

STAFF SUMMARY FOR OCTOBER 19-20, 2016

21. TOWNSEND'S BIG-EARED BAT FINDINGS (CONSENT)**Today's Item**Information Action

Adopt findings for the Aug 25, 2016, decision to reject the petition to list Townsend's big-eared bat (*Corynorhinus townsendii*) as a threatened or endangered species pursuant to Section 2075.5, Fish and Game Code.

Summary of Previous/Future Actions

- | | |
|--|--------------------------------|
| • Received petition | Nov 1, 2012 |
| • FGC transmits petition to DFW | Nov 9, 2012 |
| • Published notice of receipt of petition | Nov 30, 2012 |
| • Approved DFW request for 30-day extension | Dec 12, 2012; San Diego |
| • Received DFW's evaluation and recommendation | May 22, 2013; Los Angeles |
| • Accepted petition for candidacy | Jun 26, 2013; Sacramento |
| • Approved DFW request for six month extension | Dec 3, 2014; Van Nuys |
| • Receive DFW's status review report | Jun 22-23, 2016; Bakersfield |
| • Rejected petition to list | Aug 24-25, 2016; Folsom |
| • Today adopt findings | Oct 19-20, 2016; Eureka |

Background

On Aug 25, 2016, FGC made a finding pursuant to Fish and Game Code Section 2075.5, that the petitioned action to add Townsend's big-eared bat to the list of threatened or endangered species under the California Endangered Species Act is not warranted.

Significant Public Comments (N/A)**Recommendation**

FGC staff: Under a motion to adopt the consent calendar, adopt staff's proposed notice of findings that listing Townsend's big-eared bat as threatened or endangered is **not** warranted pursuant to Section 2075.5 of the Fish and Game Code.

Exhibits

1. [Draft notice of findings](#)

Motion/Direction

Moved by _____ and seconded by _____ that the Commission adopts the consent calendar, items 17-22.

NOTICE OF FINDINGS
Townsend's Big-Eared Bat
(*Corynorhinus townsendii*)

NOTICE IS HEREBY GIVEN that the Fish and Game Commission (Commission), at its August 25, 2016 meeting in Folsom, California, made a finding pursuant to Fish and Game Code section 2075.5, that the petitioned action to add the Townsend's big-eared bat (*Corynorhinus townsendii*) to the list of threatened or endangered species under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.) is not warranted. (See also Cal. Code Regs., tit. 14, § 670.1, subd. (i)(1).)

NOTICE IS ALSO GIVEN that, at its October 20, 2016 meeting in Eureka, California, the Commission adopted the following findings outlining the reasons for its rejection of the petition.

I. BACKGROUND AND PROCEDURAL HISTORY

Petition History

The Center for Biological Diversity (Petitioner) submitted a petition (Petition) to the Commission on November 1, 2012 to list the Townsend's big-eared bat (*Corynorhinus townsendii*) as threatened or endangered pursuant to the California Endangered Species Act (CESA). The Commission referred the Petition for evaluation to the California Department of Fish and Wildlife (Department) on November 9, 2012 pursuant to Fish and Game Code section 2073, and published formal notice of receipt of the Petition on November 30, 2012 (Cal. Reg. Notice Register 2012, No. 48-Z, p. 1747).

The Department evaluated the Petition, using the information in that document and other relevant information available at that time, and found that the scientific information presented in the Petition was sufficient to indicate that the petitioned action may be warranted. On April 25, 2013 the Department submitted to the Commission its "Evaluation of the Petition from Center for Biological Diversity to List Townsend's Big-Eared Bat (*Corynorhinus townsendii*) as Threatened or Endangered Under the California Endangered Species Act" (Petition Evaluation). The Department recommended that the Commission accept the Petition pursuant to Fish and Game Code section 2073.

On June 26, 2013, at its meeting in Sacramento, California, the Commission considered the Petition, the Department's Petition Evaluation, and public comments, and determined that there was sufficient information in the Petition Evaluation to indicate that the petitioned action maybe warranted, accepted for consideration the Petition, and designated the Townsend's big-eared bat as a candidate species under CESA. (Cal. Reg. Notice Register 2013, No. 52-Z, p. 2092.)

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The Department notified affecting parties by issuing a press release, posting notice on the Department’s website, and sending targeted letters to stakeholder groups. (Fish & G. Code, § 2074.4.) Consistent with Fish and Game Code section 2074.6 and its implementing regulations, the Department commenced twelve-month status review of the Townsend’s big-eared bat following published notice of its designation as a candidate species under CESA. As an integral part of that effort, the Department solicited data, comments, and other information from interested members of the public and the scientific and academic communities. The Department mailed notice of the Townsend’s big-eared bat’s candidacy and a request for information and comments to approximately 150 persons or offices of state and federal agencies, tribes, counties, industry, and non-governmental organizations. The Department received letters or emails from 39 individuals and organizations. Most of these communications provided information on Townsend’s big-eared bat occurrences in or near public and private lands. A few, including a letter from the Petitioner, argued in support of listing the species as threatened or endangered.

