

**Western Watersheds Project
Basin and Range Watch**

September 20, 2026

Department of the Interior
Bureau of Land Management
Nevada State Office
1340 Financial Boulevard
Reno, Nevada 89502-7147

Via: eplanning portal and BLM_NV_SND_EnergyProjects@blm.gov

**RE: Protest of the Proposed Resource Management Plan Amendment and Final
Environmental Impact Statement Bonanza Solar Project DOI-BLM-NV-S000-2022-0002-
RMP-EIS**

Western Watersheds Project and Basin and Range Watch protest several proposals for the Bonanza Solar Project on southern Nevada public lands.

Western Watersheds Project is a non-profit organization with more than 50,000 members and supporters. Our mission is to protect and restore western watersheds and wildlife through education, public policy initiatives, and legal advocacy.

Basin and Range Watch is a 501(c)(3) non-profit working to conserve the deserts of Nevada and California and to educate the public about the diversity of life, culture, and history of the ecosystems and wild lands of the desert.

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1. The Solar Project Impacts Cannot Be Mitigated To Less Than Significant to the Mojave Desert Tortoise Connectivity Corridor

At issue is a crucial Priority 1 tortoise connectivity corridor identified by USGS and the Western Solar Plan, which to maintain connectivity needs to be conserved as an intact, contiguous, high-quality tortoise habitat block. The 5,133-acre Bonanza Solar Project application proposal is sited in the middle of this identified Priority 1 tortoise connectivity corridor. The solar project would fragment intact habitat and degrade vegetation communities and soils needed by the tortoise population for survival.

The applicant and Bureau of Land Management (BLM) have attempted to suggest mitigation measures that they claim would allow a large-scale solar energy project to be constructed and operated in the middle of this connectivity corridor without taking away from the functionality of the corridor and health of the tortoise habitat and populations here.

We maintain that this cannot be successfully done and the project cannot be mitigated, as is detailed below. Therefore, the only way to maintain this connectivity corridor is avoidance. BLM should choose the No Action Alternative, and amend the Las Vegas Resource management Plan to designate the Cactus Springs Area of Critical Environmental Concern (ACEC), which we nominated in 2022, in order to protect this high-value public land tortoise habitat.

The Western Solar Plan designated this area as a solar exclusion zone due to its high values on public lands.

We discuss tortoise connectivity here, the Western Solar Plan, our ACEC nomination, and a request for a Conservation Alternative in scoping comments for this project (Basin and Range Watch and Western Watersheds Project 2023), and comments on the Draft Environmental Impact Statement (Western Watersheds Project and Basin and Range Watch 2024).

