

August 6, 2020

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California Fish and Game Commission
P. O. Box 944209
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Re: Renewables Comments on August 20, 2020 Meeting Agenda's Item 25 re Petition
of Center for Biological Diversity to List the Western Joshua Tree as a
Threatened Species

Dear President, Vice President and Members of the Commission:

I submit these comments on behalf of the Solar Energy Industries Association (SEIA), the Large-scale Solar Association (LSA), the California Wind Energy Association (CalWEA) and the American Wind Energy Association California (AWEA-CA). As explained more fully below, these solar and wind energy industry associations urge the Commission to deny the Petition of the Center for Biological Diversity (CBD) to list the Western Joshua Tree (Joshua Tree) as a threatened species under the California Endangered Species Act (CESA) at this time.

The Petition should be denied for three principal reasons:

1. Insufficient population data for the Joshua Tree exists to support advancing it to candidacy at this time.¹
2. Federal, state, and local regulations currently provide protections for the Joshua Tree covering over 76 percent of its range. See TetraTech Report submitted with this letter. Much of this area has been placed entirely off-limits to renewable energy development.
3. Finally, the solar and wind energy associations and their members will be participating in a regional conservation planning effort for Joshua Tree that will include enhancing both Joshua Tree population data and conservation measures required by local governments.

¹ The letter submitted to the Commission by the California Building Industry Association et al. ably explains the lack of Joshua Tree population data.

That process should be given an opportunity to succeed, because only through such planning can the threats to the Joshua Tree be effectively addressed.

Under current protections, solar and wind projects are developed without any significant impact on the Joshua Tree population. Moreover, accepting the Petition would impede development of wind and solar projects currently under development, and frustrate the achievement of California's goals to entirely eliminate greenhouse gases from its electricity supply. California's success in weaning itself from fossil fuels is the only way to effectively address the threat that climate change poses to the Joshua Tree -- the concern that is at the heart of CBD's Petition.

These issues are addressed below.

The Data-Deficient Petition Underscores the Need for a More Thorough Review

CBD's Petition as well as the Department's Evaluation Report lack basic population abundance and trend data that is needed before the Commission can make an informed decision as to whether to advance the Joshua Tree to candidacy. Additionally, the institutional and personal constraints imposed by the COVID-19 crisis have resulted in a process for considering the Petition that has provided insufficient time for stakeholder engagement including, critically, assessing the current state of the Joshua tree based on data. Apart from the process fairness (and quality of decision-making) concerns this presents, it will result in significant obstacles on Day 1 should the Joshua Tree be advanced to candidacy. It would seem to be difficult for CDFW to develop and implement 2081/ITPs without such data to inform the requirements of the permit, to say nothing of doing so in a timely manner. Advancing the Joshua Tree to candidacy without this information could effectively place a moratorium on development of any property containing a Joshua Tree. Given that Joshua Trees are not immediately threatened (as conceded by the Petition) there is no reason that more time should not be taken to acquire the necessary data to support a decision to advance the Joshua Tree to candidacy.

Existing Joshua Tree Protections are Widespread

A review of federal, state, and local regulations that protect the Joshua Tree was commissioned by the solar and wind energy associations. See TetraTech Report.² The review shows that there are many layers of existing protections that must be analyzed for any decision on candidacy to be properly informed. The area and proportion of the species range protected by a given policy were quantified specific to its jurisdiction using GIS spatial analyses. In total, the review found that 76.3 percent of the Joshua Tree range in California is subject to protective regulations. The review also found that many feasible mitigation measures are currently available or required under the California Environmental Quality Act (CEQA) to protect the Joshua Tree, and that compensatory mitigation for unavoidable habitat impacts at a 1:1 ratio is typical.

² This review represents a high-level survey and summary that was necessarily limited by budget and time constraints.

Impacts on California Renewables and Climate Change Mandates

As the Commission is aware, the renewables industry has long been at the tip of the spear in California's nation-leading battle to address climate change. The contributions of solar and wind energy to meeting California's clean energy mandates, and the impacts on those efforts of advancing the Joshua Tree to candidacy, are detailed in my letter to the Commission of June 11, 2020 (which is attached hereto for the convenience of the Commission and incorporated herein by reference).

While CBD's Petition "states that climate change is the greatest threat to the continued existence of western Joshua tree" (Evaluation Report at 23), advancing the Joshua Tree to candidacy would hamper renewables development at precisely the moment renewables must start to scale dramatically if California is to meet SB 100's mandates of 60% renewable electricity by 2030 and a fully decarbonized grid by 2045.

Land use in California is often a zero-sum proposition, and with California in need of at least 100 gigawatts (GW) of new renewable energy in the next two decades, considerable thought must be given to where new renewable energy projects can be located in relation to the myriad other land needs, including conservation, agriculture, housing, recreation and the like. Renewable energy already faces a dearth of land on which to construct solar and wind projects. See Figure 1 at the end of this letter. It is not as a matter of choice that solar and wind projects are geographically concentrated.

As part of the state-federal Desert Renewable Energy Conservation Plan (DRECP), the Bureau of Land Management (BLM) adopted a Land Use Plan Amendment (LUPA) covering approximately 10 million acres of land. Of this area, the LUPA set aside 4,926,000 acres for permanent conservation while identifying just 388,000 acres for potential renewable energy development in Development Focus Areas (DFAs).³ As shown in Figure 1, below, the LUPA, in combination with other protected federal land and military lands, leaves a tiny fraction of federal land available to renewable energy development. Of this area, much is unsuitable for renewable energy development.

With regard to wind energy, approximately 96 percent of the high-quality wind resources previously available for development on BLM land were permanently put off limits to development as a result of the new land designations made for conservation. With regard to solar energy, some 384 Conservation and Management Actions required under the LUPA when developing projects in DFAs have proven too onerous to enable development. As a result, approximately a dozen wind project applications were abandoned during the DRECP process and no new applications have been filed. Solar applications have also declined under the DRECP.

³ In addition, 3.6 million acres (about 36% of BLM DRECP land) was designated for recreational activities – of which approximately 1.5 million acres are accessible to off-highway vehicles. Solar and wind development is precluded in these areas, as well as in conservation areas.

As a result of these federal land restrictions, solar and wind projects must be sited primarily on private lands. These areas have also been severely restricted for development. For example, Los Angeles County adopted a Renewable Energy Ordinance in 2016 that prohibits ground-mounted utility-scale solar facilities in a large portion of the County and utility-scale wind facilities are prohibited in all zones and areas within the unincorporated County.⁴ Similarly, San Bernardino County, in 2017, adopted the Renewable Energy and Conservation Element of its General Plan that prohibits utility-scale renewable energy development in a large percentage of the county.⁵

As a consequence of these federal and local restrictions, the majority of solar and wind development in Southern California is now concentrated in areas of Los Angeles and Kern Counties, as shown in Figure 2 at the end of this letter. See also TetraTech Report. These areas are within the Joshua Tree distribution range where renewable energy is not prohibited, but where protective local regulations exist, as described in the TetraTech Report. According the Joshua Tree protected species status under CESA would, as a practical matter, further restrict, and potentially make these areas unavailable for, renewable energy development. Southern California is particularly important to achieving California's clean-energy goals due to the greater quality and/or quantity of solar and wind resources, compared to Northern California, as well as transmission constraints limiting access to Northern California resources from which to supply Southern California electricity load. Therefore, it is no exaggeration to state that further limitations on the ability to develop solar and wind projects in the southern region will risk the achievement of California's climate change goals.

As explained above, according the Joshua Tree protected species status under CESA would, as a practical matter, only make more land unavailable to renewables development. Standing up the regional planning effort described below will involve the active participation of CDFW and provide the Department much needed runway to develop a consistent process and requirements for issuing 2081/Incidental Take Permits for Joshua Tree, should the species ultimately be advanced to candidacy.

Advancing the Joshua Tree to Candidacy Will Jeopardize Clean Energy Projects

A number of renewable energy projects are already contracted for 2021 and 2022 commercial operations dates (CODs). These projects have already prepared or are preparing Environmental Impact Reports in compliance with CEQA that address Joshua Trees among other biological resources. They also must conform to other relevant local and state laws and regulations that protect sensitive biological species. In order to achieve their contracted dates, projects with 2021 CODs must begin construction in mid- to late-2020, and projects with 2022 CODs must begin construction in mid- to late-2021. If the Joshua Tree advances to candidacy and a 2084 Rule is

⁴ See <http://planning.lacounty.gov/energy>.

⁵ See http://www.sbcounty.gov/uploads/LUS/Renewable/2019_WEBSITE/REC%20Element.pdf and http://www.sbcounty.gov/uploads/LUS/Renewable/2019_WEBSITE/MIN-LUS-2-28-19-RECE_SIGNED.pdf. In 2019, amendments were made that allow some flexibility to the blanket prohibition of utility-scale projects in rural areas on an individual-project basis, subject to approval by the Board of Supervisors.

not established (as discussed below), the resulting need for 2081/Incidental Take Permits would delay the construction start dates of these projects and potentially make their CODs unachievable. In those cases, the developers would need to revisit the viability of their projects in consideration of liquidated damages and other penalties, and the off-takers would potentially be out of compliance for their renewable energy sourcing or reliability requirements. In addition, the much-needed jobs that come with those projects would be delayed or potentially lost altogether.

The Regional Planning Effort for Joshua Tree Should Be Given a Chance

Kern and San Bernardino Counties, along with renewable energy and other regulated industries, have committed themselves to initiate in short order a regional planning effort to address the long-term threats to the Joshua Tree. That planning effort, which was called for by CDFW Director Bonham in his statement to the Commission at its June 25 meeting, will build on the long-standing efforts of local governments to regulate and limit destruction of Joshua Trees through their local planning and permitting processes. See TetraTech Report (cataloguing actions taken by local governments). This planning effort will endeavor to enhance both Joshua Tree population data and the conservation actions of local governments to protect Joshua Trees. The Counties and project developers anticipate that CDFW will provide technical assistance in the planning effort, and will concurrently take steps to implement (and assist in the implementation of) most all of the management actions called for by CBD in the Petition. Advancing the Joshua Tree to candidacy on top of this would only complicate and divert resources from this planning effort.

2084 Rule

If the Commission decides to accept the Petition and makes the Joshua Tree a candidate species, the renewables industry respectfully requests that the Commission immediately thereafter adopt a regulation pursuant to its authority under Section 2084 of the Fish and Game Code to provide incidental take authorization during the Joshua Tree's candidacy. The solar and wind industries are aware of the Commission's desire to ensure its compliance with CEQA in adopting a 2084 Rule. For that reason, they will work closely with the Commission and CDFW to craft a regulation that authorizes incidental take for those projects subjected to appropriate CEQA review for impacts to the Joshua Tree. Both the solar and wind industries believe a 2084 Rule will be needed if the Joshua Tree is advanced to candidacy, because of the time it would take to secure 2081/Incidental Take Permit authorization of incidental take for projects that cannot be delayed if developers are to meet their commercial obligations.

