

STAFF SUMMARY FOR FEBRUARY 8-9, 2023

9. WESTERN JOSHUA TREE**Today's Item**Information Action

Consider the petition, the Department's status review report, and comments received to potentially determine whether listing western Joshua tree (*Yucca brevifolia*) as threatened under the California Endangered Species Act (CESA) is warranted.

Note: Pursuant to California Fish and Game Code Section 2075.5, the Commission, at its October 12-13, 2022 meeting, closed the public hearing and administrative record for this item, and subsequently reopened the record expressly for the limited issue of seeking further input from tribal nations. The Commission is not expected to take any further comment other than from tribal leaders or tribal representatives authorized to speak on behalf of their tribes.

Summary of Previous/Future Actions

- | | |
|---|----------------------|
| • Received petition | Mar 15, 2019 |
| • Transmitted petition to the Department | Mar 22, 2019 |
| • Published notice of receipt of petition | Apr 19, 2019 |
| • FGC determined the petitioned action may be warranted, initiating the Department's one-year status review | Sep 22, 2020 |
| • Approved the Department's request for a six-month extension | Jun 16-17, 2021; |
| • Closed the public hearing and administrative record, and continued deliberations to Oct 2022 meeting | Jun 15-16, 2022 |
| • Closed the public hearing and administrative record, and continued deliberations to Feb 2023 meeting | Oct 12-13, 2022 |
| • Today, potentially determine if listing is warranted | Feb 8-9, 2023 |

Background

In October 2019, the Commission received a petition from the Center for Biological Diversity to list western Joshua tree as threatened under CESA. At its April 2022 meeting, the Commission formally received the Department's completed status review report for western Joshua tree. The status review report represents the Department's final written review of the status of the species and delineates each of the categories of information required for a petition, evaluates the sufficiency of the available scientific information for each of the required components, and incorporates additional relevant information that the Department possessed or received during its review. Based on the information provided, possessed, or received, the Department concluded that the petitioned action to list western Joshua tree as threatened under CESA is not warranted at this time.

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The Commission scheduled a public hearing on the petition for its June 2022 meeting following public release of the status report, pursuant to sections 2075 and 2075.5 of the Fish and Game Code. On the first day of its June meeting, the Commission took public comment and received presentations from the Department, the petitioner, and several other organizations. After oral testimony concluded, the Commission discussed the item and closed the public hearing and administrative record pursuant to Fish and Game Code Section 2075.5.

On the second day of the June meeting, several motions were made and voted upon. Most notable, the Commission voted on a motion to list western Joshua tree; the motion resulted in a tie vote and, therefore, did not result in a final decision on listing. The Commission then reopened the record pursuant to 2075.5 to proactively seek and allow for additional input from tribal nations and continued its deliberations to its October 2022 meeting. In a separate motion, the Commission requested that the Department report at the October meeting on potential legislation regarding a range-wide conservation plan for western Joshua tree.

At its October 2022 meeting the Commission heard comments from tribal representatives. Following a discussion, the Commission decided that more time was needed for tribal consultation to allow tribes that wished to consult with the Department and/or Commission to have agreements in place before a decision was made about listing western Joshua tree. The Commission then closed the public hearing and administrative record except for input from and consultation with tribal governments, and continued its deliberations and decision to today's meeting.

Since the October 2022 meeting, neither the Department nor the Commission have received any additional comments or input from tribal governments. A synopsis of considerations, a summary of a listening session held on August 23, 2022, and a summary of tribal outreach were provided to the Commission at its October meeting (see linked materials in Exhibit 1).

At today's meeting, the Commission will discuss and potentially determine if listing western Joshua tree is warranted.

Significant Public Comments (N/A)

Recommendation

Commission staff: Determine if listing western Joshua tree as threatened under CESA is warranted.

Department: Determine that listing western Joshua tree as threatened under CESA is not warranted.

Exhibits

1. [Staff summary from October 12-13, 2022 meeting \(for background purposes only\)](#)

Motion

Moved by _____ and seconded by _____ that the Commission, pursuant to Section 2075.5 of the California Fish and Game Code, finds the information contained in the petition to list western Joshua tree (*Yucca brevifolia*), and the other information in the record

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before the Commission, **does warrant** listing western Joshua tree as threatened under the California Endangered Species Act. Findings will be adopted at a future meeting.

OR

Moved by _____ and seconded by _____ that the Commission, pursuant to Section 2075.5 of the California Fish and Game Code, finds the information contained in the petition to list western Joshua tree (*Yucca brevifolia*), and the other information in the record before the Commission, **does not warrant** listing western Joshua tree under the California Endangered Species Act, consistent with the Department recommendation.