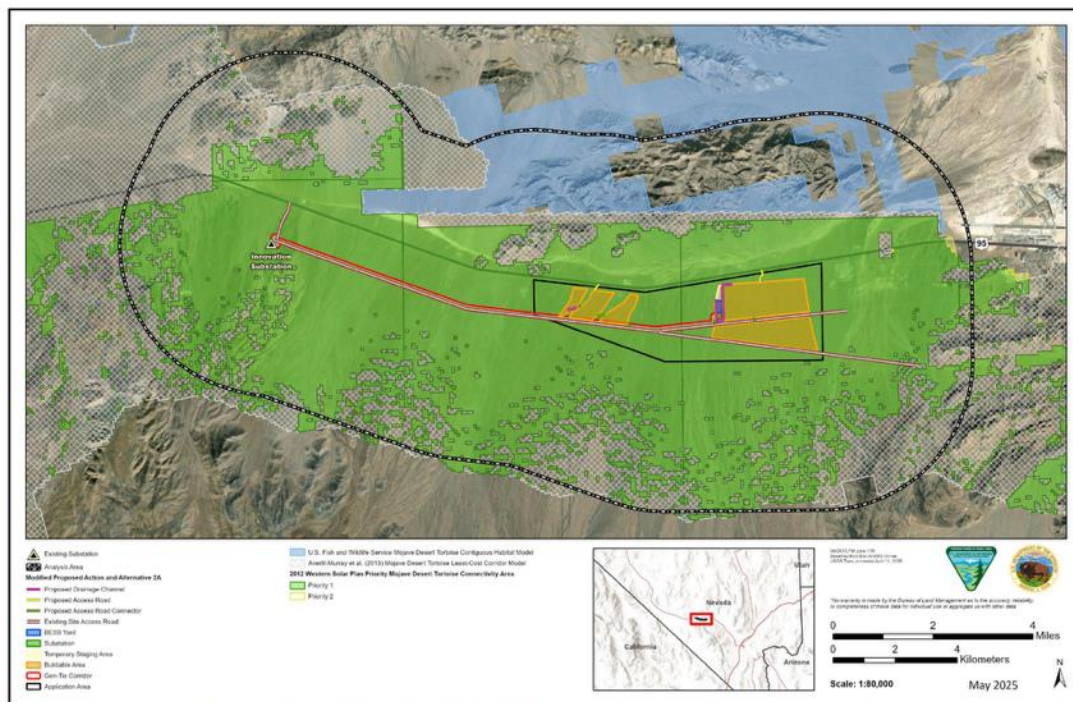


Figure A-11. Mojave desert tortoise connectivity habitat in the federally listed species analysis area (Modified Proposed Action and Alternative 2a).

A-11

^Map showing the Priority 1 tortoise connectivity corridor in green, and the BLM's preferred alternative footprint for Bonanza Solar Project.

2. Designation of the Nominated ACEC Would Protect This Tortoise Connectivity Corridor

Basin and Range Watch and Western Watersheds nominated the 58,000-acre Cactus Springs ACEC in the Indian Springs area of Clark County on September 20, 2022, during the variance public input period for the 2012 Western Solar Plan. Appendix K-9. See Basin and Range Watch and Western Watersheds Project (2022a). We asked for an ACEC designation here as early as the Variance Process for Bonanza Solar Project in 2022 (Basin and Range Watch and Western Watersheds Project. 2022b).

BLM then reviewed the ACEC nomination and decided to expand the nomination to cover a larger area:

After BLM received the nomination, an interdisciplinary team (IDT) was developed to review the nomination. After being evaluated by the BLM interdisciplinary team, the nomination area was increased to include desert tortoise habitat within the narrow corridor between the Red Rock Canyon National Conservation Area (NCA) boundary and Highway 160 (figure 2). The updated revised nominated ACEC boundary encompasses 82,573 acres of BLM-administered lands. The BLM IDT has found relevance and importance (R&I) values for the Mojave desert tortoise and its habitat occur within the revised nominated ACEC boundary. Appendix K-9-10.

BLM in the Final EIS describes how important this area is for recovery of the Mojave desert tortoise as a whole:

Recovery of the federally threatened Mojave desert tortoise is reliant on not only preserving protected areas, such as Critical Habitat Units, but even more importantly, maintaining connectivity of those protected areas to preserve genetic connectivity (Averill-Murray et al. 2013, USFWS 1994, 2011). Because desert tortoises are not migratory species, ensuring they have adequate habitat to maintain sufficient populations to maintain interconnected networks across the landscape is one of the most critical recovery criteria (Averill-Murray et al. 2013, USFWS 2011).

The revised nominated ACEC boundary would incorporate the following for desert tortoise habitat connectivity:

1. Include the only remaining tortoise connectivity between the west and east sides of the Spring Mountains, and between the Eastern Mojave Recovery Unit and the Northeastern Mojave Recovery Unit. This corridor has been identified as critical for maintaining tortoise genetic connectivity between the two Recovery Units (Averill-Murray et al. 2013).
2. Include the modeled “Least-Cost Corridor” in the corridor (Averill-Murray et al. 2013).
3. Include modeled tortoise habitat connectivity in the corridor (Nussear et al. 2009, Gray et al. 2019). Appendix K-10, emphasis ours.

