

Joshua Tree CESA Petition Background and Talking Points

- The Center for Biological Diversity submitted a petition to list the western Joshua tree (*Yucca brevifolia*) as a “threatened species” pursuant to the California Endangered Species Act (CESA) in October 2019.
- In April 2020, the California Department of Fish and Wildlife evaluated the petition and found that it provided substantial information indicating that listing of the western Joshua tree may be warranted and recommended that the species receive “candidate” status.
- On June 25, 2020 the California Fish and Game Commission is scheduled to vote on whether to adopt the Department’s recommendation and grant western Joshua trees candidate status. A candidate designation triggers a yearlong review of whether the species should be formally protected under CESA. A candidate species receives legal protections during the review period.
- Under CESA, a “threatened species” is “a native species or subspecies of a ... 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...”
- While the western Joshua tree is not at imminent risk of extinction, it faces significant and growing threats, primarily from climate change, that ultimately threaten the viability of the species in California; it consequently meets the definition of a “threatened species.”
- Long considered a single species with two subspecies or varieties, the Joshua tree has recently been recognized as comprised of two distinct species, the western Joshua tree (*Yucca brevifolia*) and the eastern Joshua tree (*Y. jaegeriana*). The two species are geographically separated, genetically and morphologically distinguishable, and have different obligate pollinating moths.
- Both species occur in California, with the western Joshua tree having a boomerang-shaped range from Joshua Tree National Park, westward along the northern slopes of the San Bernardino and San Gabriel Mountains, through the Antelope Valley, northward along the eastern flanks of the southern Sierra Nevada and eastward to the edges of Death Valley National Park. The eastern Joshua tree’s range in California is centered in the Mojave National Preserve.
- While both the western and eastern species of Joshua tree are of conservation concern, the fate of the western Joshua tree in California is particularly alarming, as recent studies indicate that the species’ range is contracting at lower elevations, recruitment is limited, and mortality is increasing, all of which would likely reflect a population already starting to decline due to recent warming. Even greater changes are projected to occur over the coming decades.
- Climate change represents an existential threat to western Joshua trees. The convergence of factors necessary for recruitment results in successful establishment of new Joshua tree seedlings only a few times a century. Such recruitment has already largely stopped at the drier, lower limits of the species’ range.

- Prolonged droughts, which are projected to occur with greater frequency and intensity over the coming decades, will not only preclude recruitment across ever-greater areas of the species' range, but will lead to higher adult mortality, either directly due to temperature and moisture stress or indirectly due to increased herbivory from hungry rodents lacking alternative forage.
- Whether or not the western Joshua tree's pollinating moth will be able to keep pace with a changing climate is uncertain. Absent the pollinating moth, Joshua trees will not be able to produce seeds, meaning there will be no juvenile trees to replace older trees as they die off.
- The Joshua tree's ability to colonize new habitat at higher elevations or latitudes is extremely limited and no such range expansion is yet occurring, even as the lower elevation and southern edge of its range is already contracting.
- There is no safe refuge for western Joshua trees, as the higher elevation areas in which Joshua trees are projected to best be able to survive increasing temperatures and drying conditions are at great risk of fire due to the prevalence of invasive non-native grasses.
- The portion of the species' range where management is most protective—Joshua Tree National Park—is also the area where the early impacts of climate change are already being felt most severely. A recent study projected that over 99% of Joshua trees would be eliminated from the Park under current warming trajectories, and that even under the best-case scenario involving a rapid reduction in our GHG emissions the species would still decline by over 80%.
- In addition to climate change and fire, the western Joshua tree is threatened by habitat loss and degradation from other human activities. Outside of Joshua Tree National Park, areas of federal land that are home to the species are subject to poorly-regulated activities including off-road vehicle use, cattle grazing, power and pipeline rights-of-way and large-scale energy projects that consume or degrade habitat.
- While much of the western Joshua tree's range is on public lands, approximately 40% of its range in California is on private land, of which only a tiny fraction is protected from development. Under current growth projections, virtually all of this habitat will be lost in the coming decades absent strengthened protection under the law.
- Development has already consumed hundreds of thousands of acres of habitat in the range of the western Joshua tree. Over the coming decades, over a million additional acres will likely be destroyed or degraded for housing, roads, energy projects and assorted other development. This large-scale loss or severe degradation of habitat is of conservation concern for the species even absent the threats posed by climate change. However, given that the western Joshua tree in California will lose upwards of 90% of its range under likely climate scenarios, the added loss of habitat and the genetic resiliency and connectivity it provides will further push the species towards extirpation in California.
- Absent rapid and substantial reductions in GHG emissions *and* protection of habitat, the western Joshua tree will likely be extirpated from all or most of California by the end of the century.

Current Management is Inadequate

- Existing management is inadequate to protect Joshua trees from climate change. Under the Trump administration the federal government has pulled out of the Paris Agreement and rolled back numerous measures meant to reduce GHG emissions. Globally, the world is doing little better, with GHG emissions continuing to increase rather than decline, having gone up an additional 1.3% in 2019. In order to save Joshua trees and otherwise avoid the worst impacts of climate change, global GHG emissions must rapidly decline, reaching carbon-neutrality by no later than 2045.
- Measures to protect Joshua trees from habitat loss are also inadequate. While the California Desert Native Plants Act has been largely effective at reducing the commercial harvest of Joshua trees, it has done little to slow the loss of habitat from agricultural conversation and development in the range of the species.
- Various local jurisdictions in the range of the western Joshua tree currently have plant protection ordinances or other measures that nominally protect Joshua trees. While these provisions require consideration of Joshua tree retention in development plans, most exempt single-family homes and none act as an actual bar to tree removal, instead usually requiring transplantation, donation or making available for adoption trees removed from construction sites.
- The California Fish and Game Commission noted the inadequacy of these approaches when it adopted its California Policy for Native Plants in 2015, finding them “largely ineffectual”:

“The State’s policies and practices regarding native plants are in need of review and updating. More than 30 years ago state law focused on transplantation as a means of mitigating for listed plant species, however experience and numerous studies document that such practices are largely ineffectual over time and often damaging to species or population survival.”