OR

Moved by _____ and seconded by _____ that the Commission, pursuant to Section 2075.5 of the California Fish and Game Code, closes the public hearing and administrative record for the Commission's decision and continues its deliberation and decision to a future meeting.

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2. WESTERN JOSHUA TREE

Today's Item

Information

Action

Consider the petition, DFW's status review report, and comments received to determine whether listing western Joshua tree (*Yucca brevifolia*) as threatened under the California Endangered Species Act (CESA) is warranted.

Note: Pursuant to California Fish and Game Code Section 2075.5, FGC, at its June 15-16, 2022 meeting, took public comment, closed the public hearing and administrative record for this item, and subsequently reopened the record expressly for the limited issue of seeking further input from tribal nations. FGC is not expected to take any further comment other than from tribal leaders or tribal representatives authorized to speak on behalf of their tribes.

Summary of Previous/Future Actions

- | | |
|--|---|
| • Received petition | Mar 15, 2019 |
| • Transmitted petition to DFW | Mar 22, 2019 |
| • Published notice of receipt of petition | Apr 19, 2019 |
| • FGC determined petitioned action may be warranted | Sep 22, 2020; Webinar/Teleconference |
| • Approved DFW's request for six-month extension | Jun 16-17, 2021; Webinar/Teleconference |
| • Closed the public hearing and administrative record, and continued deliberations to Oct 2022 meeting | Jun 15-16, 2022; Los Angeles/Trinidad |
| • Today, potentially determine if listing is warranted | Oct 12-13, 2022; Kings Beach |

Background

In Oct 2019, FGC received a petition from the Center for Biological Diversity to list western Joshua tree (WJT) as threatened under CESA. At its Apr 2022 meeting, FGC formally received DFW's completed status review report for western Joshua tree (WJT), a species that was petitioned for listing under CESA in Oct 2019. The status review report represents DFW's final written review of the status of WJT and delineates each of the categories of information required for a petition, evaluates the sufficiency of the available scientific information for each of the required components, and incorporates additional relevant information that DFW possessed or received during its review. Based on the information provided, possessed, or received, DFW concluded that the petitioned action to list WJT as threatened under CESA is not warranted at this time.

FGC scheduled a public hearing on the petition for its Jun 2022 meeting following the public release of the status report, pursuant to sections 2075 and 2075.5 of the Fish and Game Code. At its Jun meeting, FGC took public comment and received presentations from DFW, the petitioner, and several other organizations. After oral testimony concluded on the first day

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of the meeting, FGC discussed the item and closed the public hearing and administrative record pursuant to Fish and Game Code Section 2075.5.

On the second day of the meeting, several motions were made and voted upon. Most notable, FGC voted on a motion to list WJT; the motion resulted in a tie vote and, therefore, did not result in a final decision on the listing. FGC then reopened the record pursuant to 2075.5 to proactively seek and allow for additional input from tribal nations and continued its deliberations to today's meeting. In a separate motion, FGC requested that DFW report on potential legislation regarding a range-wide conservation plan for WJT.

At today's meeting, FGC is anticipated to receive DFW staff's reflections on tribal outreach and engagement that has occurred since June, and may determine if listing WJT is warranted.

Synopsis of Considerations

In its deliberation about whether listing is warranted at its Jun 2022 meeting, FGC considered a number of factors, including climate change impacts and WJT distribution, abundance, and adaptability. Because of the nature of WJT decline, the time scales involved, WJT's unusual life history, and the nature of the evidence for WJT's future status, the considerations for this decision are fundamentally different in character than most other CESA listings FGC has considered.

The Earth's climate is warming, and among the primary causes are greenhouse gas emissions and deforestation. Climate change represents the chief threat to WJT and is widely recognized as one of the top threats to wildlife populations in California. Growing scientific consensus indicates that desert ecosystems, especially their botanical constituents, may be particularly vulnerable to climate change effects because of their dependence on precipitation patterns, subsistence at the limits of biological tolerance, sensitivity to human perturbation, and their adaptive capacity.

Collectively many vulnerability assessments, using different, complementary methods of analysis indicate high climate vulnerability to WJT and its habitat, both categorically and specifically. WJT is inherently susceptible to adverse effects caused by climate change, and there is high confidence those effects will be rapid and significant. Further, WJT adaptive capacity is extremely low. WJT life history attributes, including dispersal ability (movement ability, establishment, proliferation) and evolvability (generation time, ability to sexually reproduce) all point to low adaptability and poor range mobility. Given that effective, timely, in situ adaptation is unlikely for WJT, the ability for the species to persist into the future likely will depend entirely on its ability to expand northward to colonize new geographies with suitable and stable conditions.

