Date of Hearing: April 24, 2023

ASSEMBLY COMMITTEE ON WATER, PARKS, AND WILDLIFE
Rebecca Bauer-Kahan, Chair
AB 1008 (Bauer-Kahan) – As Amended April 13, 2023

SUBJECT: The Western Joshua Tree Conservation Act

SUMMARY: Enacts the Western Joshua Tree Conservation Act, which provides for the conservation of the western Joshua tree (*Yucca brevifolia*), as specified. Specifically, **this bill**:

1) Prohibits any person or public agency from importing into the state, exporting out of the state, or taking, possessing, purchasing, or selling within the state, a western Joshua tree or any part or product of the tree, except as provided pursuant to existing law or by paying a specified fee.

2) Specifies that certain take authorizations apply during any period in which the western Joshua tree has been designated by the Fish and Game Commission (Commission) as a candidate for listing under the California Endangered Species Act (CESA), if the Commission lists the western Joshua tree as endangered or threatened pursuant to the CESA, and upon the approval of a natural community conservation plan in which the western Joshua tree is a covered species, as provided.

3) Authorizes the Department of Fish and Wildlife (DFW) to issue a permit for the taking of a western Joshua tree if specified conditions are met, including, but not limited to, that the permittee mitigates all impacts to, and taking of, the western Joshua tree.

4) Authorizes a permittee, in lieu of completing the mitigation measures on its own, to elect to satisfy the mitigation obligation by paying a fee pursuant to a specified fee schedule.

5) Requires DFW to annually adjust the fees for inflation, and to review the fees by December 31, 2026, and every four years thereafter, to ensure the conservation of western Joshua tree.

6) Requires all fees remitted to DFW to be deposited into the Western Joshua Tree Conservation Fund (Fund), as provided, and requires the moneys in the Fund, upon appropriation by the Legislature, to be used solely for the purposes of acquiring, conserving, and managing western Joshua tree conservation lands and completing other activities to conserve the western Joshua tree.

7) Exempts DFW from the State Contract Act; requirements related to state acquisition of goods and services; requirements related to contracts with private architects, engineering, land surveying, and construction project management firms; and the California Environmental Quality Act (CEQA) for the expenditure of moneys in the Fund.

8) Authorizes DFW to enter into an agreement with any county or city to delegate to the county or city the ability to authorize the taking of a western Joshua tree associated with developing single-family residences, accessory structures, and public works projects, as defined, concurrent with the city's or county's approval of the project.

9) Authorizes DFW or its designee to issue a permit to authorize the removal or trimming of a dead western Joshua tree or the trimming of a live western Joshua tree, as provided.

10) Requires DFW to develop and implement a western Joshua tree conservation plan in collaboration with governmental agencies, California Native American tribes, and the public. Specifies that DFW shall present the final conservation plan at a public meeting of the Commission, for its review and approval, by December 31, 2024, and requires the Commission to take final action on the plan by June 30, 2025.

11) Requires DFW to submit an annual report to the Commission and the Legislature addressing the conservation status of the western Joshua tree, as provided.

12) Requires the Commission, beginning in 2026, and at least every 4 years thereafter, to, at a public meeting, review the status of the western Joshua tree and the effectiveness of the conservation plan, as specified.

13) Defines several terms for the purposes of this bill.

14) Makes the provisions of the act severable.

EXISTING LAW:

1) Specifies that DFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species [Fish and Game Code (FGC) § 1802].

2) Prohibits the importation, take, possession, or sale of any native plant, or any part or product thereof, that the commi determines to be an endangered native plant or rare native plant, except as otherwise provided (FGC § 1900 *et seq.*).

3) Establishes the California Desert Native Plants Act, which prohibits the harvest of specified native plants, and in some instances allows harvest with a permit issued by the agricultural commissioner or the sheriff of the county in which the native plants are growing (Food and Agricultural Code § 80072, § 80073).

4) Makes it unlawful to take, possess, sell, or purchase specific species that are not listed under CESA (for example, FGC § 3503.5, § 5000, § 8388.5).

5) Requires the Commission to establish a list of endangered species and a list of threatened species and to add or remove species from either list if it finds, upon the receipt of sufficient scientific information, as specified, that the action is warranted (FGC § 2070 *et seq.*)

6) Prohibits the taking of an endangered or threatened species, except in certain situations (FGC § 2080 *et seq.*).