Yet, instead of designating this ACEC to protect these resources, as mandated by FLPMA, BLM went on to review solar applications that fall right in the middle of this connectivity corridor. The construction of Bonanza Solar Project would degrade habitat, block large areas of connectivity, and jeopardize tortoise viability here.

BLM now is trying to punt the designation of this ACEC to a vague future time, and rely on experimental new temporary mitigation measures to act as a placeholder to the ACEC while

simultaneously allowing the construction of a large-scale solar energy project in the connectivity corridor. Appendix K-12.

We detail in this protest how these temporary mitigation measures will not ensure that tortoises here have adequate habitat to maintain sufficient populations to maintain interconnected networks across the landscape, as is one of the most critical recovery criteria to ward off jeopardy.

Designating an ACEC now is within the scope of BLM's purpose and need following FLPMA to balance development pressures with conservation on high-value parcels of land. A No Action Alternative can be chosen, and the RMP amended to designate the Cactus Springs ACEC.

3. The BLM Interdisciplinary Team Determined That the ACEC Nomination Meets Relevance and Importance Criteria

For Importance Values, BLM states of the Cactus Springs ACEC nomination has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared with any similar resource:

Threatened and Endangered Species - This revised nominated ACEC encompasses one of the most important Desert Tortoise connectivity corridors in the entire range of the species. The revised nominated ACEC boundary is along the north slope of the Spring Mountains, which remains the only connectivity corridor connecting Desert Tortoises on the south and west side of the Spring Mountains to tortoises on the North and East side of the Spring Mountains. This is the only remaining functional corridor between the Northeastern Mojave Recovery Unit and the Eastern Mojave Recovery Unit.

Las Vegas valley used to be the other remaining corridor from north to south for the species, however, as the City of Las Vegas has grown, connectivity for tortoises has been essentially severed on the west side of Las Vegas by housing developments all the way up into the foothills of the east side of the Spring Mountains, and Las Vegas Wash and Lake Mead cut off connectivity for tortoises on the east side of Las Vegas. Therefore, the relatively small, 4-mile-wide corridor on the north side of the Spring Mountains remains vitally important in retaining population and genetic connectivity between tortoise populations south of Las Vegas and populations north of Las Vegas.

This is supported with modeling that shows the revised nominated ACEC is within a Desert Tortoise Least Cost Corridor (Averill-Murray et al. 2013) and is allocated as Priority I Desert Tortoise Connectivity Habitat by the Western Solar Plan (2012).

The Nevada Department of Transportation (NDOT) has spent a significant amount of money retrofitting culverts that cross US Hwy 95 between Indian Springs and the Clark/Nye County border. These culverts have tortoise fencing tied into them to allow tortoises to use the culverts to safely cross under US Hwy 95 without the risk of being struck by vehicles. The BLM, Clark County, and USFWS have spent a significant amount of time and resources over the last 4 years studying wildlife use of the these

culverts, including performing survey to see if tortoises are actually using these culverts. Information provided by Clark County during preparation of the Desert Tortoise Population Connectivity Modeling in the Vicinity of the Proposed Bonanza Solar Project (Nussear 2023) documented desert tortoises using the culverts to cross under US Hwy 95 within the revised nominated ACEC area.

The area included within the revised nominated ACEC also has been formally identified by the BLM as a Priority I Habitat Connectivity Area for Mojave desert tortoise under the 2012 Western Solar Plan. Appendix K-5-6.

BLM states that the nominated ACEC has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change:

Threatened and Endangered Species – The revised nominated ACEC would protect one of the most important Desert Tortoise connectivity corridors in the entire range of the species. The revised nominated ACEC boundary is along the north slope of the Spring Mountains, which remains the only connectivity corridor connecting Desert Tortoise on the south and west side of the Spring Mountains to tortoises on the north and east side of the Spring Mountains. The corridor for Desert Tortoise connectivity is only 4 miles wide, on average, and goes through the revised nominated ACEC boundary. Tortoises do not migrate as other species might. Tortoises instead need to live in connectivity corridors and have multiple overlapping home ranges in order to preserve connectivity.