Conclusion

Given California's urgent climate imperatives, and the extent to which California relies on both solar and wind projects to meet grid needs and climate targets, the solar and wind industries cannot emphasize strongly enough the negative impact that advancing the Joshua Tree to candidacy will have on clean energy development in California. Rejecting CBD's Petition at this time would afford local governments and these industries an opportunity to develop the necessary (and currently lacking) Joshua Tree population data while allowing Counties and project developers -- working closely with CDFW -- an opportunity to stand up a regional planning effort to responsibly and effectively address the long-term threats to the Joshua Tree.

August 6, 2020

Respectfully,



Christopher J. Carr

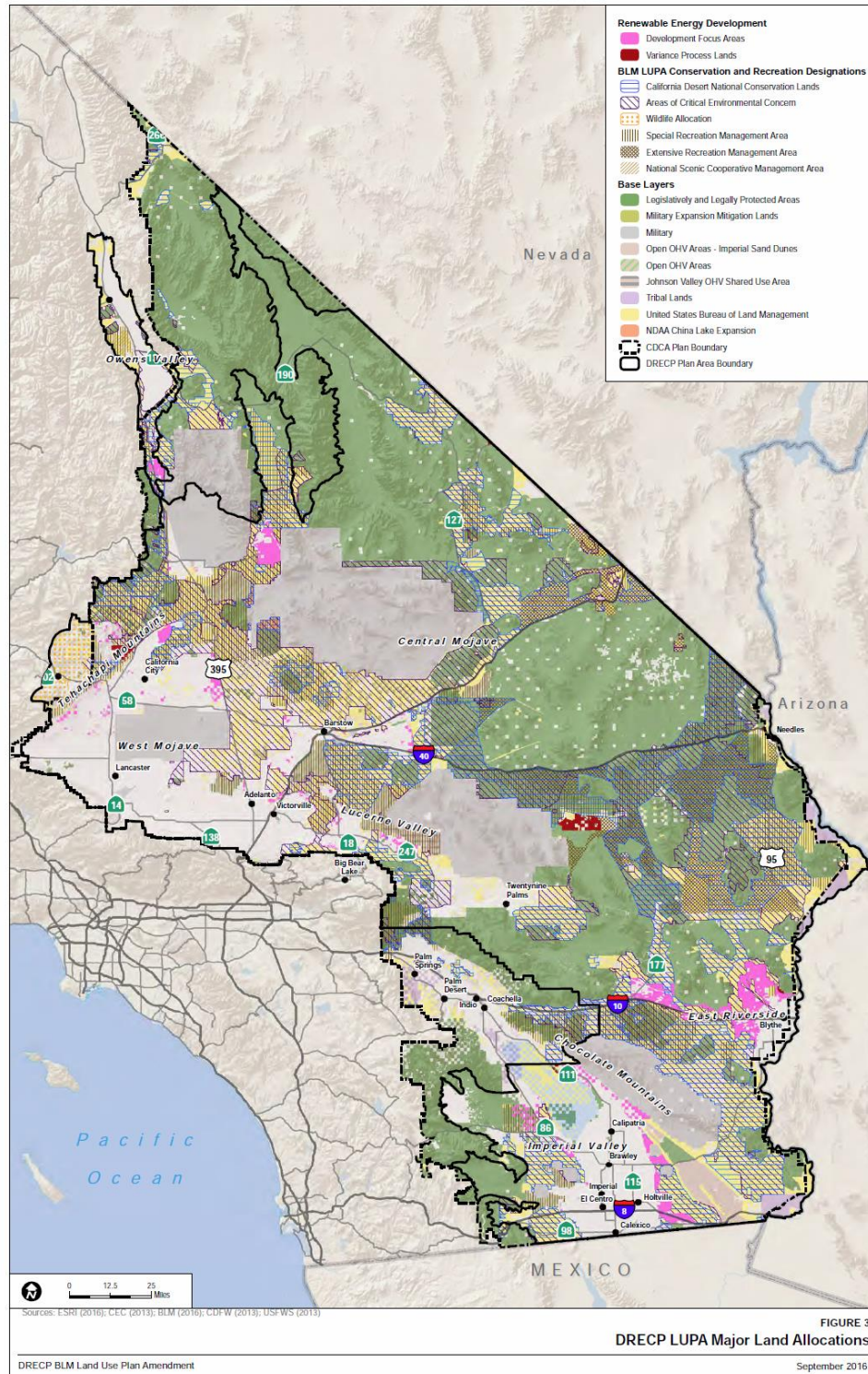
cc: Charlton Bonham
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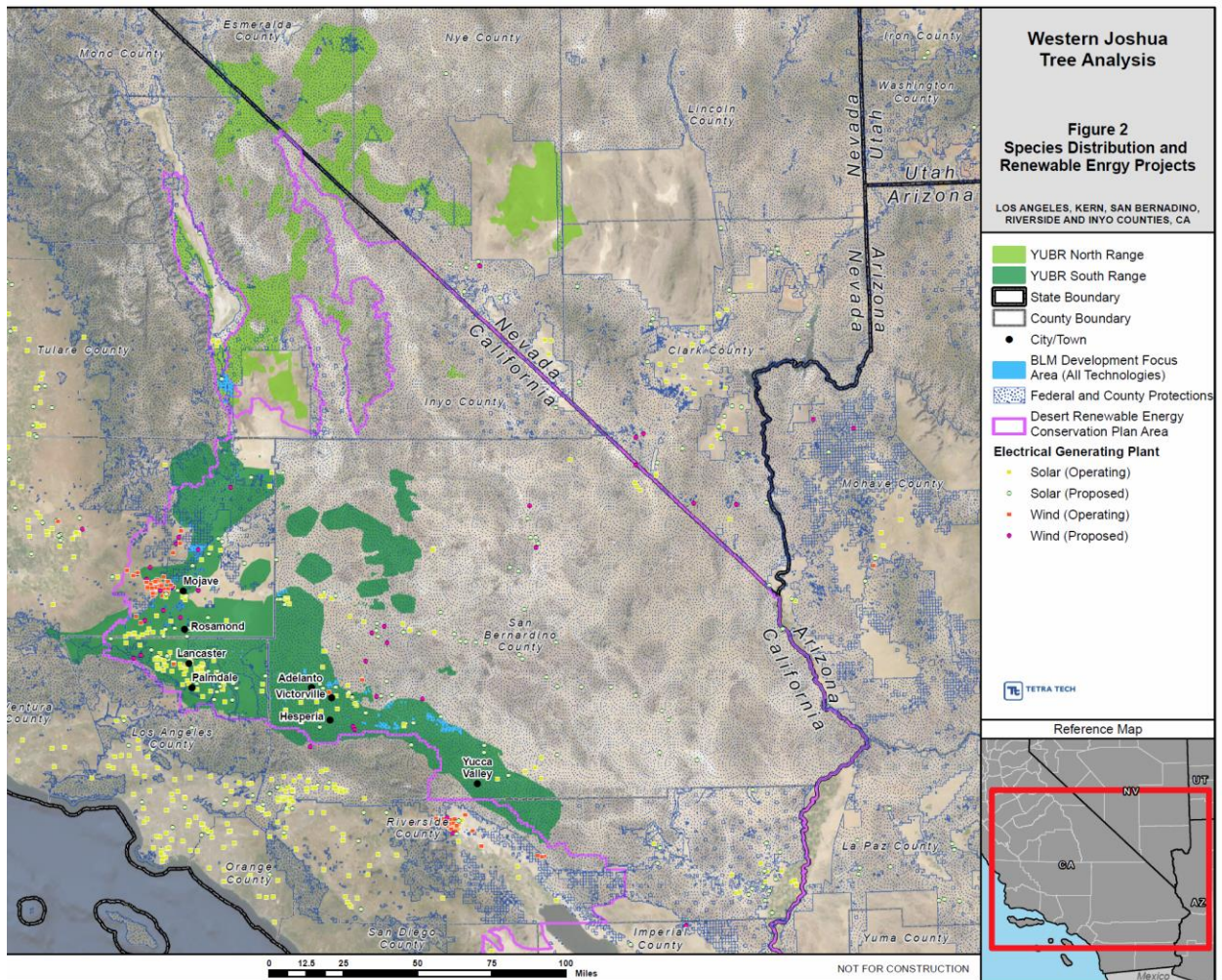
Rick Umoff
Senior Director & Counsel, California, SEIA

Nancy Rader
Executive Director, CalWEA

Danielle Mills
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Figure 1. Federal Land Wind and Solar Energy Development Areas and Exclusion Areas

Source: DataBasin

Figure 2. Joshua Tree Distribution and Solar and Wind Energy Projects

Source: TetraTech Report

June 11, 2020

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Re: Solar Energy Industries Association and Large-scale Solar Association Comments
on June 24-25, 2020 Meeting Agenda's Item 27 re Petition of Center for
Biological Diversity to List the Joshua Tree as a Threatened Species

Dear President, Vice President and Members of the Commission:

These comments are submitted on behalf of the Solar Energy Industries Association ("SEIA") and the Large-scale Solar Association ("LSA"), to express their members' concerns about the potential implications of CBD's Petition to List the Joshua Tree as a threatened species under the California Endangered Species Act ("CESA").

The current agenda ("Agenda") for the Commission's June 24-25, 2020 meeting includes, as Item 27, consideration of whether listing the Joshua Tree "may be warranted." An affirmative determination by the Commission will result in "candidate" status for the Joshua Tree while the Commission considers whether listing the species as threatened "is warranted." Agenda at page 7. The Agenda includes a note explaining that: "Staff will recommend this item be continued to the August 19-20, 2020 meeting based on conversations with the petitioner, other stakeholders, and the Department." Id. SEIA and LSA urge the Commission to follow this staff recommendation. The Commission's continuing the item to its August meeting will allow workers, businesses, local governments and other interested parties that would be adversely impacted if the Joshua Tree is advanced to candidacy more time to analyze those impacts and present them to the Commission. It would also allow more time to gather information regarding the significant Joshua Tree protections already in place under existing laws. Moreover, the continuance would allow interested parties the time needed to work with the Commission and CDFW to develop a reasonable 2084 Rule under CESA to authorize incidental take of the Joshua Tree, so that one could be quickly promulgated by the Commission if the species is advanced to candidacy. California Fish and Game Code section 2084. SEIA's and LSA's members are such parties.