At its meeting on December 3, 2014 in Van Nuys, California, the Commission granted CDFW a six-month extension to facilitate external peer review. On January 7, 2016, the Department submitted a preliminary draft of its status review for independent scientific peer review by a number of individuals acknowledged to be experts on Townsend’s big-eared bat, possessing the knowledge and expertise to critique the scientific validity of the report. (Fish & G. Code, § 2074.8; Cal. Code Regs., tit. 14, § 670.1, subd. (f)(2).) On June 15, 2016, the Department submitted its final “Status Review of Townsend’s Big-eared Bat (*Corynorhinus townsendii*) in California” to the Commission (Status Review). Based on its Status Review and the best available science, the Department recommended to the Commission that designating Townsend’s big-eared bat as a threatened or endangered species under CESA is not warranted. (Fish & G. Code, § 2074.6; Cal. Code Regs., tit. 14, § 670.1, subd. (f).) Following receipt, the Commission made the Department’s Status Review available to the public, inviting further review and input. (Cal. Code Regs., tit. 14, § 670.1, subd. (g).)

On August 25, 2016, at its meeting in Folsom, California, the Commission received public comment, accepted additional information from the Petitioner and the public, and considered final action regarding the Petition to designate Townsend’s big-eared bat as a threatened or endangered species under CESA. (Fish & G. Code, § 2075.5; Cal. Code Regs., tit. 14, § 670.1, subd. (i).) After receiving public comment, the Commission closed the administrative record of proceedings for the Petition. (Fish & G. Code, § 2075.5, subd. (a).) The Commission considered the Petition, further information submitted by the Petitioner, public comment, the Department’s 2013 Petition Evaluation, the Department’s 2016 Status Review, and other information included in the Commission’s administrative record of proceedings. Following public comment and deliberation, the Commission determined, based on the best available science, that designating Townsend’s big-eared bat as a threatened or endangered species under CESA is not warranted.

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(Fish & G. Code, § 2075.5, subd. (e)(1); Cal. Code Regs., tit. 14, § 670.1, subd. (i)(2).) The Commission directed its staff, in coordination with the Department, to prepare findings of fact consistent with the Commission’s determination and to present those findings for consideration and ratification at the Commission’s October 20, 2016 meeting in Eureka, California.

Species Description

Townsend’s big-eared bat is a medium sized bat (Barbour and Davis 1969, Kunz and Martin 1982). Among western North American bats, Townsend’s big-eared bat is unique with its combination of a two-pronged, horseshoe-shaped lump on the muzzle and large, long ears. Townsend’s big-eared bat ranges throughout much of the western United States and Canada. In California, its geographic range is generally considered to encompass the entire state, except for the highest elevations of the Sierra Nevada (Dalquest 1947, Pierson and Rainey 1998, Pierson and Fellers 1998, Szewczak et al. 1998). Townsend’s big-eared bat is a colonial species. Maternity colonies form between March and June, with the timing varying based on local climate, elevation, and latitude. Colonies typically range from a few dozen to several hundred individuals, although colonies of over 1,000 have been documented. A single pup is born between May and July (Easterla 1973, Pearson et al. 1952, Twente 1955). While adult males are typically solitary during the maternity season, adult females and their pups cluster together in colonial roosts (Pearson et al. 1952). Nursery colonies typically begin to disperse in August about the time the young are weaned and break up altogether in September and October (Pearson et al. 1952, Tipton 1983). Maximum fecundity per adult female is one pup per year.

Once a roost site has been successfully colonized by Townsend’s big-eared bat (whether for the warm or hibernation season), it is likely to be used in subsequent years, so long as it remains suitable (Humphrey and Kunz 1976). However, it is not unusual for individuals to move among multiple maternity colonies and even for entire maternity colonies to switch roosts during the course of the season (Fellers and Pierson 2002, Sherwin et al. 2000, 2003). Some roosts are only used for short periods of time or during occasional years. Townsend’s big-eared bat’s perceived susceptibility to human disturbance at roost sites is usually cited as a key behavioral characteristic putting the species at conservation risk (Twente 1955, Barbour and Davis 1969, Humphrey and Kunz 1976). Roost abandonment (sometimes resulting in death of pups) has been documented following human entry into roosts.