Desert tortoises have relatively large home ranges, which means that large areas are required to maintain desert tortoise populations sufficient to support genetic connectivity through the corridor (USFWS 2011). The width of the corridor through this area is narrow relative to Desert Tortoise connectivity needs, making it even more important to protect existing habitat.

Maintaining large, intact areas of Desert Tortoise habitat through this corridor is important to support the densities of desert tortoises needed to maintain connectivity through the corridor.

The revised nominated ACEC area has multiple applications for solar development, two transmission corridors, and contains a disposal boundary designated for community development. US Hwy 95 will be changed to I-11 in the near future, and goes through this corridor. The revised nominated ACEC area is also bounded on the north by military training facilities. Because the revised nominated ACEC area is bounded by military use on the north, and the topography of the Spring Mountains to the south, this corridor will continue to be used for human transportation and infrastructure. The proposed activities described here would reduce or degrade the available tortoise habitat within the corridor.

Because this revised nominated ACEC area is the only remaining connectivity between the Northeastern Mojave Recovery Unit and the Eastern Mojave Recovery Unit,

maintaining tortoise habitat, and associated connectivity, through this corridor is integral to achieving eventual species recovery for the Mojave desert tortoise. Appendix K-7-8.

BLM states that for Importance Values the ACEC nomination has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA:

Threatened and Endangered Species – This revised nominated ACEC area is in Priority 1 desert tortoise connectivity (under the 2012 Western Solar Plan) and is in a Least Cost Corridor (Averill-Murray et al. 2013) identified for desert tortoise habitat linkages. The Least Cost Corridor analysis was developed specifically to assist land managers in planning to prevent severing connectivity between desert tortoise protected areas (Averill-Murray et al. 2013). This revised nominated ACEC area has been identified as Priority I connectivity area for the continued linkage of desert tortoise habitat between larger population groups because the other Least Cost Corridor between the two Recovery Units in Nevada has been severed by continued development of the Las Vegas Valley, which has occurred since the original publication of this literature (Averill-Murray et al. 2013). Losing this connectivity could threaten the recovery of the Mojave desert tortoise which is in direct conflict with BLM’s 6840 manual. Appendix K-9.

BLM claims the Cactus Springs ACEC nomination does not meet Relevance Value for significant historic, cultural, or scenic value, giving the rationale as: “The nomination identified the potential for an indigenous trail in the area. The class III inventory completed for the Bonanza Solar project did not identify an indigenous trail....” Appendix K-3.

Yet in the Final EIS identifies a trail of archaeological significance present:

The tenth resource, a tribally identified trail (26CK11556), was determined to be an unevaluated component of a larger trail running through Indian Springs Valley. The tribally identified trail (26CK11556) is east-west-trending, following the U.S. 95 corridor in Indian Springs Valley. FEIS 3-114.

Page 1.1 of the FEIS states:

Background and Project History

On December 1, 2020, the Applicant filed an Application for a Transportation, Utility Systems, Telecommunications, and Facilities on Federal Lands and Property (Standard Form 299) and a preliminary POD with the BLM Southern Nevada District Office (SNDO) for a right-of-way (ROW) authorization for the Project (NVNV105848474).

Response: The “project history” does not discuss the Cactus Springs ACEC nomination that ended up shaping the project differently.