7) Allows DFW to authorize the taking of listed species pursuant to an incidental take permit if the taking is incidental to an otherwise lawful activity, the impacts are minimized and fully mitigated, and the issuance of the permit would not jeopardize the continued existence of the species (FGC § 2081; 2084).

FISCAL EFFECT: Unknown. This bill is keyed fiscal.

COMMENTS:

1) **Purpose of this bill.** This bill requires DFW to develop a conservation plan for the western Joshua tree by June 30, 2025. Additionally, this bill protects western Joshua trees from take without a permit, and allows the payment of fees for take of the tree in lieu of other types of mitigation. Those fees are then to be used for landscape-level conservation efforts. According to the author, "This bill provides for the conservation of the western Joshua tree, an iconic California plant species, and allows important infrastructure and clean energy projects to move forward with certainty."

2) **Background.** The western Joshua tree, *Yucca brevifolia*, is a member of the Agave family. The Joshua tree is a monocot in the subgroup of flowering plants that also includes grasses and orchids. Many birds, mammals, reptiles, and insects depend on the Joshua tree for food and shelter.

   The tree's life cycle begins with the rare germination of a seed—its survival dependent upon well-timed rains. Young sprouts may grow quickly in the first five years, then slow down considerably thereafter. The tallest Joshua trees can be more than forty feet (12.2 meters) high. Determining the age of a Joshua tree is difficult, and rough estimates are often based on height—Joshua trees grow at rates of one-half inch to three inches per year. Some researchers think an average lifespan for a Joshua tree is about 150 years, but some of the largest trees may be older than that.

   The pollination of Joshua tree flowers requires yucca moths (*Tegeticula synthetica*). The moths collect pollen while laying eggs inside the flower. As the flower matures, it develops into a fruit that contains the moth's eggs. This symbiotic relationship enables the tree to be pollinated and provides the moth larvae a food source when they hatch. The Joshua tree is also capable of sprouting from roots and branches. Being able to reproduce vegetatively allows a much quicker recovery after damaging floods or fires, which may kill the main tree.

   Western Joshua trees are widely distributed in the Mojave Desert region of California (see Figure 1). According to DFW's Status Review of the species, estimates indicate that the abundance of the western Joshua tree is currently relatively high, but there is high uncertainty in estimates of population size due to both the uncertainty of density estimates, and uncertainty regarding how much area is occupied by the species. Assuming that the average density of western Joshua trees in all age classes in California is between 4.27 and 7.04 trees per hectare (427 to 704 trees per square kilometer), and the area occupied by western Joshua tree in California is between 10,160 square kilometers and 13,880 square kilometers (2.5 million to 3.4 million acres), there could be between 4.3 million and 9.8 million western Joshua trees in California (all age classes). A separate analysis (by WEST Inc. in 2021) concluded that there are between 6.5 million and 10.6 million western Joshua trees, but this estimate appears to have only been for the southern part of the species' range and did not take into account population reductions due to wildfires within the previous 100 years.[1]

[1] DFW. (March 2022). Report to the Fish and Game Commission - Status Review of Western Joshua Tree. Accessed April 19, 2023, at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=195936&inline.

The eastern Joshua tree is also present in California, but is not considered in this bill or this analysis.