Diet of Townsend’s big-eared bat has not been examined in detail in California; however, it is likely that as elsewhere they are lepidopteran specialists, feeding primarily on medium-sized moths, supplemented with occasional captures of other insects, including flies, beetles, and aquatic insects. Townsend’s big-eared bat, like most mammals, maintains a high body temperature primarily through heat produced by its metabolism. Like many bat species inhabiting temperate regions, Townsend’s big-eared bat uses torpor as a physiological and

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behavioral strategy in winter to deal with diminished food resources and cool or cold ambient temperatures, which make it energetically costly to maintain normal high body temperature. Townsend’s big-eared bat hibernation sites are generally caves or mines (Pearson et al. 1952, Barbour and Davis 1969), although animals are occasionally found in buildings (Dalquest 1947). In areas with prolonged periods of non-freezing temperatures, Townsend’s big-eared bat tends to form relatively small hibernating aggregations of single to several dozen individuals, and may be active during the winter to take advantage of warm weather and prey availability. Larger aggregations (75-460 individuals) are confined to areas that experience prolonged periods of freezing temperatures (Pierson and Rainey 1998).

Habitat associations for Townsend’s big-eared bat in California include the inland deserts (Colorado, Mojave, Great Basin); cool, moist coastal redwood forests; oak woodlands of the Sierra Nevada foothills and coastal mountains; and lower to mid-elevation mixed coniferous-deciduous forests. Townsend’s big-eared bat has also been observed hibernating in the bristlecone-limber pine habitat of the White Mountains (Inyo County).

Townsend’s big-eared bat prefers open surfaces of caves or cave-like structures, such as mine adits and shafts (Barbour and Davis 1969, Graham 1966, Humphrey and Kunz 1976). It has also been reported in such structures as buildings, bridges, and water diversion tunnels that offer a cave-like environment (Barbour and Davis 1969, Dalquest 1947, Howell 1920, Pierson and Rainey 1998). It has been found in rock crevices and, like a number of bat species, in large hollow trees (Gellman and Zielinski 1996, Fellers and Pierson 2002, Mazurek 2004). Foraging associations include edge habitats along streams and areas adjacent to and within a variety of wooded habitats (Brown et al. 1994, Fellers and Pierson 2002, Pierson et al. 2002). The Department considers any structure, or set of structures, used by Townsend’s big-eared bat as a maternity or hibernation roost to be habitat essential for the continued existence of the species. The essential characteristics of these suitable roost sites extend to the nearby foraging, commuting, and night-roosting habitat and therefore these adjacent habitats are also considered essential.

Regulatory Status

The two western subspecies of Townsend’s big-eared bat are not currently listed as endangered or threatened nor are they candidates for listing under the federal Endangered Species Act (ESA). Two eastern subspecies are listed as Threatened under the ESA.

NatureServ, a non-profit conservation organization whose mission is to provide the scientific basis for effective conservation action through its network of natural heritage programs, ranks Townsend’s big-eared bat as a whole and each of the two non-listed subspecies (*C. t. pallescens* and *C. t. townsendii*) as “G3G4/T3T4” throughout their respective geographic ranges. This

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designation indicates uncertainty regarding conservation status, which may be characterized as either Apparently Secure (G4/T4) or Vulnerable (G3/T3). NatureServe defines “Vulnerable” as “at moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors” and “Apparently Secure” as “Uncommon but not rare; some cause for long-term concern due to declines or other factors.” (<http://explorer.natureserve.org/granks.htm>).

The current version of the International Union for the Conservation of Nature Red List designates Townsend’s big-eared bat as a ‘Least Concern’ species based on the latest assessment of the species range-wide. The IUCN had previously designated the species in 1996 as ‘Vulnerable.’ The Least Concern designation is based on “its wide distribution, presumed large population, occurrence in a number of protected areas and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.”

II. STATUTORY AND LEGAL FRAMEWORK

The Commission has prepared these findings as part of its final action under CESA regarding the Petition to designate Townsend’s big-eared bat as a threatened or endangered species under CESA. As set forth above, the Commission’s determination that listing Townsend’s big-eared bat is not warranted marks the end of formal administrative proceedings under CESA. (See generally Fish & G. Code, § 2070 et seq.; Cal. Code Regs., tit. 14, § 670.1.) The Commission, as established by the California Constitution, has exclusive statutory authority under California law to designate endangered, threatened, and candidate species under CESA. (Cal. Const., art. IV, § 20, subd. (b); Fish & G. Code, § 2070.)

The CESA listing process for Townsend’s big-eared bat began in the present case with Petitioner’s submittal of its Petition to the Commission in November 2012 (Cal. Reg. Notice Register 2012, No. 48-Z, p. 1747). The regulatory process that ensued is described above in some detail, along with related references to the Fish and Game Code and controlling regulation. The CESA listing process generally is also described in some detail in published appellate case law in California, including:

- *Mountain Lion Foundation v. California Fish and Game Commission* (1997) 16 Cal.4th 105, 114-116;
- *California Forestry Association v. California Fish and Game Commission* (2007) 156 Cal.App.4th 1535, 1541-1542;
- *Center for Biological Diversity v. California Fish and Game Commission* (2008) 166 Cal.App.4th 597, 600; and
- *Natural Resources Defense Council v. California Fish and Game Commission* (1994) 28 Cal.App.4th 1104, 1111-1116.