While WJT may in fact be numerous now, there are likely few areas of active recruitment, especially in the southern population, as characterized by areas in Joshua Tree National Park. WJT relies on wet years to boost seedling survival, and is depressed in dry years. Future decreased precipitation and prolonged drought spells will severely hamper recruitment over and above current levels. The result is a species characterized by robust representatives in older age classes with effectively little to no fecundity to facilitate replacement.

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The extent to which WJT can adapt to these changes is central to the CESA listing decision. If WJT can adapt to these changes by effectively shifting its range or rapidly evolving to withstand new climate conditions, then WJT may stave off extinction. Augmenting WJT range migration with tree planting may become necessary if natural recruitment cannot keep pace with shifting habitat conditions. However, researchers remain skeptical about the wisdom of managed translocation of plant species, citing unknown species interactions and underdeveloped methodological approaches. With WJT specifically, the very traits that may call for assisted migration as a mitigation tactic (e.g., poor diffusion, long lifecycle, low competitive ability), may preclude that approach from serious consideration.

In a CESA-listing context, abundance (or, more properly, evaluations of abundance in the foreseeable future) must be evaluated in a context of threat magnitude and significance to determine the true extinction risk. Abiotic threats such as increasing temperatures, decreasing precipitation, and increasing drought; as well as biological threats, such as changes in rodent abundance and effects, alterations of yucca moth behavior and distribution, and invasive species are not necessarily localized, potentially affecting the entire species despite its apparent abundance. Urbanization and wildfire can also affect large portions of WJT range and habitat. These threats can have major interactions that substantially heighten the significance of the threats individually.

Traditionally, CESA listing decisions have been based largely on demographic trend data (indicating increasing scarcity of the organism over time). With WJT, available trend analyses are mixed and localized, including multiple studies demonstrating a downward trend in WJT abundance in some local populations, while other studies indicate stable populations in parts of its range. To date, no range-wide, long-term, comprehensive study of WJT demographic trends has been conducted and, unlike species considered for listing under CESA in the past, WJT appears relatively widespread and abundant at this time. The long WJT life span, combined with the decades-long time spans under which climate change impacts unfold, make it problematic to obtain reliable widespread, long-term trend data for such a species. Given the variability of WJT conditions across its range, arithmetically extrapolating these local studies to the entire species or range may not be appropriate – but robust statistical modeling can be performed to reveal potential or likely future trends and conditions, as was done in this case.

Because of the limited trend data, the key information concerning the future of WJT populations rests in a portfolio of predictive scientific models. Models can have limitations, such as sometimes lacking inclusion of important environmental factors or stressors, or not adequately accounting for localized conditions. However, modeling is an important tool that can help inform decisions. Based on modeling and other observations, there is a general consensus that indicates southern WJT populations face graver threats than the northern WJT populations. Several independent models of WJT future distribution predict significant to drastic reductions in WJT range, abundance, and condition – strongly suggesting that WJT future reductions may be serious and substantial. The horizon of these models' predictions, and inferences that may be made beyond those timeframes (year 2100 and beyond), may seem remote, but are within medium-to-high confidence levels. Climate change, WJT life span, and evolutionary adaptation all work on long time scales that are challenging to predict with

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high certainty; modeling may be the only tool that can inform decisions far enough in advance as to permit timely and effective mitigation or management actions.

This synopsis does not encapsulate all the details involved in the CESA listing decision for WJT. FGC regulation [subsection 670.1(i)] states that FGC must determine whether WJT's continued existence is in serious danger or is threatened by any one or any combination of factors. CESA dictates that the decision is made based on FGC's complete administrative record. CESA does not require perfect knowledge of either the issues highlighted in this summary or any of the elements of the WJT listing decision; what CESA does oblige FGC to do is utilize the best available scientific information in its decision.

Significant Comments

The administrative record for this item was closed at the June 2022 FGC meeting. The record was then reopened expressly to seek greater input from Native American tribal governments; any correspondence or other documents outside of that specific subject have not been included in this summary of significant comments or the materials for this meeting.

Listening Session

A tribal listening session was convened on August 23, 2022, jointly hosted by DFW Director Chuck Bonham and FGC Executive Director Melissa Miller-Henson; it was attended by six tribal representatives and several DFW and FGC staff.

Tribal representatives in attendance spoke to the spiritual, ceremonial, utilitarian, ecological, and cultural value of WJT, and noted that the species was traded to other tribal communities outside of range and is owed respect and protection. The species provides medicine, food, protection and other resources needed for survival, and there are important cultural relationships with the species that cannot be adequately communicated either in the English language or summarized in written form.