SEIA's and LSA's members include companies leading the nation in developing solar energy generation to address climate change and help states meet their ambitious goals for obtaining electricity from renewable sources. Collectively, the solar industry has developed some 12 GW of utility scale solar generation capacity in California, playing a critical, indeed indispensable, role in helping the State meet and exceed its RPS targets. A substantial percentage of the State's solar generating capacity is located within the area CBD's Petition identifies as the range of the Joshua Tree. In this area there are many more solar projects that have been permitted (and will soon commence construction), are in the permitting process, or are being planned. Simply put, by adding significant uncertainty, risk and delay to solar projects in the various planning, permitting and pre-construction stages, the listing of the Joshua Tree as a threatened species under CESA could hamper California's ability to meet its RPS requirement of 60% by 2030. It could also drive the development of solar projects to neighboring states, undermining economic and employment benefits that would otherwise accrue to Californians.

The solar industry has long been committed to conserving the earth's resources and protecting its biodiversity; fighting climate change is at the core of that commitment. In fact, the raison d'être of those companies is the development of renewable energy sources to combat climate change. CBD's Petition identifies climate change as a threat to the Joshua Tree. Nowhere is the nexus between climate action and conservation more complex than in the California desert – home to both rare desert habitat and species, and to some of the highest solar radiance in the world. What is most unique about this region is its proximity to major load centers – making it the ideal area for siting solar projects. California electricity planners project that the State must *at least* double its utility-scale solar capacity by 2020 in order to meet our climate targets – this is in addition to increasing rooftop solar installations. Smart siting of these projects in the desert must be part of this crucial effort if we are to succeed in meeting our goals.

Given California's urgent climate imperatives, we ask the Commission to expand its immediate species perspective to consider the myriad ways advancing the Joshua Tree to candidacy could undermine the State's efforts to address climate change. Slowing and substantially increasing the costs of solar development in California – which is what advancing the species to candidacy would do (even if only while the Commission considers whether listing is warranted) – would not help address, let alone arrest, any threat that climate change may pose to the Joshua Tree. Even the risk that the species will be advanced to candidacy will make financing and developing solar projects in California more difficult and expensive. Fortunately, it need not come to a choice between climate change solutions and the Joshua Tree. In fact, existing management efforts, some of which are identified below, are robust and sufficient to address the potential threats to the species asserted in the Petition.

In addition to being indispensable to advancing California's climate initiatives and meeting its renewable generation goals, the solar industry has been declared "essential critical infrastructure" under Governor Newsom's "Shelter-in-Place Order" in response to COVID-19. Executive Order N-33-20 (Mar. 19, 2020). What is more, not only does the industry employ essential workers developing critical energy infrastructure, but the construction jobs provided by solar project development are high-paying jobs that workers in the construction sector need now more than ever, given the impacts of the State and County shelter-in-place restrictions on the availability of

work and the associated economic slowdown. It is estimated that utility scale solar contributes tens of thousands of jobs to California. Similarly, with the drop in local government tax revenues resulting from the economic slowdown, the sales tax revenues that solar development projects have long provided to counties and cities (which developers have taken pains to designate the points of sale for solar panels) are needed now more than ever by those local governments.

These combined adverse impacts on the solar industry, workers, and local governments can be responsibly avoided. Contrary to the dire claims of CBD's Petition, existing management efforts are more than adequate to protect the Joshua Tree from any risk of becoming, in the foreseeable future, "in serious danger of becoming extinct throughout all, or a significant portion, of its range." Cal. Fish and Game Code sections 2062 and 2067. A great deal of Joshua Tree habitat is protected in federal and California parks, on State lands, and on other public lands where use is restricted (e.g., BLM lands subject to the DRECP). Many of the Counties where the Joshua Tree is present have their own ordinances and programs that conserve sensitive biological resources. A number of cities also have ordinances that help conserve the Joshua Tree. In addition, solar projects are subject to specific discretionary land use permit restrictions, with impacts to Joshua Trees mitigated as specified in the permit and associated environmental analysis. The California Desert Native Plants Act – California Food and Agriculture Code sections 80001 et seq. – already places restrictions on the removal of Joshua Trees, which the California Department of Fish and Wildlife is charged with enforcing. Fish and Game Code section 1925.

SEIA and LSA cannot emphasize strongly enough the negative impact that advancing the Joshua Tree to candidacy will have on solar development in California. Solar projects scheduled to receive permits, permitted projects expected to start construction later this year, as well as those already being built, will be brought to a standstill. These are projects that have already completed or soon will be completing CEQA, have mitigated or will be mitigating their environmental impacts, and have obtained or soon will obtain all necessary local, state, and federal permits and authorizations to comply with environmental laws and regulations. Even further consideration of the Petition to list the Joshua Tree will introduce uncertainty in the financing of upcoming solar projects. Any delays in these projects will put them at risk in their entirety because they often have both Investment Tax Credit deadlines as well as power purchase agreement (PPA) guaranteed in-service dates. The loss of jobs and impacts on local economies as a result of this listing effort are real and tangible; they cannot be overstated. Local tax revenues will take another hit, on top of the loss of revenues caused by the economic slowdown. And California's progress on advancing its climate initiatives and meeting its renewable sourcing goals will be unnecessarily hampered. California has been the nation's leader in addressing climate change – that role should not be undermined, particularly when there are many existing and successful programs in place to protect the Joshua Tree in California.

Continuing the Joshua Tree agenda item to the Commission's August meeting will allow SEIA and LSA to address in detail the threats to the Joshua Tree asserted in CBD's Petition, and enable them to update and provide additional information on the impacts that advancing the species candidacy would have on the solar industry in California. We understand the many complex

June 11, 2020

issues the Commission must weigh in this process, and respectfully request that you continue the Joshua Tree agenda item to the Commission's August 2020 meeting.

Respectfully,



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cc: Charlton Bonham
Director, California Department of Fish and Wildlife

Shannon Eddy
Executive Director, LSA

Rick Umoff
Senior Director & Counsel, California, SEIA

Western Joshua Tree State Listing Petition Analysis

Prepared for:

American Wind Energy Association California

California Wind Energy Association

Large-scale Solar Association

Solar Energy Industries Association

Prepared by:



Tetra Tech, Inc.

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August 2020

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Executive Summary

The Center for Biological Diversity submitted a petition to the California Fish and Game Commission to list the Western Joshua Tree (*Yucca brevifolia*) as threatened under the California Endangered Species Act (CESA). Several renewable energy trade associations contracted Tetra Tech to review and summarize existing land protections and protective policies within the current distribution of the Western Joshua Tree (Figure 1). An evaluation prepared by the California Department of Fish and Wildlife (Department) found the species to be warranted for listing, but did not provide sufficient detail in its evaluation regarding protections for the species and its habitat, as written.

Tetra Tech reviewed publicly available data to identify protections of the Western Joshua Tree at the federal, state, and local level. Given the expanse of the Western Joshua Tree range across multiple states and numerous jurisdictions, an exhaustive review of all protective policies was not feasible within the limited window of the public comment period extension. The review encompassed those information sources for which data were publicly available and accessible via online resources; it does not constitute a comprehensive catalog of all protective policies. The area and proportion of the species ranges protected by a given policy was quantified specific to its jurisdiction using GIS spatial analyses. Coverage was calculated specific to the northern and the southern ranges of the Western Joshua Tree as well as the combined range. To provide context as to the implications of species listing, current or planned renewable energy development projects that overlap with the species' range were also reviewed and mapped (Figure 2).

Federal, state, and local regulations currently provide a variety of protections to this species, including specific protections related to the threats of invasive species, fire, and land development. In total 76.3 percent of the Western Joshua Tree range benefits from protective regulations (Figure 1). There are multiple feasible mitigation measures that are currently available or are required under CEQA to protect the Western Joshua Tree, and that typically require compensatory mitigation for unavoidable habitat impacts at a 1:1 ratio.

Research and species management strategies offer potentially the best opportunities for conserving Joshua trees. If Joshua trees are listed as a proposed candidate species, an Incidental Take Permit would be required prior to any project impacting Joshua trees. The Incidental Take Permit would require additional administrative steps that would otherwise not be required and any requirement imposed by the ITP conditions can be required by existing regulations. Agency and jurisdictional conflicts may also arise with existing regulations and policies.

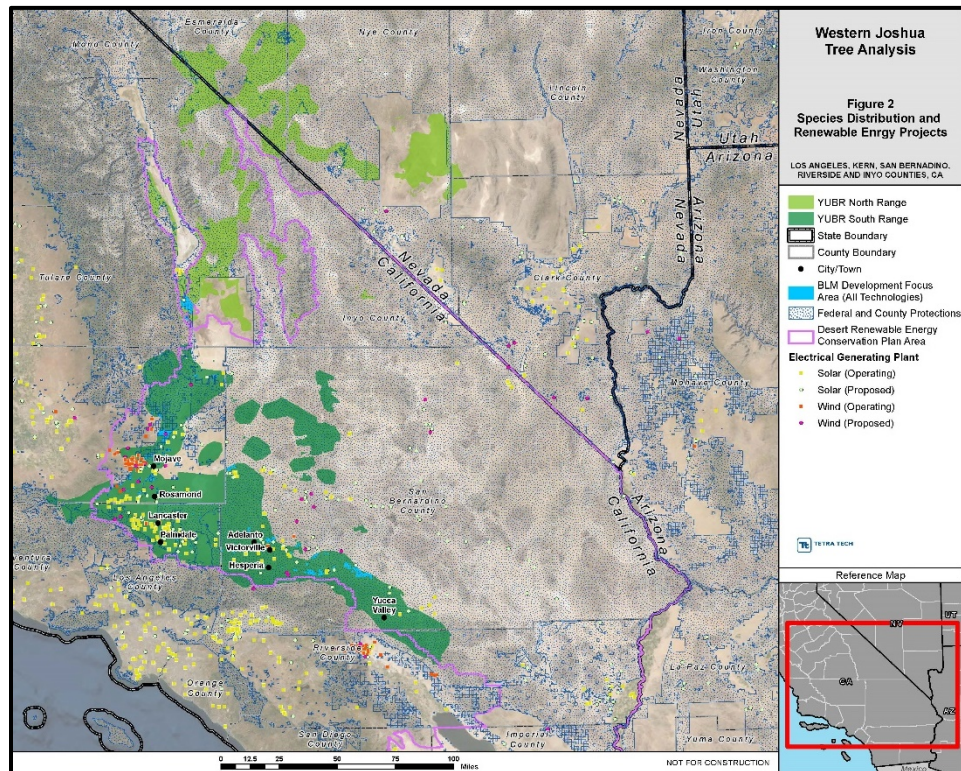
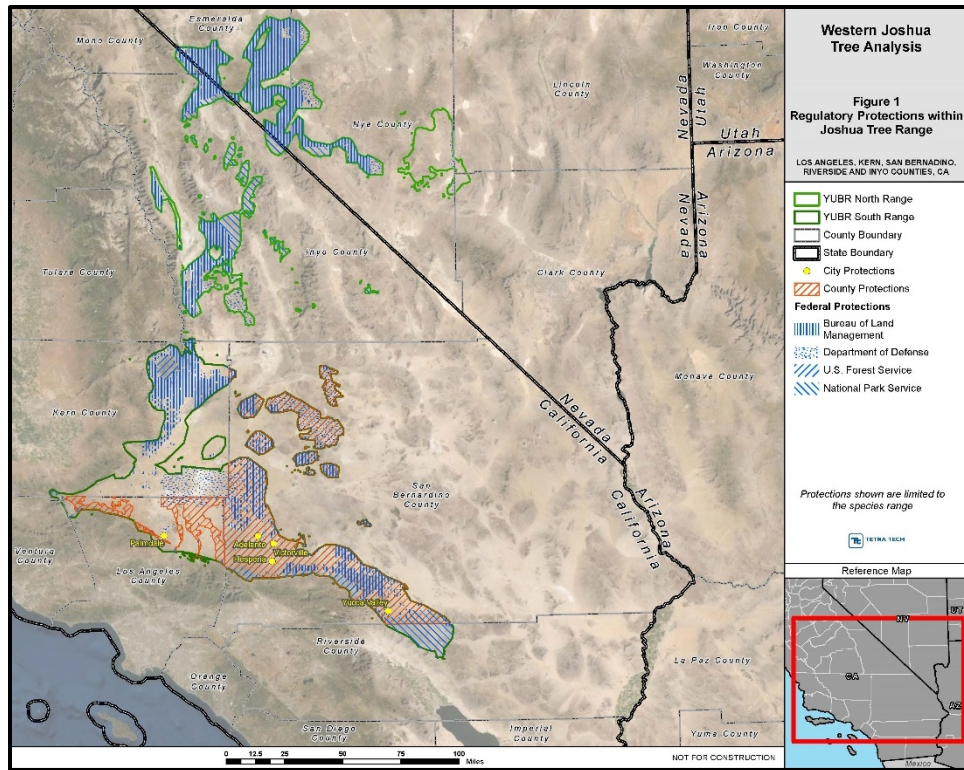