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The “is not warranted” determination at issue here for Townsend’s big-eared bat stems from Commission obligations established by Fish and Game Code section 2075.5(e). Under this provision, the Commission is required to make one of two findings for a candidate species at the end of the CESA listing process: whether the petitioned action is warranted or is not warranted. Here with respect to Townsend’s big-eared bat, the Commission made the finding under Section 2075.5(e)(1) that the petitioned action is not warranted.

The Commission was guided in making this determination by various statutory provisions and other controlling law. The Fish and Game Code, for example, defines an endangered species under CESA as a native species or subspecies of a bird, mammal, fish, amphibian, reptile or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, over exploitation, predation, competition, or disease. (Fish & G. Code, § 2062.) Similarly, the Fish and Game Code defines a threatened species under CESA as a native species or subspecies of a bird, mammal, fish, amphibian, reptile or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. (*Id.*, § 2067.)

As established by published appellate case law in California, the term “range” for purposes of CESA means the range of the species within California. (*California Forestry Association v. California Fish and Game Commission, supra*, 156 Cal. App.4th at p. 1540, 1549-1551.)

The Commission was also guided in making its determination regarding Townsend’s big-eared bat by Title 14, section 670.1, subdivision (i)(1)(A), of the California Code of Regulations. This provision provides, in pertinent part, that a species shall be listed as endangered or threatened under CESA if the Commission determines that the continued existence of the species is in serious danger or is threatened by any one or any combination of the following factors:

1. Present or threatened modification or destruction of its habitat;
2. Overexploitation;
3. Predation;
4. Competition;
5. Disease; or
6. Other natural occurrences or human-related activities.

Fish and Game Code section 2070 provides similar guidance. This section provides that the Commission shall add or remove species from the list of endangered and threatened species under CESA only upon receipt of sufficient scientific information that the action is warranted. Similarly, CESA provides that all state agencies, boards, and commissions shall seek to conserve endangered and threatened species and shall utilize their authority in furtherance of the purposes of CESA. (Fish & G. Code, § 2055.) This policy direction does not compel a particular determination by the Commission in the CESA listing context. Yet, the Commission made its determination regarding Townsend’s big-eared bat mindful of this policy direction,

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acknowledging that “[l]aws providing for the conservation of natural resources’ such as the CESA ‘are of great remedial and public importance and thus should be construed liberally’” (*California Forestry Association v. California Fish and Game Commission*, *supra*, 156 Cal. App.4th at pp. 1545-1546, citing *San Bernardino Valley Audubon Society v. City of Moreno Valley* (1996) 44 Cal.App.4th 593, 601; Fish & G. Code, §§ 2051, 2052.).

Finally in considering these factors, CESA and controlling regulations require the Commission to actively seek and consider related input from the public and any interested party. (See, e.g., *Id.*, §§ 2071, 2074.4, 2078; Cal. Code Regs., tit. 14, § 670.1, subd. (h).) The related notice obligations and public hearing opportunities before the Commission are also considerable. (Fish & G. Code, §§ 2073.3, 2074, 2074.2, 2075, 2075.5, 2078; Cal. Code Regs., tit. 14, § 670.1, subds. (c), (e), (g), (i); see also Gov. Code, § 11120 et seq.) All of these obligations are in addition to the requirements prescribed for the Department in the CESA listing process, including an initial evaluation of the petition and a related recommendation regarding candidacy, and a 12-month status review of the candidate species culminating with a report and recommendation to the Commission as to whether listing is warranted based on the best available science. (Fish & G. Code, §§ 2073.4, 2073.5, 2074.4, 2074.6; Cal. Code Regs., tit. 14, § 670.1, subds. (d), (f), (h).)

III. FACTUAL AND SCIENTIFIC BASIS FOR THE COMMISSION’S FINDINGS

The factual and scientific bases for the Commission’s finding that designating Townsend’s big-eared bat as a threatened or endangered species under CESA is not warranted are set forth in detail in the Commission’s administrative record of proceedings. The evidence in the administrative record in support of the Commission’s determination includes, but is not limited to, the Department’s 2013 Petition Evaluation and 2016 Status Review, and other information specifically presented to the Commission and otherwise included in the Commission’s administrative record as it exists up to and including the Commission meeting in Folsom, California on August 25, 2016. The administrative record also includes these findings.

The Commission finds the substantial evidence highlighted in the preceding paragraph, along with other evidence in the administrative record, supports the Commission’s determination that the continued existence of Townsend’s big-eared bat in the State of California is not in serious danger of becoming extinct or threatened by on or a combination of the following factors:

1. Present or threatened modification or destruction of its habitat;
2. Overexploitation;
3. Predation;
4. Competition;
5. Disease; or
6. Other natural occurrences or human-related activities.