Tribal representatives were concerned about the destruction of WJT for development and the insufficient protections for the species prior to candidacy under CESA. Some believe the lack of protection has resulted in large-scale destruction of WJT populations. After the species was petitioned, some tribal citizens observed a marked increase in the pace of destruction of the species before candidacy protections could go into effect. In a few cases, tribal partners have been able to help save or use impacted trees; however, they believe it should not be the sole responsibility of tribes to do so. Concern was expressed regarding the footprint of solar projects and their impacts to delicate desert land and resources, including WJT.

Tribal representatives discussed co-management of the species with the state, as well as the use of traditional ecological knowledge in conservation and restoration planning. The discussion invited collaboration in determining use of the WJT mitigation fund to support conservation of the species. Tribal representatives also recommended that scientific studies related to WJT look at the landscape as a whole instead of one individual plant or population, and to integrate traditional ecological knowledge into study designs.

Additional Outreach to Tribes Potentially Affected

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Consistent with FGC direction to formally and affirmatively engage tribes in this subject, subsequent to the listening session FGC and DFW staff reached out to each of the 58 tribes initially identified by the Native American Heritage Commission as having cultural and traditional affiliation to the area of potential effect. Staff spoke to tribal contacts, left messages, and provided information via email to ensure that tribal nations were notified and aware of the potential listing of WJT and had the opportunity to participate in the FGC's process. Tribal contacts were referred to the FGC's tribal advisor and liaison for additional questions.

Written Comments

Since the Jun 2022 meeting, FGC received four letters from Native American tribes before the standard comment deadline for this meeting:

1. The Twenty-Nine Palms Band of Mission Indians expresses that western Joshua tree is an iconic California native species and an important symbol of the Mojave Desert, and believes that protection and preservation is best achieved by thoughtful regulations and ordinances at the local level.
2. The Cahuilla Band of Indians expresses its nation's support for maintaining local control, especially local tribal control, over non-reservation lands. It supports the Twenty-Nine Palms Band of Mission Indians' position regarding local control. The Cahuilla Band of Indians sees the direct benefits of localized policies regarding natural resources that also emphasize tribal contributions to management efforts.
3. The San Manuel Band of Mission Indians requests that, if WJT is listed under CESA, the tribe be included in the development of any conservation strategies or mitigation efforts to protect the tree. It also requests that the tribe be included in any regional conservation efforts that are done in coordination with FGC and DFW on ancestral lands.
4. The Colorado River Indian Tribes express support for listing WJT as threatened under CESA. The tribes are concerned with the cultural and ecological connectivity of the ancestral desert landscape and have long opposed the potential removal of cultural artifacts from the area and the corresponding destruction of the tribes' footprint on the landscape. The tribes also oppose the wholesale destruction of the desert ecosystem through grading and removal of existing vegetation.

Recommendation

FGC staff: Determine whether the hearing should be continued to obtain any additional analysis on the information in the administrative record and/or to continue deliberation. If the hearing is not continued, determine whether to list WJT as threatened under CESA.

DFW: Determine that listing WJT as threatened under CESA is not warranted.

Exhibits

1. [Staff summary from Jun 15-16, 2022 FGC meeting \(for background purposes only\)](#)
2. [Letter from Hon. Darrel Mike, Chairman, Twenty-Nine Palms Band of Mission Indians, received Jul 26, 2022](#)
3. [Letter from Hon. Daniel Salgado, Sr., Chairman, Cahuilla Band of Indians, received](#)

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4. Letter from Hon. Lynn R. Valbuena, Chairwoman, San Manuel Band of Mission Indians, received Sep 28, 2022
5. Letter from Hon. Amelia Flores, Chairwoman, Colorado River Indian Tribes, received Sep 29, 2022

Motion

Moved by _____ and seconded by _____ that the Commission, pursuant to Section 2075.5 of the California Fish and Game Code, finds the information contained in the petition to list western Joshua tree (*Yucca brevifolia*), and the other information in the record before the Commission, **does warrant** listing western Joshua tree as threatened under the California Endangered Species Act. Findings will be adopted at a future meeting.

OR

Moved by _____ and seconded by _____ that the Commission, pursuant to Section 2075.5 of the California Fish and Game Code, finds the information contained in the petition to list western Joshua tree (*Yucca brevifolia*), and the other information in the record before the Commission, **does not warrant** listing western Joshua tree under the California Endangered Species Act, consistent with the Department recommendation.

OR

Moved by _____ and seconded by _____ that the Commission, pursuant to Section 2075.5 of the California Fish and Game Code, closes the public hearing and administrative record for the Commission's decision and continues its deliberation and decision to a future meeting.