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Figure 1. Regulatory Protections within Joshua Tree Range

Figure 2. Species Distribution and Renewable Energy Projects

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Appendix A. Existing Regulations Pertaining to the Current Distribution of Western Joshua Tree
(*Yucca brevifolia*)

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1.0 Introduction

The Center for Biological Diversity (CBD) submitted a petition (Petition) to the California Fish and Game Commission (Commission) to list the Western Joshua Tree (*Yucca brevifolia*) as threatened under the California Endangered Species Act (CESA). CBD identified climate change as the single greatest threat to the continued existence of Western Joshua Tree, with habitat loss due to development (in addition to other threats) further contributing to the likelihood of extirpation. The petition summarized existing federal, state, and local regulatory mechanisms to protect Western Joshua Tree habitat from loss and degradation and concluded they were insufficient. At the request of the Commission, the California Department of Fish and Wildlife (Department) prepared an evaluation (Evaluation) of the Petition and concluded that the species may be warranted for listing (CDFW 2020). However, neither the Petition nor the Evaluation provided sufficient detail regarding existing protections for the Western Joshua Tree and its habitat. As a result, several renewable energy trade associations contracted Tetra Tech to review and summarize existing land protections and protective policies within the current distribution of the Western Joshua Tree as delineated by the U.S. Fish and Wildlife Service (USFWS; USFWS 2018).

2.0 Methods

Tetra Tech reviewed publicly available data to identify existing protections and policies at the federal, state, and local levels. Data reviewed included:

- Petition
- Evaluation
- Spatial data (e.g., DataBasin, USFWS shapefiles)
- Conservation plans
- Land use plans
- Species status assessments
- Federal and state listing petitions and decisions for the Western Joshua Tree
- Municipal codes
- Acts of Congress

Given the expanse of the Western Joshua Tree range across multiple states and numerous jurisdictions, an exhaustive review of all protective policies was not feasible within the limited window of the public comment period extension. The review encompasses those information sources for which data were publicly available and accessible via online resources; it does not constitute a comprehensive catalog of all protective policies.

Spatial analyses were performed in a geographic information system (GIS) using ESRI ArcGIS software. The entire range of the Western Joshua Tree was analyzed, as well as the northern region (YUBR North) and southern region (YUBR South) using spatial layers generated by USFWS in the species status assessment (USFWS 2018; Figure 1). The area and proportion of the species (entire range as well as subregions) protected by a given protection or policy was quantified specific to its jurisdiction (e.g., plan area, county or city). Additionally, to provide context as to the implications of species listing, current and planned renewable energy development projects (i.e., wind and solar) were reviewed and mapped relative to the species range.

3.0 Results

3.1 Protections and Policies for Western Joshua Tree

The below narrative provides details of protective policies pertaining to the Western Joshua Tree organized by jurisdiction (federal, state, county, city). A tabular summary of the regulations by jurisdiction and regulatory agency is included in Appendix A and provides the degree of protection, spatial extent, and proportion of the Western Joshua Tree range that is covered (YUBR North, YUBR South, and Total). As mentioned above, these results do not constitute a comprehensive catalog of all protective policies pertaining to the Western Joshua Tree.

3.1.1 Federal

3.1.1.1 Bureau of Land Management - DRECP

The Desert Renewable Energy Conservation Plan (DRECP) Bureau of Land Management (BLM) Land Use Plan Amendment (LUPA) represents the public-lands component of the DRECP, permanently restricting areas where renewable energy development is permitted (Figure 2), and permanently protecting areas deemed important for biological, environmental, cultural, recreation, social, and scenic conservation, consistent with the Federal Land Policy and Management Act of 1976 as Amended (FLPMA) multiple use and sustained yield requirements. The DRECP boundary covers 61.3 percent of the range of Western Joshua Tree within the state of California (Figure 2).

The BLM LUPA is a comprehensive land use plan amendment that applies to specified activities on public land administered by BLM within the Decision Area. It addresses a full range of impacts, including, but not limited to, impacts to plant, wildlife, vegetation types, recreation, and cultural resources. Under federal law, BLM is solely responsible for implementation of the LUPA, and all activities that take place on BLM-administered public lands will ultimately require BLM authorization. BLM's ongoing responsibilities regarding land use plan implementation include implementation of the California Desert Advisory Committee chartered under the Federal Advisory Committee Act.

The BLM LUPA, which covers approximately 10 million acres of land, set aside 4,926,000 acres for permanent conservation while identifying 388,000 acres for potential renewable energy development in Development Focus Areas (DFAs; Figure 2). Joshua Tree Woodlands are called out

specifically, with 3,000 acres identified within National Conservation Lands designated under the LUPA that did not already receive legislative or legal protection. Lands designated for conservation are closed to renewable energy. Renewable energy and transmission development activities are required to implement Conservation and Management Actions (CMAs)- of which there are 384 - to avoid and minimize impacts inside and outside the DFAs as well as CMAs to compensate for the impacts. Specific CMAs related to the Western Joshua Tree include:

- CMA “LUPA-BIO-1” requires conducting a habitat assessment of Focus and BLM Special Status Species’ suitable habitat, subsequent presence-absence surveys and identification and/or delineation of DRECP vegetation types, rare alliances, and special features, including the Joshua Tree.
- CMA “LUPA-BIO-SVF-1” requires a map delineating potential sites and a habitat assessment of special vegetation features including Joshua Tree Woodlands (for activity-specific NEPA analysis).
- CMA “LUPA-BIO-SVF-5” requires avoidance of impacts to Joshua Tree Woodland (*Yucca brevifolia* Woodland Alliance) to the maximum extent practicable, except for minor incursions.

3.1.1.2 Department of Defense

The Sykes Act (16 U.S.C. 670g-670l, 670o) directs the Secretary of Agriculture to plan, develop, maintain, coordinate, and implement programs for the conservation and rehabilitation of wildlife, fish and game species, including habitat improvement projects on public lands under their jurisdiction. This pertains to native habitats such as Joshua Tree Woodlands on military lands. Military lands contain 10.5 percent of the YUBR North region and 15.3 percent of the YUBR South region (Figure 1).

3.1.1.3 National Park Service

Joshua Tree National Park, Death Valley National Park and Mojave National Preserve are part of the California Desert Protection Act of 1994. Lands in Joshua Tree National Park have been withdrawn for mineral and geothermal leasing, but rights-of-way issued to the Metropolitan Water District remain intact.

Allowed activities in the Mojave National Preserve are limited to the following.

- Hunting, fishing, trapping in accordance with applicable federal and state laws.
- Mining claims that are subject to applicable laws and regulations related to mining.
- Grazing.

Existing rights-of-way for the Southern California Edison Company and the Southern California Gas Company remain intact. Land development is prohibited within National Parks, with the exception of necessary facilities related to Park maintenance and management. Thus, Western Joshua Tree habitat is in effect protected from anthropogenic habitat loss. National Parks contain 14.0 percent of the YUBR North region and 5.8 percent of the YUBR South region (Figure 1; Appendix A).

3.1.1.4 United States Forest Service

The Wilderness Act prohibits certain uses including commercial enterprises and no permanent roads within any wilderness area designated by the Wilderness Act except as necessary to meet minimum requirements for the administration of the area for the purposes of the Wilderness Act. The Act does not limit the following.

- Prospecting for the purposes of gathering information about mineral or other resources as long as the prospecting is conducted in a manner that preserves the wilderness environment and mineral drilling, production, mining and processing for leases in existence prior to midnight, December 31, 1983.
- Water reservoirs, water conservation works, power projects, transmission lines, road construction and maintenance.
- Grazing of livestock.
- Commercial services for realizing the recreational or other wilderness purposes.

The Forest Service Manual (USFS 2008) 2000, chapter 2070 related to vegetative ecology provides a detailed list of legal authority for management of National Forest System (NFS) lands that includes the promotion of the use of native plants (such as Western Joshua Tree) for revegetation and restoration/rehabilitation of NFS lands.

3.1.2 State

3.1.2.1 California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires public agencies to analyze and disclose the impacts of any discretionary activity they approve and to adopt realistic measures to mitigate for any significant impacts identified. The law includes a mandate requiring agencies to not approve discretionary projects or activities as proposed if there is a feasible alternative(s) or measures that would substantially minimize significant environmental impacts. CEQA also provides a process for public engagement so interested private entities have the ability to be involved in the decision process. The Department advises public agencies during the CEQA process to ensure that any action approved does not significantly impact endangered, threatened, candidate for listing, rare, or species of special concern.

