

CROTCH BUMBLE BEE (*Bombus crotchii*)

October 2022



Status

On September 30, 2022, the Crotch bumble bee was given Candidate status under the California Endangered Species Act (CESA). Candidate species are given protection under CESA until a determination is made on their listing status.

Species Information and considerations for timber harvest planning.

Species Information

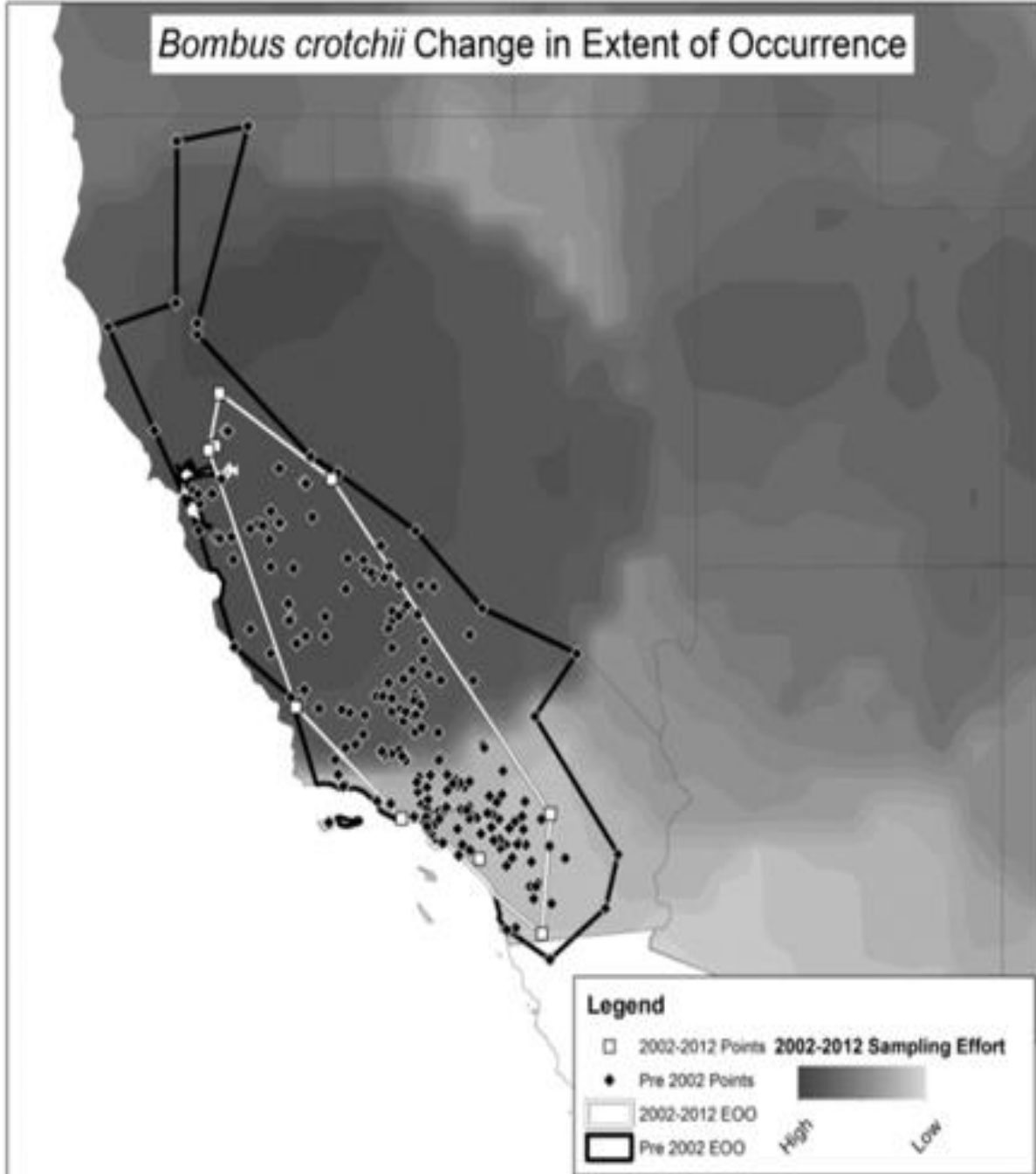
The Crotch bumble bee primarily persists in southern coastal habitats and a few areas around Sacramento. The historic distribution included the southern two-thirds of the state. The largest population declines have been documented to be occurring in the center of its historic range, the Central Valley. In California, the Crotch bumble bee inhabits open grassland and scrub habitats. Although little is known about the nest and overwintering sites, the Crotch bumble bee primarily nests underground or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees (Hatfield et al. 2015). Bumble bees generally overwinter in disturbed soil or under leaf litter or other forest debris. Like other bumble bee species, the Crotch bumble bee requires a diverse supply of flowers that bloom throughout the free flying portion of their life cycle, from spring to autumn. The flight season of the Crotch bumble bee for the queen is late February to late October and for workers and males is from mid-March through September.