- While the California Desert Native Plants Act and similar local ordinances may result in the near-term preservation of individual adult Joshua trees in urban and suburban neighborhoods, these areas are less likely to remain habitat long-term. Successful recruitment in such areas is likely constrained by lack of nurse plants and it remains highly uncertain whether pollinating moths will be able to persist with the resultant low Joshua tree densities

Consequences of CESA Listing

- CESA listing would help address many threats facing the western Joshua tree. While CESA listing likely would not directly address GHG emissions, it would greatly help protect Joshua trees from direct habitat loss as well as foster recovery actions by the California Department of Fish and Wildlife and other state and local agencies.
- CESA contains both affirmative mandates and prohibitions. CESA declares that “it is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat and that it is the intent of the Legislature, consistent with conserving the species, to acquire lands

for habitat for these species.” This mandate should lead to the protection and acquisition of habitat necessary for the survival and recovery of the western Joshua tree.

- CESA also requires state agencies to conserve listed species, stating that “it is the policy of this state that all state agencies, boards, and commissions shall seek to conserve endangered species and threatened species and shall utilize their authority in furtherance of the purposes of this chapter.” This mandate applies to agencies ranging from State Parks, Caltrans, the CEC and CPUC, all of whom would have to take conservation of the Joshua tree into consideration when approving projects.
- Under CESA, the California Department of Fish and Wildlife would be tasked with preparing a recovery plan for the species that lays out the measures necessary to conserve the species. The recovery plan serves as a guide for other state agencies to following in meeting CESA’s conservation mandate.
- CESA also contains several prohibitions. Specifically, “public agencies should not approve projects as proposed which would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy.” This applies not just to state agencies, but also to local jurisdictions such as counties and towns.
- CESA also has several prohibitions that apply to private entities and individuals, who are not allowed to import, export, take, possess, purchase, or sell a listed species absent a permit or authorization. The term “take” means to hunt, pursue, catch, capture, or kill. Most relevant to Joshua trees, this means that an action likely to kill a Joshua tree would be prohibited without a permit.
- While CESA’s take prohibitions are strong, they are not absolute, and do not serve to block all development in the range of a listed species. Moreover, recent statements by opponents of listing regarding the impacts of listing are either based on a misunderstanding of the law or are the product of intentional spreading of misinformation. For example, there is nothing in the definition of “take” that would preclude an individual from moving aside a fallen Joshua tree branch that was blocking their driveway.
- There are several exceptions to CESA’s prohibitions. There is an exemption for the sale of live examples or parts of a species that were possessed prior to the species being listed. For Joshua trees, this means that a nursery or botanical garden could sell seeds or plants lawfully collected and/or grown prior to the species becoming listed. Additionally, individuals and other entities may be authorized via permits or memorandums of understanding to import, export, take or possess a listed species for scientific, educational or management purposes. Under one of these exceptions, an entity could be authorized to, for example, collect seeds and grow Joshua trees for restoration efforts.
- Take of a listed species may also be authorized if the take is incidental to an otherwise lawful activity. Such a permit requires that impacts to the species be minimized and fully mitigated. An incidental take permit can be sought at any scale, ranging from an individual property owner who wishes to build on their land, a larger development project such as a shopping mall or energy project, to an entire city or county.

The cost, timeframe and amount of mitigation required to acquire an incidental take permit varies commensurate with the scale of the project.

- An incidental take permit can be for a single species, or for multiple listed species. For example, because the western Joshua tree shares much of its range with the desert tortoise, which is also protected as threatened, any project that would require an incidental take permit for the Joshua tree would likely also already require a permit for the desert tortoise.
- Given the desert tortoise has been listed under CESA as well as the federal ESA for 30 years, much of the development that has occurred in the high desert over the past three decades has occurred in likely violation of these statutes.
- Take of a listed species can also be authorized at a regional scale through a Natural Communities Conservation Plan (NCCP). An NCCP requires landscape scale conservation but also authorizes take of all covered species in the plan area. An individual landowner in an area covered by an NCCP does not have to individually apply for a take permit if their proposed activities are consistent with the NCCP.
- There are 14 approved NCCPs in California, including in San Diego, Orange and Riverside counties. However, San Bernardino and other counties and local jurisdictions in the Mojave Desert have never managed to successfully develop an NCCP. Consequently, the obligation to apply for an incidental take permit for projects that would harm a listed species in the Mojave such as the desert tortoise or the Joshua tree falls on the individual landowner or project proponent. The Town of Apple Valley is, at present, alone among desert communities in proactively seeking to develop an NCCP.
- A regional NCCP that covers the western Joshua tree, the desert tortoise, and the numerous other rare and imperiled species of the Mojave Desert is the best path forward that can ensure not just the survival of these species, but also smart, sustainable and climate-informed development of the desert in a manner that preserves and enhances the quality of life in our desert communities. The only thing preventing this from happening is the lack of political will
- The threats facing the western Joshua tree in the coming decades are dire. However, unlike more narrowly-endemic species, the species has the benefit of being long-lived, with a relatively large current distribution spread across elevational and latitudinal gradients, much of which is in protected areas. Consequently, if the species and its habitat are protected early from other threats, and with active management to enhance recruitment and survival, and potentially dispersal, the western Joshua tree has a realistic chance of persisting in the wild. CESA listing, and the consequent development and implementation of a recovery plan and NCCPs, would help ensure the survival of this iconic species of the Mojave.