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The Commission also finds that the same evidence constitutes sufficient scientific information to establish that designating Townsend’s big-eared bat as a threatened or endangered species under CESA is not warranted. The Commission finds in this respect that Townsend’s big-eared bat is not in serious danger of becoming extinct throughout all, or a significant portion, of its range in California. Similarly, the Commission finds that Townsend’s big-eared bat is not presently threatened and it is unlikely to become an endangered species in the foreseeable future in the absence of special protection and management efforts required by CESA.

The following Commission findings highlight in more detail some of the scientific and factual information and other evidence in the administrative record of proceedings that support the Commission’s determination that designating Townsend’s big-eared bat as a threatened or endangered species under CESA is not warranted:

1. The Petition relied heavily a 1998 report prepared for the Department summarizing surveys of Townsend’s big-eared bat maternity colonies and hibernacula throughout much of the species’ range in California during the period from 1987 to 1991, and compared those results to the original site reports from the period of 1918 to 1974 (Pierson and Rainey 1998). Based on these surveys, the report inferred that the Townsend’s big-eared bat population had declined over the several decades before the study. No statewide study assessing the status of the species has been conducted since, although the Department is currently funding a new statewide survey targeting know and highly-suitable locations for maternity and hibernation roosts, and anticipates that an updated snapshot of the species’ distribution will be available in 2017. However, from existing information on a number of maternity and hibernation roosts around California, five of six studies concluded that site specific populations are stable or increasing. Although not a statistically valid estimate of population size or trend statewide, the studies do illustrate how colony sizes and threats vary around the state, as well as how management of roosts can directly affect local assemblages of Townsend’s big-eared bat.
2. Loss of suitable roosting site habitat is often considered a limiting factor for western bat populations. (Hayes, 2003). Old-growth conifers, a known roosting site of Townsend’s big-eared bat (Pierson and Fellers, 1998; Mazurek, 2004; Humphrey and Kunz, 1976), could be impacted by forestry practices, timber operations, loss of oak woodlands, and conversion of forests into agricultural uses. Mining operations and recreational activities in caves and abandoned mines also pose a risk to roosting sites. However, human activities in the late 1800s such as mining and building construction also create available roost habitat, and it is possible that Townsend’s big-eared bat distribution merely shift and redistributed as new roost sites became available (Sherwin et al. 2009).
3. Disturbance to roost sites is a hypothesized threat to Townsend’s big-eared bat populations. However, the impact of disturbance is disputed, and it is possible that disturbed roosting colonies may only temporarily abandon those sites (R. Stafford 2014, pers. comm.; Fellers and Halstead 2015). One colony has shown tolerance to disturbance

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(Freeman 2012). Some studies additionally indicate that colonies may move between multiple roost sites during a maternity season, and more study is needed before concluding that human disturbance is the driving force behind the dynamics of roost use (Sherman et al. 2000, 2003, 2009; Sherwin 2016 pers. comm.). The Department did not find any indication that disturbance of roost sites is a significant threat state-wide.

4. Climate change models evaluating a range of possible future distribution of Townsend’s big-eared bat project that the species will fare reasonably well in terms of availability of climatically suitable habitat in California.
5. The Department does not consider overexploitation, predation, or competition to be a significant threat to the Townsend’s big-eared bat population in California.

IV. ADDITIONAL CONSIDERATIONS INFORMING THE COMMISSION’S FINAL DETERMINATION

The Commission’s determination that designating Townsend’s big-eared bat as a threatened or endangered species under CESA is not warranted is informed by various additional considerations. In general, the Fish and Game Code contemplates a roughly twelve-month long CESA listing process before the Commission, including multiple opportunities for public and Department review and input and peer review (See generally Fish & G. Code, § 2070 et seq.; Cal. Code Regs., tit. 14, § 670.1.). From the initial receipt of the Petition in November 2012 through the Commission’s decision on August 25, 2016 that listing is not warranted, the Department and the Commission received numerous comments and other significant public input regarding the status of Townsend’s big-eared bat from a biological and scientific standpoint and with respect to the petitioned action under CESA. The Commission, as highlighted below, was informed by and considered all of these issues, among others, in making its final determination that designating Townsend’s big-eared bat as a threatened or endangered species under CESA is not warranted (Fish & G. Code, § 2075.5, subd. (e)(1); Cal. Code Regs., tit. 14, § 670.1, subd. (i)(2).).

V. SCIENTIFIC DETERMINATIONS REGARDING THE STATUS OF THE TOWNSEND’S BIG-EARED BAT

CESA defines an endangered species as one “which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, over exploitation, predation, competition, or disease.” (Fish & G. Code, § 2062.) CESA defines a threatened species as one “that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts required by [CESA].” (Id., § 2067.)