4. A Healthy Mojave Desert Tortoise Population Lives In and Around the Project Site

BLM states Mojave desert tortoises are on the site:

Potential to Occur: High; suitable habitat occurs. Individuals have been observed in the General Wildlife, Migratory Birds, and Special Status Species Analysis Area. There are several known occurrences within 3 miles of the Project based on DNH records (NDNH 2023a). Twenty juvenile and 33 adult Mojave desert tortoises were observed during protocol surveys in October 2021 and September 2023 for the Project (Ironwood Consulting 2022, 2024), five adult Mojave desert tortoises were observed during intuitive surveys that analyzed habitat use outside the Project Area, and numerous other Mojave desert tortoises were observed incidentally during other survey efforts. FEIS 3-29.

Tortoise density according to BLM-directed surveys, was found to be higher than the average population density for the Eastern Mojave Desert Tortoise Recovery Unit:

The results of these surveys suggest an estimated density of 1.9 adult Mojave desert tortoises per square kilometer (/km²) (247 acres) within the 7,909-acre survey area, which is higher than the average density of 1.5 adult Mojave desert tortoises/km² (247 acres) in the Eastern Mojave Desert Tortoise Recovery Unit (Heritage 2024:52; Ironwood Consulting 2024:10). FEIS 3-52.

Tortoises are present on the site of the proposed solar energy project:

The USFWS Biological Opinion (USFWS 2025a) prepared for the Project's Modified Proposed Action estimates 21 adult and 139 juvenile Mojave desert tortoises may be present in the fenced and unfenced Project Area and therefore may be impacted by the Modified Proposed Action. FEIS 3-52.

And,

Active Mojave desert tortoise sign (burrows or pallets, scat, tracks or dig marks) was found throughout the protocol-level and intuitive survey areas, suggesting that habitat adjacent to the Project Area is also suitable habitat for Mojave desert tortoise (Heritage 2024). *Id.*

5. Everyone Agrees This Is a Significant Tortoise Connectivity Corridor That Should Be Protected

At issue is whether to protect this tortoise population and habitat as a crucial connectivity corridor immediately, which we have several times asked BLM to do with our nominated Cactus Springs ACEC. BLM admits that an ACEC should be designated to protect tortoise connectivity here, but proposes temporary interim measures while degrading the area with solar projects. We have argued that mitigation measures proposed to reduce impacts in the solar fields and allow tortoises to re-occupy the industrial sites will fragment habitat and reduce connectivity to very low levels, potentially cutting this important corridor off to any meaningful genetic flow.

BLM's discussion of connectivity in the FEIS emphasizes that under the Endangered Species Act it has a commitment to preserving connectivity corridors of functional tortoise habitat,

especially because of the expansion of Las Vegas urbanization in the Southern Nevada Office (SNDO) area. “Connected habitat is crucial for Mojave desert tortoise recovery,” BLM states:

Connectivity

The Mojave desert tortoise was listed as threatened under the ESA on April 2, 1990. A total of 6.4 million acres of critical habitat was designated in 1994 (USFWS 1994). The 1994 *Desert Tortoise (Mojave Population) Recovery Plan* (1994 Recovery Plan) described a strategy for recovering the Mojave desert tortoise, which included the identification of six Recovery Units, recommendations for a system of Desert Wildlife Management Areas (DWMAs) within the Recovery Units, and development and implementation of specific recovery actions (USFWS 1994). Within those six Recovery Units, DWMAs were identified in which populations of tortoises facing similar threats would be managed with the same strategies. The 1994 Recovery Plan was revised in 2011, and the Recovery Units were modified (USFWS 2011a).

The 1998 Las Vegas RMP (BLM 1998a) selected the alternative that, at the time, provided the highest anticipated management benefit to the Mojave desert tortoise. The 1998 Las Vegas RMP identified direction as follows:

AC-1. . . . Manage a sufficient quality and quantity of desert tortoise habitat, which in combination with tortoise habitat on other Federal, State and private land, will meet recovery plan criteria. Maintain functional corridors of habitat between areas of critical environmental concern to increase the chance of long-term persistence of desert tortoise populations within the recovery unit....