During CEQA review, public agencies must address impacts to plant species protected under the CESA and the Native Plants Protection Act (NPPA), in which most cases require mitigation of all significant impacts to these species to a level of less than significant. In addition, public agencies must also address plant species that may not be listed under CESA or the NPPA but may nevertheless meet the definition of rare or endangered provided in CEQA, or are otherwise protected under local regulations or policies. As required by CEQA, the analysis of impacts from a project must determine if the project would cause direct or indirect impacts that would have a substantial adverse effect on a sensitive natural community identified in local or regional plans, policies or regulations or by the Department or USFWS (OPR 2019). Joshua Tree Woodland is

designated as a sensitive plant community by the Department. Further, CEQA also requires that project impacts be evaluated that would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. If the project would cause impacts to Joshua tree woodlands or conflict with local policy or ordinance for Joshua trees, but can be fully mitigated a less than significant impact would occur. If the project would cause an impact that cannot be fully mitigated, a significant impact would occur and the CEQA lead agency would be required to provide a Statement of Overriding Considerations for why the project should be implemented despite the unmitigated impact to Joshua Trees.

3.1.2.2 California Desert Native Plants Act (CDNPA)

The California Desert Native Plants Act (CDNPA) prohibits the unlawful harvest of California desert native plants on both public and privately-owned lands without a relevant county-issued permit. The CDNPA encompasses Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties, in which the harvest, transport, sale, or possession of specific native desert plants is prohibited unless a person has a valid permit or wood receipt, and the required tags/seals. The appropriate permits, tags and seals must be obtained from the sheriff or commissioner of the county where the collection will occur. All species of the family Agavaceae (century plants, nolina, and yuccas), including the Western Joshua Tree are protected under this law.

3.1.3 County

Note: all counties must comply with CEQA in addition to any county-specific ordinances or plans.

3.1.3.1 Kern County

As part of the Environmental Impact Reporting under CEQA, Kern County has frequently included requirements for development of a Joshua Tree Impact Plan or Joshua Tree Preservation Plan for those developments which may impact the Joshua Tree Woodlands. Plans are expected to include surveys and delineations of habitat, and may include measures such as avoidance of trees, minimization of impacts, and compensatory mitigation for impacted habitat at a 1:1 ratio, and/or such measures would be included in adopted mitigation measures. Kern County may also require a Transportation Plan if relocation is proposed. Construction setbacks are also enforced by Kern County for Joshua Tree Woodlands that are adjacent to developments. These measures are required prior to the issuance of any permits.

Willow Springs Specific Plan

The Willow Springs Specific Plan developed by Kern County in 1992 for the development of 50,560 acres identified a series of conservation measures for Western Joshua Trees and is summarized as follows. Where possible, project development within the Specific Plan would be designed to avoid displacement or destruction of Joshua Tree habitat, to the satisfaction of the Kern County Agricultural Commissioner's Office. Areas adjacent to Joshua Tree Woodland would have a 50-foot setback from the Joshua Tree plants. Within that setback, a native plant cover should be restored to natural habitat values to serve as a buffer, if such plant cover is not present. Finally, a Joshua Tree

Preservation and Transportation Plan shall be developed by the applicant for each parcel where Joshua Trees are located within the Specific Plan area. The plan would be submitted to the Kern County Agricultural Commissioner's Office for review and approval prior to grading permit issuance.

3.1.3.2 Los Angeles County

Some unincorporated portions of Los Angeles County are within Los Angeles County Significant Ecological Area (SEA) general plan designations, which indicate the presence of sensitive resources and require county environmental review (Los Angeles County 2020a). The Los Angeles County General Plan has analyzed Joshua tree habitats throughout the Antelope Valley. Areas with significant concentrations of Joshua trees are placed in SEA #60, "Joshua Tree Woodland Habitat" (Kern County 2011). Joshua Tree Woodlands are located and protected within the Antelope Valley, Joshua Tree, and San Andreas SEAs.

The SEA Program objective is to conserve genetic and physical diversity with Los Angeles County by designating biological resource areas that are capable of sustaining themselves into the future. The SEA ordinance establishes the permitting, design standards and review process for developing within SEAs to balance preservation of the County's natural biodiversity with private property rights.

The SEA program was originally adopted in the 1970s, and currently the County of Los Angeles is reviewing the SEA program as part of the General Plan Update. The intent of the proposed SEA regulations is to allow limited, controlled development that does not jeopardize the unique biotic diversity within the County. The SEA conditional use permit requires development activities be reviewed by the Significant Ecological Area Technical Advisory Committee (SEATAC). The SEATAC may provide recommendations to avoid development in sensitive resource area present on a site. The SEA does not change the land use designation or the zoning of a property; however, a conditional use permit is required for development activities within a SEA, unless the activity is exempt from the ordinance.

The Western Joshua Tree also receives protection from energy development as a result of Los Angeles County adopting a Renewable Energy Ordinance in 2016 that prohibits ground-mounted utility-scale solar facilities in the SEAs (Los Angeles County 2020a). Development of utility-scale wind facilities is prohibited in all zones and areas within the unincorporated County (Los Angeles County 2020b), providing protection to the Western Joshua Tree from wind energy development in these areas.

3.1.3.3 Riverside County/Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP)/Natural Community Conservation Plan (NCCP)

The overall goal of the MSHCP is to enhance and maintain biological diversity and ecosystem processes while allowing future economic growth. This goal would allow preservation of a quality of life characterized by well-managed and well-planned growth integrated with an associated open-space system. The MSHCP/NCCP allows take of sensitive species and includes measures to restore, enhance and manage habitat that includes Joshua tree habitat. The Department determined that

approval of the MSHCP/NCCP could result in potentially significant adverse impacts to the following plant species covered by the plan: Coachella Valley milk vetch (*Astragalus lentiginosus* var. *coachellae*), tripled-ribbed milkvetch (*Astragalus tricarinatus*), little San Bernardino linanthus (*Linanthus maculatus*) and Orocopia sage (*Salvia greatae*). The NCCP Permit (2835-2008-001-06) for the MSHCP plan area of the Coachella Valley was issued in August 2008. An ESA Section 10(a)(1)(B) Incidental Take Permit for the Coachella Valley Association of Governments MSHCP was issued on October 1, 2008. The MSHCP establishes a simple and uniform mechanism for mitigating the effects of development through the payment of a Local Development Mitigation Fee ("Fee"). The Fee applies to all projects within the Plan's jurisdiction. The amount of the Fee will vary based on the type and size of the project. Certain areas have been identified in the Plan as Conservation Areas and are generally hillsides and open desert. Development in Conservation Areas is subject to additional review, and certain limits on the amount and location of development can apply.

3.1.3.4 San Bernardino County

County of San Bernardino Development Code, Chapter 88.01 Plant Protection and Management.

San Bernardino County Code Title 8, Chapter 88.01 of the County of San Bernardino code provides regulations and guidelines for the management of plant resources in the unincorporated areas of the County on property or combinations of property under private or public ownership. The intent of this development code is to provide the following standards related to native trees and plants including Joshua trees.

- Promote and sustain the health, vigor and productivity of plant life and aesthetic values within the County through appropriate management techniques.
- Conserve the native plant life heritage for the benefit of all, including future generations.
- Protect native trees and plants from indiscriminate removal and to regulate removal activity.
- Provide a uniform standard for appropriate removal of native trees and plants in public and private places and streets to promote conservation of these valuable natural resources.
- Protect and maintain water productivity and quality in local watersheds.
- Preserve habitats for rare, endangered, or threatened plants and to protect animals with limited or specialized habitat.

Hacienda at Fairview Valley Specific Plan.

The Hacienda at Fairview Valley project is located in San Bernardino County, California approximately two miles east of the Town of Apple Valley and within the Town of Apple Valley's sphere of influence. Hacienda at Fairview Valley Specific Plan provides a mixed-use community with a wide variety of housing opportunities that supports active adult and equestrian-friendly, clustered around recreational and open space areas located in San Bernardino County. As part of

the approval of this Specific Plan, the Hacienda at Fairview Valley Joshua Tree Management Program was prepared and adopted. This Program is consistent with County of San Bernardino Development Code Chapter 88.01, Plant Protection and Management, and provides additional provisions and guidelines relating to grading parameters, construction activities and conservation areas within the Hacienda at Fairview Valley Specific Plan. A Multi-Species Habitat Conservation Plan/Natural Community Conservation Planning Plan for the Town of Apple Valley is currently in preparation.

Joshua Tree Community Plan.

The Joshua Tree Community Plan identifies a goal to retain the existing rural desert character of the community. Policies toward that goal include the requirement that development shall be required to maintain, conserve and be complementary to environmentally sensitive areas and elements, including but not limited to Joshua trees, Mojave yuccas, creosote rings and other protected plants, protected fauna, hillsides, scenic vistas, drainage areas, habitat, and unique geological features.

Lucerne Valley Community Plan and Homestead Valley Community Plan.

Both the Lucerne Valley Community Plan and the Homestead Valley Community Plan to the County of San Bernardino General plan are in areas of the county that includes the following general habitat types:

- Sage scrub;
- Joshua Tree Woodland;
- Mojave Desert scrub;
- Saltbush scrub;
- Alkali sinks; and
- Sand dunes.

Both the Lucerne Valley Community Plan and Homestead Valley Community Plan identifies as a policy a goal to conserve and protect unique environmental features including the protection of native vegetation.

Morongo Valley Community Plan.

The Morongo Valley Community Plan also encourages conservation and protection of native wildlife and habitat but identifies more restrictive regulations requiring greater retention of existing vegetation with an emphasis for the retention of Joshua trees.

Conservation of Joshua tree and other native plants within the Morongo Valley Community Plan includes the following steps for project development that are also found in the County of San Bernardino General Plan (2007).

- Requiring an approved landscape plan as part of the development plan review and approval process for all new development projects.

- Requiring the Building Official to make a finding that no other reasonable siting alternatives exist for development of the land prior to removal of a Joshua tree.
- Encourage on-site relocation of Joshua trees. However, if on-site relocation is not feasible, encourage residents to consult a list that will be established and maintained in the County of San Bernardino Building and Safety Office of residents willing to adopt and care for relocated trees.
- The developer/home builder would bear the cost of tree relocation.
- Retention and transplantation standards will follow best nursery practices.

Oak Hills Community Plan.

The Oak Hills Community Plan identifies as a policy a goal to conserve and protect unique environmental features including the protection of native vegetation. The Oak Hills Community Plan encourage the retention of specimen sized Joshua Trees by requiring the building official to make a finding that no other reasonable siting alternative exists for the development of the land. Specimen size trees are defined in Section 88.01.050 of the County of San Bernardino Development Code.

Phelan/Piñon Hills Community Plan.