Threats

The conversion of the Central Valley to agricultural and urban development as well as the use of herbicides and pesticides associated with agricultural practices has been suggested as the causal link to the Crotch bumble bee's decline in the Central Valley (Xerces petition 2018). Other threats to this, and other bumble bee species includes landscape scale habitat alteration that reduces diverse floral availability and access to nesting and overwintering sites, fire suppression leading to forest density increase and encroachment into open areas, toxic effects,

and habitat loss due to herbicide, grazing, competition with managed bees, disease, pesticides, insecticides (including neonicotinoids), fungicides, population dynamics, and climate change.

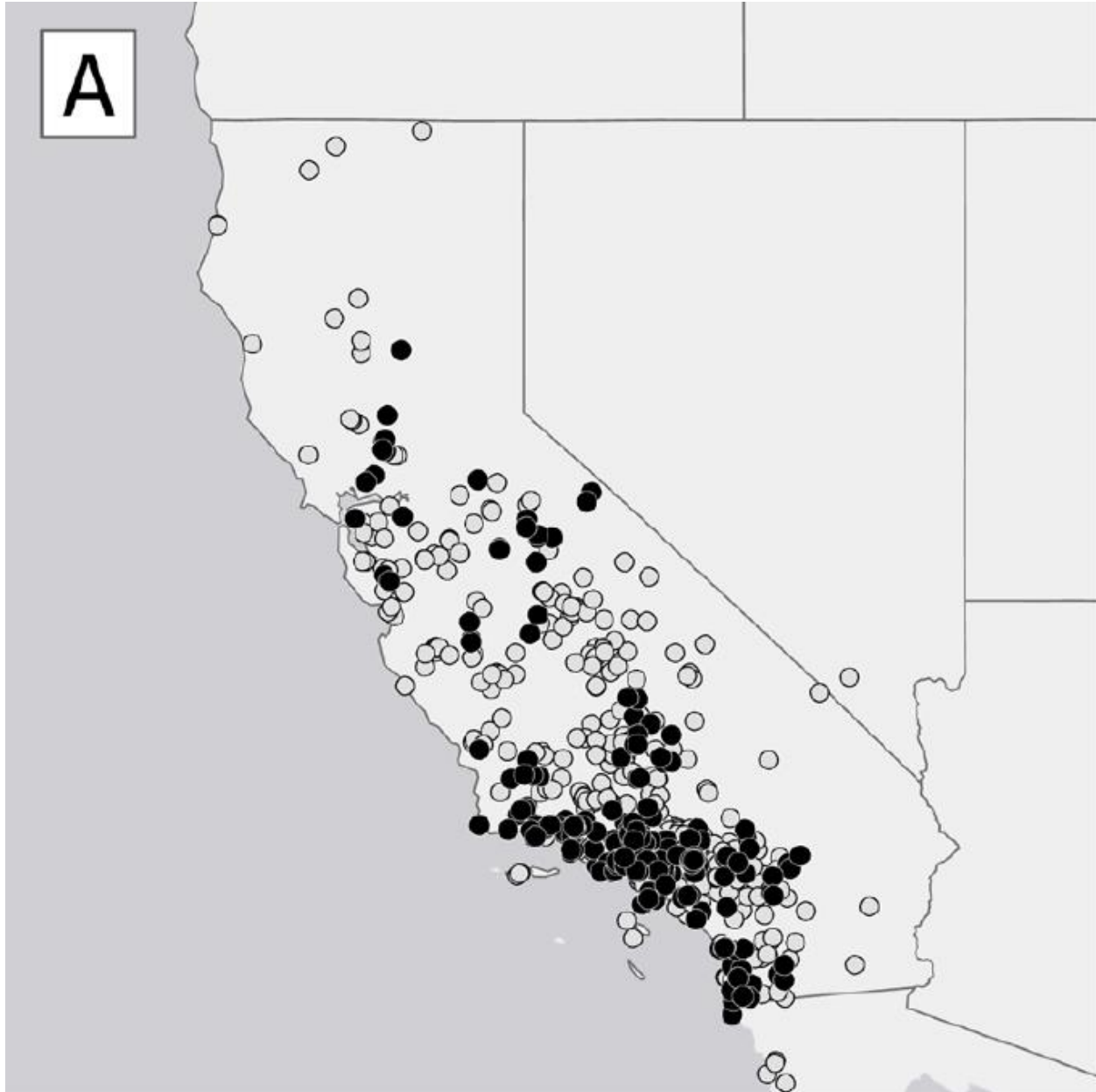
Map 1 – Created by the International Union for Conservation of Nature’s Red List of Threatened Species (IUCN) to display the estimated range contraction in years 2002 to 2012 versus the range prior to 2002.