SS-2. Manage habitat to further sustain the populations of Federally listed species so they would no longer need protection of the Endangered Species Act.

SS-3. Manage desert tortoise habitat to achieve the recovery criteria defined in the Tortoise Recovery Plan (USFWS 1994) and ultimately to achieve delisting of the desert tortoise. (BLM 1998a)

As part of SS-3, portions of the 1994 Recovery Plan (USFWS 1994) were incorporated into the RMP:

Enough habitat must be protected within a recovery unit, or the habitat and desert tortoise populations must be managed intensively enough, to ensure long-term population viability. Although the Tortoise Recovery Plan recommends establishment of at least one desert wildlife management area of 1,000 square miles in each recovery unit, it is not possible to achieve this on public lands in Nevada. *The minimally acceptable situation identified in the Tortoise Recovery Plan is to establish several smaller desert wildlife management areas that are connected by corridors of functional tortoise habitat. This is the situation in both the Northeastern Mojave and Eastern Mojave Recovery Units.* [emphasis added] (BLM 1998a)

In other words, the circumstances in Nevada at the time of the 1994 Recovery Plan were such that there was not enough land available to establish a DWMA (synonymous with critical habitat) of 1,000 square miles in each recovery unit. Therefore, smaller DWMA's were established with the commitment that they were connected by corridors of functional Mojave desert tortoise habitat. In order to meet the mandates of the 1994 Recovery Plan, the SNDO has a commitment to preserving connectivity.

The Project Area occurs within the Eastern Mojave Recovery Unit, which spans the Nevada-California border, including Oasis Valley, Amargosa Desert, Pahrump Valley, habitat north of the Spring Mountains, east to the Sheep Mountains, as well as Las Vegas and Eldorado Valleys north to the city of Las Vegas and extending south into Shadow Valley (USFWS 2011a). Connectivity in this area has been significantly eroded over the last 15 years by the expansion of Las Vegas and solar development. As identified in the 2011 *Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Gopherus agassizii)* (2011 Recovery Plan) (USFWS 2011a), the 2012 Biological Opinion for the 2012 Western Solar Plan (USFWS 2012a), and in the *Cactus Springs ACEC Preliminary Evaluation and Suggested Temporary Management Action for Bonanza Solar* (BLM 2024d), protection of the corridor of Mojave desert tortoise habitat north of the Spring Mountains is imperative to allow for the continued connectivity of the Eastern Mojave Recovery Unit and the Northeastern Mojave Recovery Unit. Protection of this area is also imperative to connect Critical Habitat Units in California to Critical Habitat Units in Nevada, Arizona, and Utah. Connected habitat is crucial for Mojave desert tortoise recovery.

The 2011 Recovery Plan emphasizes this:

The Spring Mountains, which provided much of the separation between the former Northeastern Mojave and Eastern Mojave recovery units, narrowly channel gene flow through habitat corridors to the north and south, connecting this recovery unit to the Northeastern Mojave Recovery Unit.

A lack of desert tortoise habitat dedicated to conservation to the west of the Spring Mountains and in Las Vegas Valley highlights the need for careful management in these areas to maintain connectivity among populations and the genetic variation within this recovery unit [emphasis added]. Corridors north and south of the Spring Mountains warrant particular management attention to prevent genetic isolation of populations on either side of this mountain range [emphasis added]. (USFWS 2011a:49–50)

Since the publication of the 2011 Recovery Plan, the connectivity south and east of the Spring Mountains (cited in the above reference) has been completely severed through the expansion and growth of the city of Las Vegas and congressional land disposals of BLM lands south of Las Vegas. Currently, the only remaining connectivity between Recovery Units in California and Nevada (and connectivity between the Critical Habitat in the Recovery Units) is located north of the Spring Mountains in a very narrow corridor of

suitable tortoise habitat. Genetic studies indicate that connectivity is already very limited in this area with only limited existing development. The northern corridor of the Spring Mountains is specifically referenced three different times in the 2011 Recovery Plan because of its importance to connectivity (USFWS 2011a:49, 50, 68).