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Pursuant to CESA’s implementing regulations, a “species shall be listed as endangered or threatened ... if the Commission determines that its continued existence is in serious danger or is threatened by anyone or any combination of the following factors: (1) present or threatened modification or destruction of its habitat; (2) overexploitation; (3) predation; (4) competition; (5) disease; or (6) other natural occurrences or human-related activities.” (Cal. Code Regs., tit. 14, § 670.1, subd. (i)(1)(A).)

Present or Threatened Modification or Destruction of Habitat

- Disturbance, degradation, and loss of suitable roost sites are recognized threats to Townsend’s big-eared bat populations. Natural roost sites include large, old trees and caves, in addition to human-made roosts such as old buildings and mines. Forestry practices, timber operations, conversion of forest to agricultural land, mining activities, and recreational exploration of mines and caves are all activities that could potentially cause loss or disturbance of roost sites. However, the impact of disturbance is hypothesized and still needs further study. Overall there is no current indication that loss or disturbance of roost sites is a significant state-wide threat to the species at this time.
- Impacts to foraging habitat could also affect the species. Land management practices that lead to agricultural development, extensive clear-cutting, or residential and urban development reduce available foraging habitat for the species. It is possible that climate change may affect foraging habitat suitability as well. However, there is no indication that current impacts to foraging habitat pose a significant threat at this time.
- Based on the best scientific information available, the Commission finds that the continued existence of the Townsend’s big-eared bat is not in serious danger or threatened by present or threatened modification or destruction of habitat.

Overexploitation

- Townsend’s big-eared bat is a nongame mammal, and the only collection that does occur in California is on a limited basis for bona fide scientific and educational purposes. The Department regulates collection according to Fish and Game Code sections 1002 *et seq.* For long-lived/low fecundity species such as Townsend’s big-eared bat, it is possible that repeated scientific collection may have a population impact. There is also a concern that placing of wing bands for scientific research may have a negative impact on individual bats. To address these concerns, the Department carefully controls the activities of scientific researchers working on Townsend’s big-eared bat in California. Given the level of control exerted by the Department, overexploitation for scientific purposes is not considered to be a threat to the continued existence of Townsend’s big-eared bat in California.

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- Based on the best scientific information available, the Commission finds that the continued existence of the Townsend’s big-eared bat population is not in serious danger or threatened by overexploitation.

Predation

- Individual Townsend’s big-eared bat populations may be preyed upon by a variety of native and non-native predators, for example raccoons, bobcats, house cats, skunks, and snakes, and rats. However, Pearson et al. (1952) discounted predation as a limiting factor on Townsend’s big-eared bat populations, and the Department does not consider predation a significant threat at this time.
- Based on the best scientific information available, the Commission finds that the continued existence of the Townsends’s big-eared bat population is not in serious danger or threatened by predation.

Competition

- There is no evidence indicating that competition for resources (such as prey, water, and cover habitat) with other native or introduced species is a threat to the continued existence of Townsend’s big-eared bat in California.
- Based on the best scientific information available, the Commission finds that the continued existence of Townsend’s big-eared bat is not in serious danger or threatened by competition.

Disease

- White Nose Syndrome is an important threat to bat species nationwide, and a potential threat to Townsend’s big-eared bat in California. Although it White Nose Syndrome was recently detected in Washington state, surveys have yet to detect it in California. Monitoring and research to determine the species’ susceptibility to the disease is needed to assess the level of the threat. However, this disease is not currently impacting Townsend’s big-eared bat in California. Additionally, there is nothing to suggest that Townsend’s big-eared bat populations in California have been subject to recent disease outbreaks.
- Based on the best scientific information available, the Commission finds that the continued existence of the Townsend’s big-eared bat is not in serious danger or threatened by disease.