Sampling/Surveys

There has been an increased survey effort that has detected the Crotch bumble bee through portions of its historic range, see the map 2 below (Hatfield and Jepsen 2021).

Map 2 - Current (filled circles, 2003–2019) and historic (open circles, before 2003) records. Crotch bumble bee Data from: Richardson 2019 and The Xerces Society et al. 2019 (Hatfield and Jepsen 2021)



Information above compiled from: [A Petition to the State of California Fish and Game Commission - The Xerces Society, Report to the Fish and Game Commission Evaluating the Petition to List Four Species of Bumble Bees](#) and sources cited therein.

Crotch bumble bee habitat – Grassland at the University of California McLaughlin Reserve. Source: Rebecca Nelson.



Considerations for timber harvest planning

For projects within the range of the Crotch bumble bee, the species should be addressed within the timber harvesting document. Grasslands and shrublands are considered the bees most important habitat type for their life cycle. Since timber harvesting occurs within forested areas, effects to grasslands and shrublands are generally not expected. Timber harvesting that promotes open areas mixed in forested areas, or restores meadows from encroaching conifers, have the potential to provide a benefit to the bumble bee species by increasing the abundance of flowering plants.

Herbicide use that reduces the abundance of diverse floral resources has been listed as a potential threat to bumble bees. If herbicide use is proposed, discuss any resource protection measures that will be used to mitigate any negative impacts on diverse floral availability including season and extent of use.

References

Hatfield, R., Jepsen, S., Thorp, R., Richardson, L., Colla, S. and Foltz Jordan, S. 2015b. *Bombus occidentalis*. The IUCN Red List of Threatened Species 2015.

Hatfield, G. R. and S. Jepsen. 2021. A conservation conundrum: protecting bumble bees under the California Endangered Species Act. The Xerces Society for Invertebrate Conservation, Portland, OR.

Additional Information

[Petitions to List Species Under the California Endangered Species Act](#)

[Xerces Society - Crotch's Bumble Bee Species Information](#)

[Factors affecting bee communities in forest openings and adjacent mature forest | Treerearch \(usda.gov\)](#)

[The Pacific Northwest Bumble Bee Atlas: Summary and Species Accounts | Xerces Society](#)

[Postharvest Bee Diversity is high but declines rapidly with stand age in regenerating douglas fir forests - Rivers and Betts 2021 Forest Science \(oregonstate.edu\)](#)

[Wild bee distribution near forested landscapes is dependent on successional state | Forest Ecosystems](#)

[Forest-bee-pollinators – Oregon Department of Forestry](#)

[Importance of Forests in Bumble Bee Biology and Conservation | BioScience | Oxford Academic \(oup.com\)](#)

[Western bumble bee: Declines in United States and range-wide information gaps | U.S. Geological Survey \(usgs.gov\)](#)

[IUCN Assessments for North American Bombus spp. for the North American IUCN Bumble Bee Specialist Group \(researchgate.net\)](#)

[Bumble Bees of the Western United States - USFS](#)

[IUCN Red List - Species Information and Assessment](#)

[Research in Progress – Evaluating the response of native pollinators to fuel-reduction treatments in managed conifer forests, Oregon State University.pdf](#)