The Phelan/ Piñon Hills Community Plan Lucerne Valley Community Plan is in an area of the county that includes the following general habitat types:

- White fir woodland;
- Piñon/juniper woodland;
- Sage scrub;
- Joshua Tree Woodland;
- Mojave Desert scrub;
- Salt brush scrub;
- Conifer forest;
- Alkali sinks; and
- Sand dunes.

The Phelan/Piñon Hills Community Plan identifies as a policy a goal to conserve and protect unique environmental features including the protection of native vegetation.

3.1.4 City

All cities and towns must comply with CEQA in addition to any local ordinances or plans.

3.1.4.1 Adelanto (San Bernardino County)

The City of Adelanto has identified an ordinance for the relocation of Joshua trees. City of Adelanto Municipal Code Chapter 17.57.040 identifies that development projects must comply with requirements of the County of San Bernardino for relocation of Joshua trees. The permit required by the City of Adelanto specifies adherence to Title 8, Division 9 of the County of San Bernardino Code with regards to Joshua trees. Title 8, Division 9 of the County of San Bernardino refers to public facilities financing. County of San Bernardino Code Title 8, Division 8 refers to Resource Management and Conservation and specifically to the requirements for conserving Joshua trees. The City of Adelanto requires that a project applicant apply for a permit to conduct a Joshua tree survey and removal.

3.1.4.2 Lancaster (Los Angeles County)

The City of Lancaster has identified an ordinance to preserve the habitat of Joshua Trees. Per Lancaster City Ordinance 848, Chapter 15.66 of the Municipal Code, a biological impact fee (\$770/acre) is required for any new land subdivision, development, or previously approved subdivision/development requesting a time extension. The biological impacts fees are then used for the acquisition of mitigation land, restoration of habitat, environmental education, and other uses approved by the City Council. Therefore, replacement lands can be purchased to preserve Joshua Tree habitat.

3.1.4.3 Hesperia (San Bernardino County)

The City of Hesperia has identified an ordinance to manage protected plants that include Joshua trees. City of Hesperia Municipal Code Chapter 16.24 applies to private and public lands within the city. The City of Hesperia requires a removal permit prior to the removal of native trees or plants. Joshua trees that are proposed to be removed must be transplanted or stockpiled for future transplanting. The applicant is required to post a bond to ensure that stockpiled Joshua trees are transplanted appropriately. Prior to issuance of a native tree/plant removal permit, the applicant must provide a plan that shows exactly where the plants will be transplanted to. Penalties are specified for violation of the ordinance. The ordinance also identifies the prohibition of commercial harvesting of desert native plants that includes all Joshua trees.

3.1.4.4 Palmdale (Los Angeles County)

The City of Palmdale has identified an ordinance that directs protection and preservation measures for desert vegetation and particularly Joshua trees. Palmdale Municipal Code Chapter 14.04 for Joshua tree and native desert vegetation preservation specifies that all development applications of lands with native desert vegetation shall include a desert preservation plan that includes preservation criteria for Joshua trees, California juniper and other desert vegetation. The City of Palmdale also identifies maintenance requirements for transplanted Joshua trees or other desert vegetation. Additionally, the code requires reservation of two Joshua trees per acre but this metric can also be met by donating removed trees to an offsite City-administered tree bank (Palmdale Municipal Code §§ 14.04.010).

3.1.4.5 Victorville (San Bernardino County)

The City of Victorville has identified an ordinance for the preservation and removal of Joshua trees. City of Victorville Municipal Code Chapter 13.33 specifies that it is unlawful for any person to cut, damage, destroy, dig up, or harvest any Joshua tree without the prior written consent of the director of parks and recreation or his designee. A violation of this section of the municipal code is a misdemeanor punishable by up to six months in jail and/or a five-hundred-dollar fine.

3.1.5 Cumulative Protected Area

When the spatial extent of the protective policies described above were totaled (not counting overlap; Appendix A), they represented a minimum of 80.5 percent of the YUBR North region and a minimum of 74.1 percent of the YUBR South region (Figure 1). Combined, 76.3 percent of the Western Joshua Tree range benefits from protective regulations (Figure 1).

3.2 Review of Existing Threats to the Species

Tetra Tech reviewed several sources to identify existing threats to the Western Joshua Tree, including the USFWS Species Status Assessment (USFWS 2018), the Petition, the Evaluation, as well as other literature and reports as cited below. Analyses performed by USFWS suggest that threats to individual trees such as wildlife, increasing temperatures, drought, and habitat loss may affect the resiliency of the species; however, they concluded that these threats are not likely having population-level impacts (USFWS 2018). Introduction of invasive annual grasses was also noted as a threat by the Department in the Evaluation (CDFW 2020). Note that these threats are interrelated and altered fire regimes and invasive annual grasses in particular may be exacerbated by climate change.

Fire regimes across the range of *Yucca brevifolia* have likely increased in frequency over recent decades in certain parts of the range, and this broader altered fire regime has been largely driven by the proliferation of invasive annual grasses which act as fine fuels and connect vegetation previously less connected (USFWS 2018). However, the impact of fire on the Western Joshua Tree is not clear. As summarized in the Evaluation, two GIS-based analyses conducted by the U.S. Air Force on Western Joshua Tree populations at Edwards Air Force Base showed that the population on the Base was “stable to increasing” (USAF 2017a) and the other that the population in the study area of an earlier fire was “stable” (USAF 2017b).

Climate change is anticipated to result in increased temperatures and an increase in interannual variability of precipitation in the Mojave Desert. A variety of climate change models and research studies were summarized in the Petition and Evaluation, including two specific to the effects of climate change on Western Joshua Tree (i.e., Barrows and Murphy-Mariscal 2012, and Sweet et al. 2019). Modeled effects of climate change included constriction or shifting of the current range and potentially reduced juvenile recruitment. USFWS concluded that climate change and the interactions with fire and habitat loss were unlikely to prevent the species from persisting across the landscape through the end of the century (USFWS 2018).

4.0 Discussion and Conclusions

4.1 Effectiveness of Existing Protections Against Threats

As described above and shown in Figure 1 and Appendix A, existing federal, state, and local regulations currently provide widespread protections to this species, including protections that target select threats to this species. Federal agencies, the State of California, and several communities have adopted and implemented laws and ordinances that protect *Yucca brevifolia* from harvesting and removal to some degree (USFWS 2018; Appendix A), which limits potential habitat loss from urban development and military activities. Additionally, the DRECP contains measures to avoid removing individual plants by avoiding areas classified as Joshua Tree Woodland (Section 3.1.1.1), which would reduce the number of individual trees and habitat potentially lost to renewable energy development (USFWS 2018). Current protections on federal land (e.g., BLM- and DOD-managed land) include management actions to remove invasive plants and monitor Joshua Tree Woodland population trends, and perform habitat improvements (Appendix A), which reduces the threat of invasive species and the associated effects of wildfire on *Yucca brevifolia*.

4.2 Implications of Listing

Given that there are numerous existing ordinances/policies providing protection for Joshua Trees, listing the species under the CESA will lead to additional agencies having jurisdiction, requiring additional review and coordination. Furthermore, listing would likely cause project delays as counties and local agencies incorporate the change in status into their ordinances. Programs such as the CVMSHCP may require updating to include the Western Joshua Tree. This could cause regional delays for projects with sites that have Joshua trees. Once the change in status has been incorporated, the process for negotiating full mitigation for take could proceed using the approach under CESA. However, these additional review and permitting requirements could place at risk renewable energy project developments with near-term commercial online delivery obligations.

4.3 Mitigation Requirements and Limitations

Multiple mitigation measures are available and sometimes required to protect the Western Joshua Tree within the 76 percent (minimum) of the species distribution area where regulations are present. Typical mitigation requirements for the Western Joshua Tree include onsite or offsite preservation of Joshua Tree Woodland habitat or conservation easements and compensatory mitigation, with avoidance and minimization measures being the first preferences. If relocation is included as a mitigation option, the mitigation measure would typically require, per CEQA, a period of monitoring post-relocation, the required success rates for relocation, contingency measures should relocation prove unsuccessful, and that a certified botanist oversee the relocation, planting, and monitoring. Impact plans or preservation plans (or documentation of a similar variety) are usually required and typically include requirements to set back from Joshua tree habitat so as to avoid impacts, and a delineation of habitat and description of the total area of impact.

Measures such as avoidance of impacts to Joshua Tree Woodland, minimization of impacts, and compensatory mitigation, typically through provision and protection of in-lieu habitat at a 1:1 ratio, are typically required by Kern County as part of mitigation for projects with impacts to Joshua Tree Woodland.

Examples of avoidance, minimization, and compensatory mitigation measures required include:

First Solar's Windhub B Solar Project (Kern County 2018)

- Prior to any ground disturbing activities, a Joshua Tree Preservation Plan shall be submitted for review and approval by the appropriate agencies. Upon approval of the Plan, and prior to initiating project construction, the project proponent/operator shall have a qualified biologist document the location and acreage of Joshua tree woodland that would be subject to permanent disturbance.
- The Joshua Tree Preservation Plan shall describe field methods used to delineate acreage of Joshua tree woodland and shall provide a detailed compensatory mitigation strategy, based on one or both of the following options:
 - Preservation of Joshua tree woodland habitat shall occur on parcels within the project site. The project proponent/operator may mitigate all or part of the project's impacts to Joshua trees, as follows: Delineate and designate one or more parcels for dedication for permanent conservation management. The mitigation lands shall provide habitat at a 1:1 ratio for impacted lands, comparable to habitat to be impacted by the project (i.e., similar abundance and size of Joshua trees, similar dominant vegetation community, similar levels of disturbance or habitat degradation). Suitable mitigation lands provided for other species may be used for Joshua tree woodland mitigation, at a 1:1 ratio.
 - In lieu monetary funding. For any Joshua tree woodlands not part of relocation efforts, the project proponent/operator shall submit funding for the acquisition and management in perpetuity of Joshua tree woodland habitat or habitats similar to those that contain impacted Joshua trees on site. Funding and management shall be provided through conservation plan approved by the appropriate agencies, either through an existing mitigation bank (e.g., as managed by the City of Lancaster Parks, Recreation and Arts Department) or through a third-party entity such as the Wildlife Conservation Board or a regional Land Trust. The in-lieu fee shall provide sufficient funds to acquire appropriate lands to provide habitats containing Joshua tree woodland at a 1:1 ratio for impacted lands, comparable to habitat to be impacted by the project (i.e., similar abundance and size of Joshua trees, similar dominant vegetation community, similar levels of disturbance or habitat degradation). Suitable mitigation lands provided for other species may be used for Joshua tree woodland mitigation, at a 1:1 ratio.