Other Natural Events or Human-Related Activities

- Mines provide important shelter for Townsend’s big-eared bats and may be used year round for their roosting needs. Structurally diverse mines may provide both warm roosts for maternity colonies and cool roosts for hibernation (Pierson and Fellers 1998, Pierson and Rainey 1998, Pierson et al. 1991, 1999). Closure of mines, environmental contamination, and human disturbances may pose a threat to the species. Permanent mine closure methods have resulted in some cases in the destruction of roosting habitat, and mortality of bats by trapping them within the closed mine. California’s Abandoned Mine Lands program is actively engaged in reducing hazards associated with open mines, and works with state, federal, and private land owners to ensure that wildlife-compatible closure methods are implemented. These programs should minimize the negative impacts of mine closures on sensitive species, and the Department considers it unlikely that population-level impacts would occur.
- The extent that pesticide use in California impacts Townsend’s big-eared bat populations is unknown, although it is likely at least some individuals are impacted where toxins are concentrated through either absorption through the skin or ingestion of contaminated prey or water. It is unknown to what level current and future pesticide use could pose a threat to Townsend’s big-eared bat populations.
- Mineral extraction can result in pools of water contaminated with toxic chemicals that pose a threat to wildlife, including bats. Although toxic leach fields and ponds are a potential threat to Townsend’s big-eared bat, the Department believes that regulatory oversight of the mining industry minimize the risks associated with mine toxins to an acceptably low level.
- Climate change modeling using climatic variables to model the current and possible future distribution of Townsend’s big-eared bat under four different future climate change projections showed that the species is projected to fare reasonably well in terms of availability of climatically suitable habitat in California. Most of the currently suitable modeled habitat is projected to remain stable, and areas in the north of the state and at higher elevations are project to increase in suitability. The Department does not believe that climate change is a significant threat to the species.
- Based on the best scientific information available, the Commission finds that the continued existence of the Townsend’s big-eared bat is not in serious danger or threatened by other natural events or human-related activities.

Summary of Key Findings

NOTICE OF FINDINGS – Townsend’s Big-eared Bat

Based on the criteria described above, the best scientific information available to the Commission indicates that Townsend’s big-eared bat is not currently in serious danger of becoming extinct in California within the next few decades, nor in the foreseeable future in the absence of special protection and management under CESA.

The current size of the Townsend’s big-eared bat population in California is uncertain. While historic data evaluated in the 1998 report indicated a potential decline in the population, more recent studies show that at specific areas throughout the state, local populations of Townsend’s big-eared bat have remained stable or even increased in size.

Disturbance, degradation, and loss of suitable roost sites is a recognized threat to Townsend’s big-eared bat populations. However, there is no current indication that loss or disturbance of roost sites is a significant state-wide threat to the species at this time. Additionally, although impacts to foraging habitat could also affect the species, there is no indication that current impacts to foraging habitat pose a significant threat at this time.

The Department evaluated other factors, such as overexploitation, predation, competition, disease, and climate change. Based on the Department’s analysis, none of these factors is considered to be a serious threat to the continued existence of the Townsend’s big-eared bat population in California.

Based on the best scientific information available, the Department concludes the continued existence of the Townsend’s big-eared bat is not in serious danger or threatened. Further, the Department generated the following recommendations to prioritize conservation, research, regulation, and monitoring activities.

Research and Monitoring Needs

- Complete comprehensive statewide assessment of Townsend’s big-eared bat by 2017.
- Implement consistent long-term monitoring at representative Townsend’s big-eared bat roost sites in California, including at both maternity and hibernation roosts.
- Design and test human-made structures suitable for use by Townsend’s big-eared bat during the maternity and hibernation seasons.
- Create standardized procedures for monitoring Townsend’s big-eared bat populations. Ensure all such studies will not adversely impact the subject populations. This should include formal study of the frequency of roost-switching and other movements, both to determine the degree such human study affects movements and to better understand detection probabilities for roost surveys and to develop guidance on the timing and numbers of survey visits needed to determine occupancy or probable absence.
- Conduct additional analyses of the possible effects of climate change and drought on Townsend’s big-eared bat and determine best approaches to address possible adverse effects.

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- Conduct research on the role environmental contaminants play in the health of Townsend’s big-eared bat populations
- Develop methods to create basal hollows in suitable large old trees.
- Conduct genetic studies to determine the population genetic structure of Townsend’s big-eared bat in California, with special attention to the degree of divergence and isolation of populations on Santa Cruz Island relative to the mainland and between coastal and interior populations.

Department Administrative Actions

- If results of current or future statewide Townsend’s big-eared bat surveys indicate a decline in the population status is occurring that may lead to endangerment, prepare a staff recommendation to list the species as Threatened or Endangered for consideration by the Commission.
- Working with partners at state and federal agencies, as well as private landowners, ensure that management of Townsend’s big-eared bat roost sites is consistent with continued site occupancy at or above existing population levels.
- Attempt to secure new funding and position resources as a priority to establish a full-time permanent bat specialist position within the Nongame Wildlife Program of the Department to address data assimilation and conservation of bats in California, including Townsend’s big-eared bat.
- Support research on the design and effectiveness of human-made structures suitable for use by Townsend’s big-eared bat during the maternity and hibernation seasons.
- Create interagency and other stakeholder cooperation in, and public support for, conservation efforts for Townsend’s big-eared bat. Partner with non-governmental organizations such as Bat Conservation International, The Nature Conservancy, and local NGOs in such efforts.
- Develop greater awareness of Townsend’s big-eared bat and other bat conservation and management issues within the Department.
- Direct fiscal and position resources to complete the draft California Bat Conservation Plan.