FEIS 3-53-54, emphasis by BLM.

The 2011 Mojave Desert Tortoise Recovery Plan states that the “Eastern Mojave Recovery Unit the Spring Mountains, which provided much of the separation between the former Northeastern Mojave and Eastern Mojave recovery units, narrowly channel gene flow through habitat corridors to the north and south, connecting this recovery unit to the Northeastern Mojave Recovery Unit (Figure 10; Hagerty 2008; Hagerty *et al.* 2010).” USFWS 2011 at 49-50.

This refers to the connectivity corridor in which the Bonanza Solar Project is being reviewed, north of the Spring Mountains.

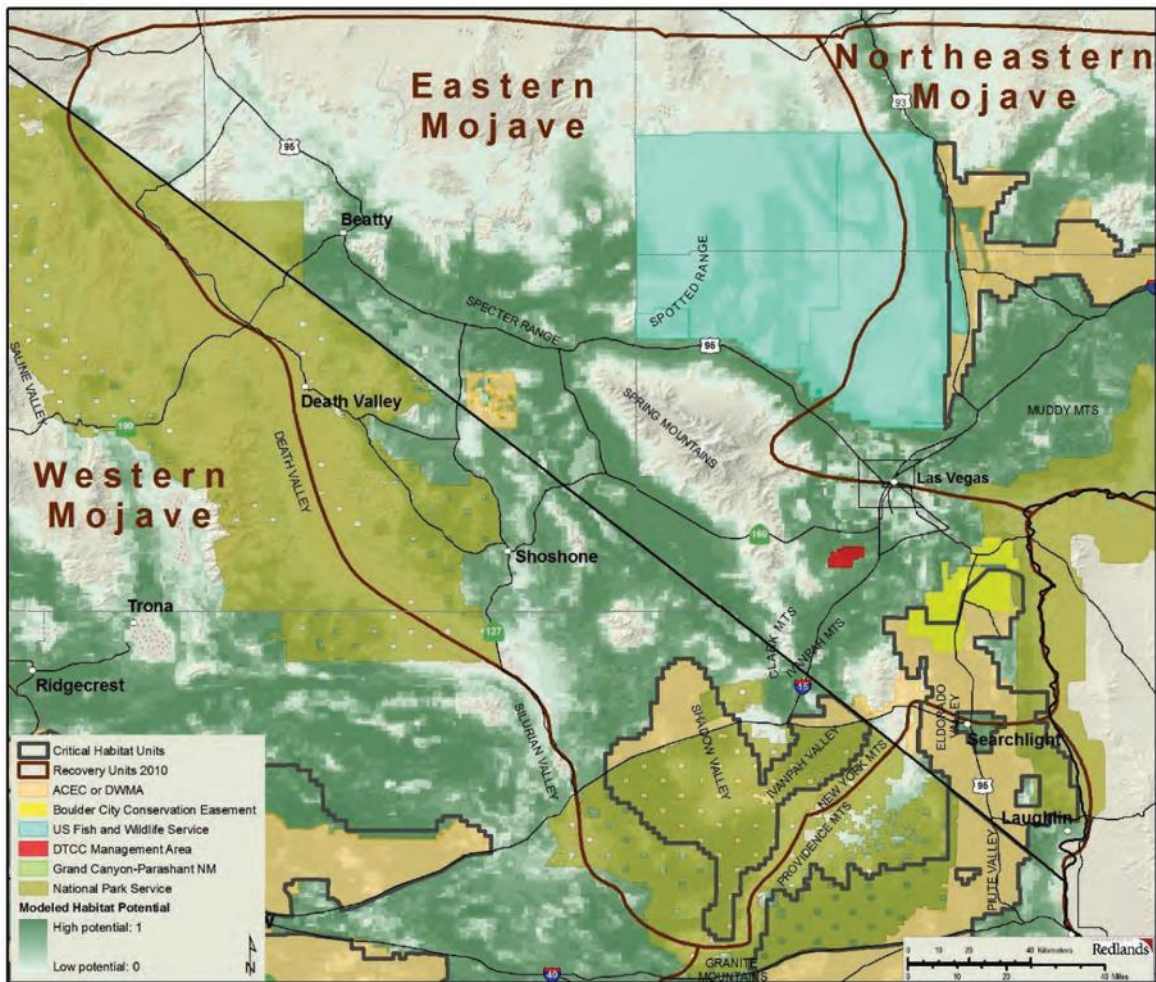


Figure 10. Eastern Mojave Recovery Unit. DWMA = Desert Wildlife Management Area; ACEC = Areas of Critical Environmental Concern; DTCC = Desert Tortoise Conservation Center.

^Map of the Eastern Mojave Recovery Unit showing the narrow connectivity corridor north of the Spring Mountains. The light green land labeled U.S. Fish and Wildlife Service is co-managed with the Nevada Test and Training Range, Department of War. From the 2011 USFWS Mojave Desert Tortoise Recovery Plan.

In the Recovery Plan, land managers are told to preclude alternative energy facilities in intact desert tortoise habitat in ACECs. The Cactus Springs ACEC nomination qualifies as an ACEC and therefore development here should be avoided:

Conserve intact desert tortoise habitat. Land disturbances should be precluded within tortoise conservation areas. Disturbances to be avoided include those caused by development, off-highway-vehicle use, overgrazing by domestic livestock, construction of roads or other linear facilities, increased fire frequency, and other surface disturbing activities. For example, fire prevention and management should be pursued throughout

the Mojave and Colorado deserts to contain the grass-fire cycle. Minimizing the size and intensity of fires will ease subsequent restoration efforts (2.6), even in previously burned areas. Fire suppression would also minimize direct and indirect effects on individual tortoises. Identifying and mapping priority areas and developing a fire plan for habitat protection, fire-crew access, and the use of natural or created fuel breaks could help limit response time and fire spread.