Daggett Solar Power Facility Project (San Bernardino County 2019)

- A Joshua Tree Relocation Plan is included as a standard condition for all projects requiring a Conditional Use Permit, even if Joshua trees are not onsite. The developer is required to submit an approved relocation plan for Joshua trees within the developed site area, if present. The relocation plan requires a certification from an appropriate arborist, registered professional forester or a Desert Native Plant Expert that the proposed tree removal, replacement, or revegetation activities are appropriate, supportive of a healthy environment, and are in compliance with Chapter 88.01 of the San Bernardino County Development Code. The certification will include the information in compliance with Department procedures. Transplantation onsite will be the primary method of addressing a Joshua tree removal from the subject property.

Gaskell West Solar Project (Kern County 2016)

- Compensatory mitigation is required to mitigate impacts to Joshua tree woodlands whereby equivalent Joshua tree woodland (or habitats similar to those that contain impacted Joshua trees on site that are located within the same bioregion and/or watershed) on another site is protected in perpetuity. This is performed in-lieu of fee for loss of Joshua tree woodland. This mitigation must be approved by the Kern County Planning and Natural Resources Department and funding/management will be provided by a Kern County approved Conservation Plan, either through an existing mitigation bank or a third-party entity. The in-lieu fee will provide sufficient funds to acquire appropriate lands to provide habitats containing Joshua trees at a 1:1 ratio, comparable to the habitat to be impacted by the project (similar abundance/size, codominant vegetation, suitable soils and hydrology, and levels of disturbance or habitat degradation). The County-approved biologist will submit confirmation of the total area of Joshua tree woodland and an estimate of the number of individual Joshua trees that will be removed.

Joshua trees are found in the Mojave Desert at elevations between 400 and 1,800 meters (1,300 to 5,900 feet) above sea level. Suitable habitat based on soils, weather conditions and rainfall for the Western Joshua Tree is limited to areas within the Mojave, Sonoran and Colorado Deserts.

Opportunities for in-kind compensatory mitigation in the form of land conservation will likely be very limited and best focused on areas with suitable microclimates such as identified by Sweet et al. 2019. Mitigation strategies that involve research and species management within the national parks and publicly owned lands may present opportunities for conserving Joshua trees.

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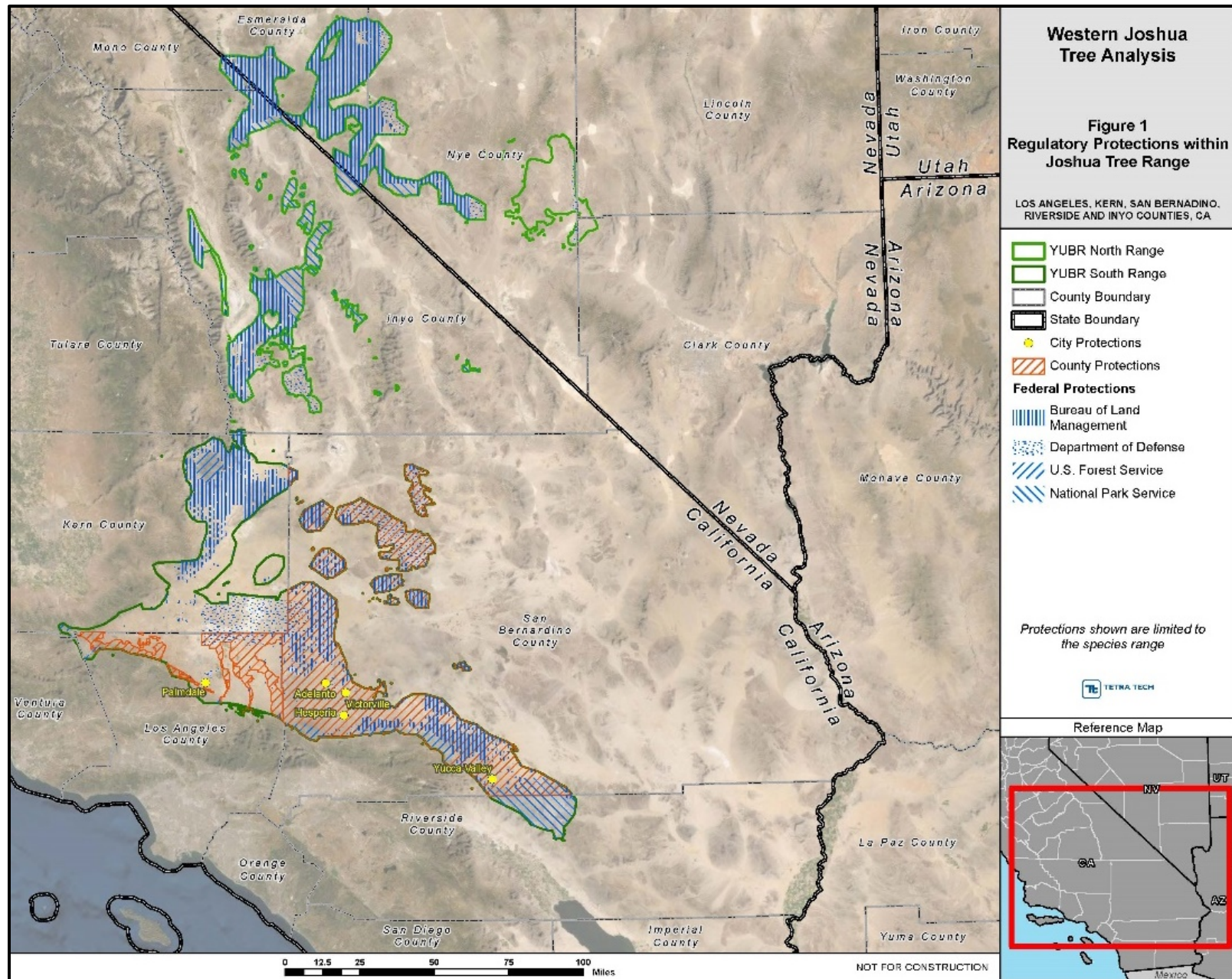
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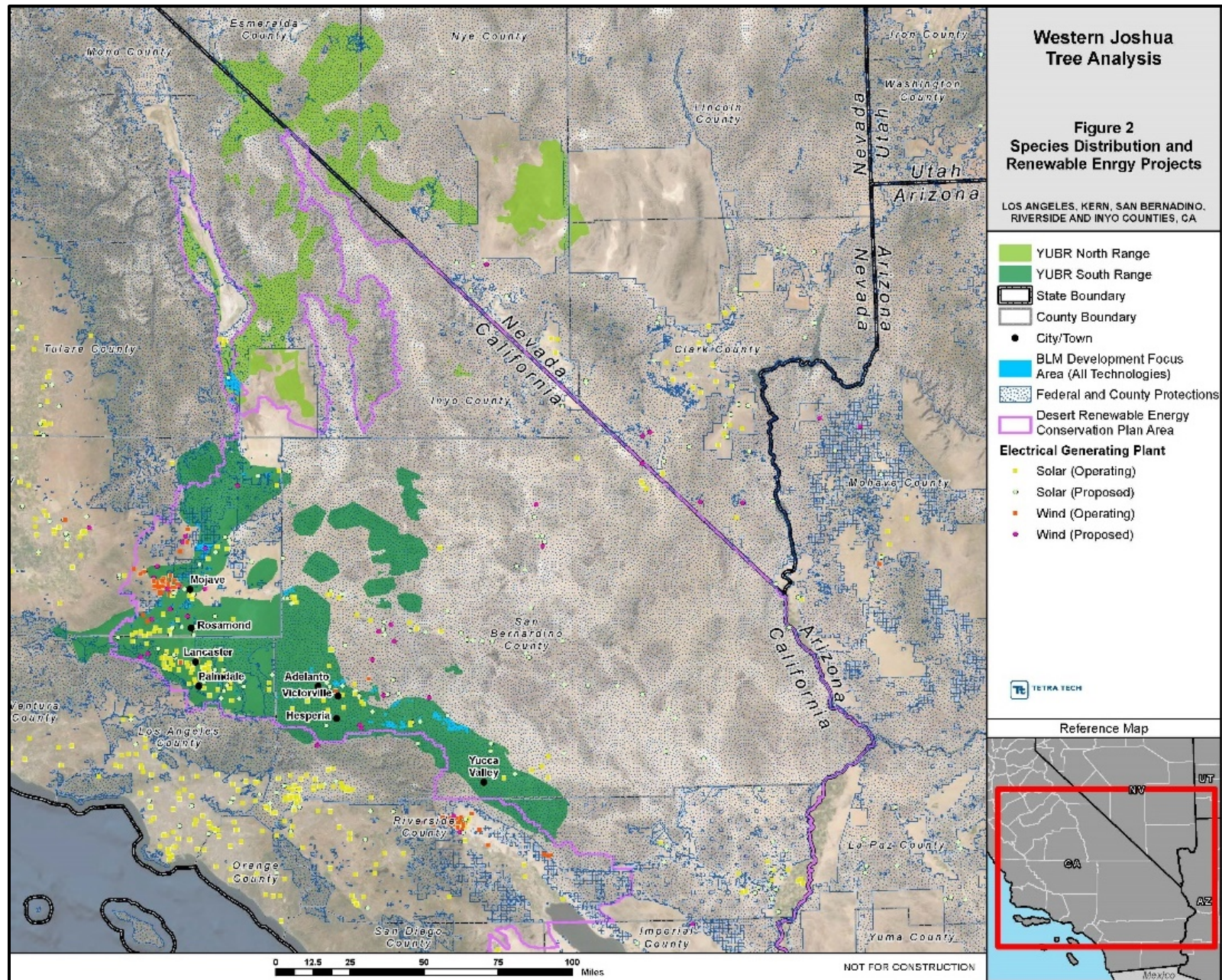
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Figures

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Appendix A. Existing Regulations Pertaining to the Current Distribution of Western Joshua Tree (*Yucca brevifolia*)

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Appendix A. Western Joshua Tree – Existing Regulations Pertaining to Current Distribution (North, South)