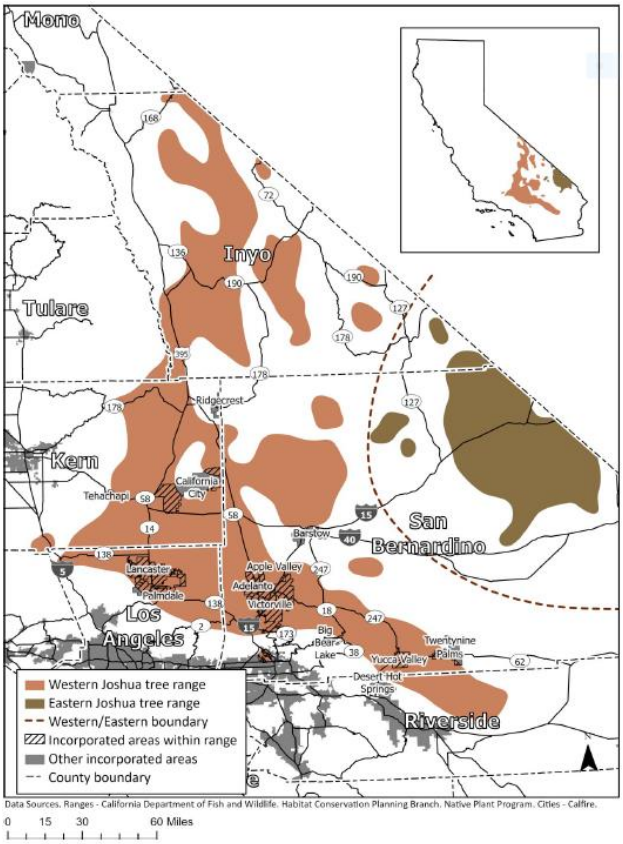

Figure 1: Joshua tree range in California. (Source: DFW Status Review document)

Recent history. Populations of western Joshua trees within California have declined following European settlement of the Mojave Desert region, primarily due to habitat loss and degradation related to agricultural conversion and development. It is difficult to quantify the magnitude of this population decline because there has been no long-term, range-wide population monitoring, and the distribution of the western Joshua tree prior to European settlement is not completely known. Nevertheless, western Joshua trees were removed from the Mojave Desert region as a result of human activities and continue to be removed to this day.

Prior to 1920 and ending in the 1980s, much of the western portion of the Antelope Valley was utilized for alfalfa production, likely resulting in a widespread decline of western Joshua tree numbers as the desert was cleared for agricultural use. The western Antelope Valley, near the metropolitan areas of Palmdale and Lancaster, and other population centers and agricultural areas in western Joshua tree's range, such as Victorville, Hesperia, and Yucca Valley, likely supported substantially more western Joshua trees in the past. DFW estimates that approximately 30% of the habitat occupied by western Joshua tree in California may have been modified between European settlement and the present.

Current threats. Habitat loss, wildfires, aridification, and other climate change effects are major threats to the western Joshua tree. For example, in 2020, the Dome Fire incinerated 1.3 million Joshua trees in a part of the Mojave National Preserve called the Cima Dome. While

potentially less immediate than other threats, climate change could represent an existential threat to the western Joshua tree. The Mojave Desert and other regions of California where western Joshua trees grow are expected to become significantly hotter by the end of the 21st century, with daily average high temperatures in the Inland Deserts Region (all of Imperial County and the desert portions of Riverside and San Bernardino Counties) projected to increase by up to 4.5°C to 8°C (8°F to 14°F) at the end of the 21st century depending on future greenhouse gas emissions, an increase that is greater than most other areas of California.

DFW expects that some of the effects of climate change (e.g., increased temperatures and decreased total water availability locally) will likely contribute to a decline in populations of western Joshua trees within California through the end of the 21st century; however, the extent to which the negative effects of climate change will impact the species' range, distribution, density, abundance, life history, and demographics in this timeframe is less clear.

The primary reasons for the expected decline of populations of the western Joshua tree within California may be the incremental contribution of climate change to high intensity and longer duration droughts, coupled with extreme high temperatures during the summer months, which may have direct physiological effects on western Joshua tree plants. These effects of climate change will likely reduce western Joshua tree seedling recruitment, and to a lesser extent also increase adult western Joshua tree mortality, leading to population declines as recruitment does not keep pace with mortality. Climate change may also contribute to the decline of populations of western Joshua tree via other more indirect mechanisms, including increased impacts from small mammals during drought, reduced growth due to lack of low winter temperatures, increases in fire activity, or effects on pollinating moths

All of the studies assessed by DFW in its Status Review come to similar conclusions: that the areas with climate conditions that supported western Joshua trees during the 20th century are expected to contract substantially by 2100, especially in the southern and lower elevation portions of the species' range. Areas with historical 20th century suitable climate conditions for the species will also expand to the north and into higher elevation areas in some parts of eastern California, but most substantially in Nevada. The western Joshua tree is only likely to colonize areas with newly suitable climate conditions very slowly.

