0

Unknown.

*Distribution Trend in Alaska (-10 to 10)*

0

Unknown. Additional research is needed to determine the impacts of deforestation on distribution and habitat availability (Parker 1996).

Status Total: 0

**Biological** - variables measure aspects of a taxon's distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable).

**Score**

*Population Size in Alaska (-10 to 10)*

-2

Based on acoustic monitoring and mist net captures, *Myotis californicus* appears to be widespread throughout southeast Alaska (ARCTOS 2016; K. Blejwas, ADF&G, pers. comm.). Estimated population size between 3,001 and 10,000 individuals (K. Blejwas, pers. comm.).

*Range Size in Alaska (-10 to 10)*

-2

Detected throughout southeast Alaska including on Prince of Wales Island, in Wrangell, Juneau, and as far north as Cordova (Boland et al. 2009a; ARCTOS 2016; K. Blejwas, pers. comm.). Estimated range size is between 10,001 and 100,000 sq. km. (K. Blejwas, pers. comm.).

*Population Concentration in Alaska (-10 to 10)* -8

Winter surveys in Juneau have detected individuals at multiple sites along the road system, suggesting they are not highly concentrated (K. Blejwas, pers. comm.). Similarly, individuals elsewhere in North America hibernate alone or in small groups (O'Farrell et al. 1967; Arroyo-Cabrales and Perez 2017). In summer, females and their pups concentrate at maternity colonies. Males and non-reproductive females are mostly solitary, but may aggregate at roost sites. Given population size and distribution, number of sites is likely >25 and potentially >250. We therefore rank this question as  $0.5 * C + 0.5 * D$ .

*Reproductive Potential in Alaska*Age of First Reproduction (-5 to 5) -5

Can potentially give birth within their first year if they are in good enough body condition, but reproduction may be delayed until their second year in colder climates (Nagorsen and Brigham 1993; Frick et al. 2010b).

Number of Young (-5 to 5) 4

Females give birth to a single pup (Simpson 1993), but may not reproduce every year if resources are scarce or if they are in poor body condition (Nagorsen and Brigham 1993; Frick et al. 2010b). The proportion of females that forego reproduction in a given year is unknown. To reflect this uncertainty, we rank this question as  $0.5 * A + 0.5 * B$ .

*Ecological Specialization in Alaska*Dietary (-5 to 5) 1

Little is known about diet in Alaska. Consumes aerial insects, especially butterflies (Lepidoptera) and true flies (Diptera) (Simpson 1993). Because invertebrates are an ephemeral and potentially unpredictable food source, we rank this question as B- Moderately adaptable with key requirements common.

Habitat (-5 to 5) 5

In southeast Alaska, inhabits mature coniferous forests (Parker et al. 1996). Requires cavities or crevices for roosting. Reproductive females form small maternity colonies underneath the bark of large snags or in rock crevices (Brigham et al. 1997; Barclay and Brigham 2001; Vonhof and Gwilliam 2007). Males and non-reproductive females use similar habitat for roosting, but may also use manmade structures (Simpson 1993; Vonhof and Gwilliam 2007; Hayes and Wiles 2013). Little is known about the wintering ecology of *M. californicus* in Alaska, though individuals have been found hibernating in caves in karst formations (Parker et al. 1997).

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 Biological Total: -7

**Action** - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs).

**Score***Management Plans and Regulations in Alaska (-10 to 10)* 2

Bats may be intentionally killed by humans when they are perceived as nuisance or disease-carrying species. In Alaska, state laws prohibit the killing of nuisance animals unless a permit is obtained (5 AAC 92.420. Taking nuisance wildlife).

*Knowledge of Distribution and Habitat in Alaska (-10 to 10)* 2

This species is regularly detected during acoustic surveys in southeast Alaska (Boland et al. 2009a; K. Blejwas, pers. comm.; ADF&G survey map available online: <https://www.adfg.alaska.gov/index.cfm?adfg=citizenscience.batsacousticresults>) and general habitat associations are known. However, our knowledge of its northern range extent is incomplete. M.

californicus was thought to be restricted to southeast Alaska, but was recently detected in Cordova (K. Blejwas, pers. comm.). Additional research is also needed on seasonal habitat associations, especially during the winter.

*Knowledge of Population Trends in Alaska (-10 to 10)*

2

Bats in southeast Alaska are currently being monitored by ADF&G using road surveys and acoustic monitoring stations, but current data are insufficient for monitoring statewide population trends.

*Knowledge of Factors Limiting Populations in Alaska (-10 to 10)*

10

Little is known about this species' biology and ecology in Alaska, and few studies have been conducted elsewhere in its range. In Alaska, research is needed to assess ecological requirements, demographic parameters, winter ecology, and vulnerability to white-nose syndrome. Because this species is closely associated with large-diameter trees and snags, timber harvest (Parker 1996; Hayes and Wiles 2013) and urbanization, including light and noise pollution (Bunkley et al. 2015; Rodríguez-Aguilar et al. 2017) may affect habitat availability and behavior.

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Action Total: 16

**Supplemental Information** - variables do not receive numerical scores. Instead, they are used to sort taxa to answer specific biological or management questions.

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<b>Harvest:</b>	None or Prohibited
<b>Seasonal Occurrence:</b>	Year-round
<b>Taxonomic Significance:</b>	Monotypic species
<b>% Global Range in Alaska:</b>	<10%
<b>% Global Population in Alaska:</b>	<25%
<b>Peripheral:</b>	Yes

## References

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