Regulatory Agency	Name of Regulation and/or Policy Instrument	Description of Existing Regulation	Degree of Protection (Required vs Voluntary)	Extent of Area Protected by Regulation	Protected Area	
					Percentage of YUBR Range Covered by Regulation	YUBR Range within Jurisdiction (Acres/Sq. Mi)
FEDERAL						
Bureau of Land Management (BLM)	California Desert Protection Act; Code of Federal Regulations	Designated 69 wilderness areas as additions to the National Wilderness Preservation System within the California Desert Conservation Area (CDCA). Joshua trees are protected in these areas. No surveys required.	Required	CDCA Plan Boundary	Not calculated, see DRECP	Not calculated, see DRECP
Bureau of Land Management (BLM)	Desert Renewable Energy Conservation Plan, Land Use Plan Amendment	Conserve unique landscape features, important landforms, and rare or unique vegetation types identified within BLM land (NLCS, ACEC, etc.), including areas of dense Joshua Tree Woodland. Management actions include removal of invasive plants, rehabilitating disturbed areas, protecting populations of special status plants, and monitoring Joshua Tree Woodland population trends, removing threats, and taking remedial actions when impacts occur. Impacts to Joshua Tree Woodlands will be avoided to the maximum extent practicable, except for minor incursions. Suitable habitat may require surveys.	Required	DRECP Plan Area Boundary	Total: 34.1 (BLM lands only) North: 55.7 (BLM lands only) South: 22.7 (BLM lands only)	North:1,104,262/1,725 (BLM lands only) South: 843,999/1,319 (BLM lands only)
Department of Defense (DOD)	Sykes Act	Requirement of Integrated Natural Resources Management Plans (INRMP) for military installations. Plan, develop, maintain, coordinate, and implement programs for the conservation and rehabilitation of wildlife, fish and game species, including specific habitat improvement projects, on public land.	Required	INRMP Plan Boundary	Total: 13.6 North: 10.5 South: 15.3	North: 209,102/327 South: 569,566/890
National Park Service (NPS)	Enabling legislation for National Park; California Desert Protection Act, Code of Federal Regulations	Established Death Valley and Joshua Tree National Parks and Mojave National Preserve; Joshua trees are protected in these areas. Minimize human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them within these parks. Withdraws all Federal lands within the Park from the same forms of appropriation or entry under public land, mining, and mineral and geothermal leasing laws as are applicable to lands within Death Valley National Park. No surveys required.	Required	All National Park Lands	Total: 8.7 North: 14.0 South: 5.8	North: 278,934/436 South: 216,284/338
STATE						
California Department of Fish and Wildlife (CDFW)	California Desert Native Plants Act	California law that prohibits unlawful harvesting of desert plants on both public and privately-owned lands, without a permit, in all California deserts. Specifically prohibits commercial harvesting of Joshua trees.	Required	Boundaries of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties	Total: 74.9 North: 39.8 South: 100.0	North: 789,089/1,233 South: 3,721,813/5,815
Multiple (state and county)	California Environmental Quality Act (CEQA)	The California Environmental Quality Act (CEQA) generally requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of proposed projects, and to reduce those environmental impacts to the extent feasible. Impacts are reviewed for those species which are endangered, threatened, candidate for listing, rare, or considered by CDFW to be a species of special concern. Joshua Tree Woodland is designated as a sensitive plant community by CDFW.	Required	Statewide	Total: 79.1 North: 39.8 South: 100.0	North: 789,095/1,233 South: 3,724,081/5,818
LOCAL						

Regulatory Agency	Name of Regulation and/or Policy Instrument	Description of Existing Regulation	Degree of Protection (Required vs Voluntary)	Extent of Area Protected by Regulation	Protected Area	
					Percentage of YUBR Range Covered by Regulation	YUBR Range within Jurisdiction (Acres/Sq. Mi)
Kern County	California Environmental Quality Act (CEQA)	Kern County typically requires development of a Joshua Tree Preservation Plan for those developments which may impact the Western Joshua Tree. For those trees which cannot be avoided and require removal, removal is limited to those trees within ground-disturbance areas. Mitigation of project impacts to the species requires dedicating an equal area of comparable habitat as a conservation easement (or in lieu fee) at a 1:1 ratio for impacted trees. Surveys required.	Required	Countywide	Total: 20.4 North: 0 South: 31.3	North: 0 South: 1,166,353/1,822
Los Angeles County	General Plan – Significant Ecological Areas (SEA)	Joshua Tree Woodlands are located and protected within the Antelope Valley, Joshua Tree, and San Andreas SEAs. This protection applies to all Joshua trees (<i>Yucca brevifolia</i>) regardless of size. Joshua trees must be 20’ tall to be considered a heritage tree, which would require a Conditional Use Permit (CUP) to remove or relocate for development. Removal of two or more Joshua trees (non-heritage) would also require a CUP. A survey would likely be required to determine the plant locations which are required for inclusion with the CUP. A Protected Tree Permit would also be required for removal of up to two Joshua trees. Failure to apply could result in a 5-year ban to apply for new permits. Some developments are exempt from the SEA policies (see Section 22.102.040).	Required	Antelope Valley, Joshua Tree, and San Andreas SEAs	Total: 4.0 North: 0 South: 7.0	North: 0 South: 253,611/396
San Bernardino County	General Plan, Section F, Goal D/CO, Policies 1.3 and 1.11	Require retention of existing native vegetation for new development projects, particularly Joshua trees (including specimen sized Joshua trees). May require a landscape plan, determination that no other siting alternative exists, on-site relocation of the tree(s). Specimen size trees are defined in Section 88.01.050 of the Development Code. No surveys required.	Required	Countywide	Total: 13.3 North:0 South:46.0	North: 0 South: 1,711,907/2,675
San Bernardino County	Development Code – Title 8 – Development Code, Section V, 83.10.080(c)(1) Section 88.01.050(f)(3)(A), (B), and (C) Section 88.01.060(c)(4)	Any existing native desert plant material, or any part thereof, except the fruit, shall not be removed without the issuance of a tree removal permit (including all plants in the Agavaceae family and Joshua trees). If Joshua trees exist on-site and are proposed to be relocated, they shall be relocated on-site in the landscaped areas; unless, the Director of the Land Use Services Department specifically allows another option. Joshua trees that are proposed to be removed will be transplanted or stockpiled. Transplanting shall comply with the Desert Native Plants Act provisions. No surveys required.	Required	Countywide	Total: 13.3 North: 0 South: 46.0	North: 0 South: 1,711,907/2,675
San Bernardino County	Hacienda Fairview Valley Specific Plan	Re-establish natural desert landscape – use open space areas for transplanting of candidate Joshua trees. Requires preservation in place and/or relocation of existing on-site Joshua Trees per a Joshua Tree Management Program. This Program is consistent with County Development Code Chapter 88.01, Plant Protection and Management, and provides additional provisions and guidelines relating to grading parameters, construction activities and conservation areas within the Hacienda at Fairview Valley Specific Plan. The Environmental Impact Report shall establish appropriate mitigation measures and monitoring requirements for any potentially significant impacts. Encourage the retention of specimen sized Joshua Trees (as defined below) by requiring the building official to make a finding that no other reasonable siting alternative exists for the development of the land. No surveys required.	Required	Plan Area	Total: <0.1 North: 0 South: <0.1	North: 0 South: 1,557/2

Regulatory Agency	Name of Regulation and/or Policy Instrument	Description of Existing Regulation	Degree of Protection (Required vs Voluntary)	Extent of Area Protected by Regulation	Protected Area	
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San Bernardino County	Homestead Valley Community Plan Phelan/Pinon Hills Community Plan Oak Hills Community Plan Lucerne Valley Community Plan Morongo Valley Community Plan Joshua Tree Community Plan	Preserve the unique environmental features, including native wildlife, vegetation, and scenic vistas (including the Joshua Tree Woodland). Encourage the retention of specimen sized Joshua Trees (as defined below) by requiring the building official to make a finding that no other reasonable siting alternative exists for the development of the land. Establish more restrictive regulations requiring greater retention of existing native vegetation for new development projects, particular attention shall be given to the retention of Joshua trees. This can be accomplished by adhering to provisions outlined in the General Plan, Section F, Goal D/CO, Policies 1.3 and 1.11. No surveys required.	Required	Plan Area	Not calculated	Not calculated
Riverside County / Coachella Valley	Coachella Valley Multiple Species Habitat Conservation Plan	Conserve and protects portion of Joshua Tree National Park and Indio Hills/Joshua Tree National Park linkage habitat that is within Coachella Valley. No surveys required.	Required	Plan Area	Not calculated	Not calculated
City of Adelanto	Native Vegetation Removal Permit and Joshua Tree Survey	Permit that allows for the removal and transport of native vegetation. Joshua trees and other vegetation requiring transportation must be supervised by a City-approved arborist while adhering to a City-approved Transplantation Plan. Per Title 8, Division 9 of San Bernardino County Code, every Joshua Tree Proposed for Removal is required to be inspected by the Local Jurisdiction to assure the Joshua tree is not a “specimen” class tree requiring preservation and transplantation. No surveys required or exemptions.	Required	Citywide	Total: <0.1 North: 0 South: <0.1	North: 0 South: 29/<0.1
City of Hesperia	PL-16, Protected Native Vegetation and PL-17, Protected Plant Policy	Joshua trees on single-family residential tract, multiple-family residential, commercial, and industrial developments are identified and avoided, if possible. If not possible, transplanting or adoption is an alternative. Must be transplanted or stockpiled for future use whenever possible. Shall not be harvested or removed except use a permit. No surveys required.	Required	Citywide	Total: <0.1 North: 0 South: <0.1	North: 0 South: 8/<0.1
City of Palmdale	Joshua Tree and Native Desert Preservation	City ordinance that protects and preserves desert vegetation, and in particular <i>Yucca brevifolia</i> . Joshua tree shall not be removed, nor caused to be removed, on or from any parcel of land, without a native desert vegetation removal permit. Permit package requires site plan which may require surveys to determine exact locations of plants. Violators will be penalized. Exemptions include routine maintenance of a Joshua tree or desert vegetation to ensure its continued health or trees that have been planted, grown and/or held for sale by a licensed nursery (Section 14.04.090 for full list of exemptions). No surveys required.	Required	Citywide	Total: <0.1 North: 0 South: <0.1	North: 0 South: 730/1
City of Victorville	City Ordinance No. 1224, Joshua Tree Inspection Program, Chapter 13.3 Preservation and Removal of Joshua Trees	Under this ordinance, <i>Yucca brevifolia</i> on undeveloped lands are protected. Grading a site, removing or damaging plants prior to completing the inspection procedures may result in fines and/or penalties for the property owner/ developer. No surveys required.	Required	Citywide	Total: <0.1 North: 0 South: <0.1	North: 0 South: 169/<0.1

Regulatory Agency	Name of Regulation and/or Policy Instrument	Description of Existing Regulation	Degree of Protection (Required vs Voluntary)	Extent of Area Protected by Regulation	Protected Area	
					Percentage of YUBR Range Covered by Regulation	YUBR Range within Jurisdiction (Acres/Sq. Mi)
Town of Yucca Valley	City Ordinance 140, Desert Native Plant Protection, Section 9.10.040 Native Landscape Documentation Package	A Native Plant Permit issued by the Community Development Director is required to remove <i>Yucca brevifolia</i> , with the exception of the fruit. Applies on all private lands within the town of Yucca Valley and public lands owned by Yucca Valley. Native landscape documentation shall be submitted to the division at the time of filing land use applications, which could require surveys.	Required	Entire range within Yucca Valley	Total: <0.1 North: 0 South: <0.1	North: 0 South: 192/0.3