Several published species distribution models of western Joshua trees agree on a substantial climate-related decline in suitable area for the species across the Mojave Desert.[2] Some research suggests that climate change occurring under the highest emissions scenario could reduce habitat for the western Joshua tree in the Southwest by 90% by 2100. Even with lower

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[2] Sweet, L. C., Green, T., Heintz, J. G. C., Frakes, N., Graver, N., Rangitsch, J. S., Rodgers, J. E., Heacox, S., and Barrows, C. W.. (2019). Congruence between future distribution models and empirical data for an iconic species at Joshua Tree National Park. Ecosphere 10(6):e02763. Accessed April 19, 2023, at https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.2763#ecs22763-bib-0020.;
Barrows, C. W., and Murphy-Mariscal, M.L. (2012). Modeling impacts of climate change on Joshua trees at their southern boundary: How scale impacts predictions. Biological Conservation 152:29–36. Accessed April 19, 2023, at www.sciencedirect.com/science/article/abs/pii/S0006320712001711.;
Cole, K. L., Ironside, K., Eischeid, J., Garfin, G., Duffy, P. B., and Toney, C. (2011). Past and ongoing shifts in Joshua tree distribution support future modeled range contraction. Ecological Applications 21:137–149. Accessed April 19, 2023, at https://esajournals.onlinelibrary.wiley.com/doi/10.1890/09-1800.1.

emission scenarios, nearly 80% of suitable habitat could be lost.[3]

Proposed CESA listing. The western Joshua tree was proposed for listing as threatened under CESA at the Commission in late 2019. The Commission accepted the western Joshua tree as a candidate species in 2020 and has not made a final decision on the listing yet. While a candidate for listing, the western Joshua tree has similar protections to those of a listed species. This includes take prohibitions and take authorization through permits obtained from DFW. Since becoming a candidate, take permits were issued under FGC §§ 2081 and 2084.

At this point, it is unclear what decision the Commission will make. This bill expressly leaves CESA as a regulatory backstop by specifying that the fees proposed by this bill are only in effect if the species is not listed under CESA. The other provisions of the bill would remain in effect, including the conservation plan and the delegation of permitting for tree trimming and dead tree removal, even if the species is listed under CESA.

Federal Endangered Species Act (ESA). In March 2023, the U.S. Fish and Wildlife Service (U.S. FWS) declined to list Joshua trees (both *Yucca brevifolia* and eastern Joshua tree, *Yucca jaegeriana*) under the federal ESA. U.S. FWS analyzed whether the two species of Joshua tree populations in California, Arizona, Nevada, and Utah are at risk of becoming extinct before 2069. While noting climate change, wildfires, drought, and invasive grasses as the biggest threats to Joshua trees, U.S. FWS concluded none of those factors will profoundly affect the population or range of the Joshua tree's habitat by 2069.

Clean energy and housing goals. While outside the jurisdiction of this Committee, it is important to note the larger context within which western Joshua trees are situated. California has a goal of 60% renewable energy by 2030 and 100% carbon-free energy by 2045. One of the key regions sought by renewable energy developers is the sparsely populated, but ecologically important Mojave and Colorado/Sonoran Desert area in southeastern California – a vast area covering roughly 22.6 million acres. Currently, more than 10 gigawatts of solar projects are planned for construction in this general area. For context, California has approximately 16.4 gigawatts of installed solar resources as of March 2023.

Additionally, California is experiencing an affordable housing crisis. Governor Newsom has stated a goal of developing 3.5 million new housing units by 2025. The Antelope Valley of Los Angeles County, the Inland Empire (Riverside and San Bernardino counties), and eastern Kern County are growing rapidly with residents migrating in search of affordable housing in Southern California. These areas also overlap with western Joshua tree habitat.

3) **Support if amended arguments.** A coalition of conservation and environmental organizations write with a support if amended position. While these organizations are generally supportive of protections for the western Joshua tree and preserving the ability to list under CESA if needed, their letter highlights several proposed improvements to this bill, including: valuing small trees higher than large trees; assessing the value of the habitat around trees; ensuring mitigation fee amounts provide adequate funding to allow for the conservation and management of western Joshua tree habitat; and requiring the monitoring of

[3] Sweet, et al. (2019).

relocated trees for a period of 10 years to ensure survival, among other suggestions.

4) **Related legislation.** AB 1183 (Ramos), Chapter 380, Statutes of 2021, establishes the California Desert Conservation Program at the Wildlife Conservation Board to acquire, preserve, restore, and enhance desert habitat within the California deserts region.

   SR 116 (Allen, Hertzberg, Hill, Leyva, and Stern) of 2018 declares the California Desert an ecological treasure, and proclaims we should secure for the American people of this and future generations an enduring heritage of biodiversity, wilderness, national parks, and public land values in the California Desert.

REGISTERED SUPPORT / OPPOSITION:

Support

None on file

Opposition

None on file

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