Management of Known Roost Sites

- Prior to changing management of caves, mines, or buildings that could be used by Townsend’s big-eared bat or other bat species, such sites should be evaluated and/or surveyed during appropriate seasons for their use by Townsend’s big-eared bat.
- Existing roosts should be left undisturbed and occupied roosts should only be entered for management or research purposes.
- Bat-friendly gates should be installed at Townsend’s big-eared bat roosts where other methods of controlling human entrance are not effective. Special consideration should be

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given to gate design to minimize risk of injury or unsuitability for Townsend’s big-eared bat. Corrugated culvert gates should not be used.

- Abandoned mines suitable for use by Townsend’s big-eared bat should not be closed in a manner that prevents bat use, or if they cannot be maintained then adequate mitigation and exclusion should be conducted prior to their closure. If renewed mining will close a mine, mitigation for replacement habitat should be implemented. Mitigation monitoring should be done by the appropriate agency to determine effectiveness.
- Effectiveness monitoring (use of data loggers to passively record bat use and human disturbance) should be implemented at gated roost sites and other roost sites actively managed for bat resources (as through signage, information for visitors, etc.).
- Ensure native vegetation and access to open water and/or riparian habitat within the vicinity of maternity roosts remains suitable for use by Townsend’s big-eared bat. Analysis of habitat suitability should be made on a site-specific basis, but start with using the area within a 24-km radius of the roost site.
- Where a Townsend’s big-eared bat or other bat roost site has a history of recreational use by humans, implement a management plan to ensure new impacts from human use do not occur. The Kentucky Mine Stamp Mill management plan (Tierney and Freeman 2007) is a good example of such a plan that appears to be successful.

Landscape Management Practices

- Developed springs and other water sources should be kept available for in-flight drinking.
- If protracted drought poses a threat to Townsend’s big-eared bat, develop additional water sources for drinking and foraging in areas where open water and associated insect prey production might limit population size.
- Restore or enhance riparian habitat.
- Implement basal hollow creation projects to increase opportunities for Townsend’s big-eared bat to use tree roosts in coastal redwood forests (and possibly in interior forests where large tree species, such as giant sequoia, have the potential to serve as roost sites)

CEQA Review of Proposed Projects

- Ensure direct and cumulative impacts from projects proposed under CEQA and CEQA-equivalent regulatory programs are not likely to result in a substantial reduction in population or range of Townsend’s big-eared bat and other bat species.

Public Education and Outreach

- Conduct and cooperate with other agencies on public outreach events about Townsend’s big-eared bat and other bat species.
- Disseminate the California Bat Conservation Plan to the public, when complete.

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- Encourage citizen participation, as appropriate, in bat monitoring projects.
- Promote bat-friendly exclusions, including seasonally-appropriate timing of exclusions, where it is necessary to remove bats from buildings and other structures.

Health and Disease

- Continue and expand surveillance for WNS by state and federal agencies and researchers.
- Support research on the etiology and epidemiology of WNS on *Corynorhinus* species, including Townsend’s big-eared bat.
- Continue and expand, if necessary, decontamination requirements for persons entering hibernacula for Townsend’s big-eared bat and other hibernating bat species to minimize the risk of introducing the fungus that causes WNS.
- Work with other state and federal regulatory agencies to prevent the introduction of environmental contaminants that may affect the health of Townsend’s big-eared bat and other bats. These may include aerial pesticide application and chemicals used in processing mined minerals.

VI. FINAL DETERMINATION BY THE COMMISSION

The Commission has weighed and evaluated all information and inferences for and against designating Townsend’s big-eared bat as a threatened or endangered species under CESA. This information includes scientific and other general evidence in the Petition, the Department’s 2013 Petition Evaluation, the Department’s 2016 peer-reviewed Status Review, and the Department’s related recommendations based on the best available science, written and oral comments received from the public and the scientific community, and other evidence included in the Commission’s administrative record of proceedings.

Based on the evidence in the administrative record, the Commission has determined that the best scientific information available indicates that the continued existence of Townsend’s big-eared bat in California is not in serious danger or threatened in the foreseeable future by present or threatened modifications or destruction of Townsend’s big-eared bat habitat, overexploitation, predation, competition, disease, or other natural occurrences or human-related activities. (See generally Fish & G. Code, §§ 2062, 2067; Cal. Code Regs., tit. 14, § 670.1, subd. (i)(1)(A).) The Commission finds, for the same reason, that there is not sufficient scientific information at this time to indicate that the petitioned action is warranted (Fish & G. Code, §§ 2070, 2075.5.). The Commission finds that designating Townsend’s big-eared bat as a threatened or endangered species under CESA is not warranted and that, with adoption of these findings, for purposes of its legal status under CESA shall revert to its status prior to the filing of the Petition. (Fish & G. Code, § 2075.5, subd. (e)(1); Cal. Code Regs., tit. 14, § 670.1, subd., (i)(2).)

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