Development of alternative energy sources has also recently come to the forefront as a necessary and congressionally mandated use of public lands that could have large-scale impacts to desert tortoise habitat. Pursuant to the Bureau of Land Management land use plans, solar project facilities will be sited outside Desert Wildlife Management Areas and Areas of Critical Environmental Concern. Current proposals for energy projects within these land allocations should be relocated so that impacts to these areas are avoided.

USFWS 2011 at 68.

BLM goes on to discuss connectivity in the Final EIS for Bonanza Solar Project:

Programmatic ESA consultation with the USFWS for the 2012 Western Solar Plan included consultation under both management review (ESA Section 7(a)(1)) and a programmatic biological opinion (ESA Section 7(a)(2)). In the 2012 Western Solar Plan Biological Opinion, the following information is included regarding the connectivity along the Spring Mountains:

Population and habitat connectivity came to the fore as an important threat to the desert tortoise conservation as the Service analyzed the multitude of renewable energy projects proposed throughout the species' range. Quantifying the degree to which a landscape promotes or hinders movements among patches of habitat for a given species, hereafter referred to as "habitat connectivity" (Fischer and Lindenmayer 2007), has become increasingly important relative to desert tortoise recovery. As we evaluate utility-scale solar development and other land uses within the range of the species, it is essential that habitat linkages between and among populations are conserved. For gene flow to occur across the range, populations of desert tortoises need to be connected by areas of occupied habitat that support sustainable numbers of reproductive individuals.

Using a circular lifetime home range of 1.5 mi² for a desert tortoise, we estimate that a linkage would need to be at least 1.4 miles wide to accommodate the width of a single home range. While the minimum width of a linkage should accommodate several home ranges (USFWS 1994; Beier et al. 2008), we do not know the exact area or land configuration required to support sustainable numbers of resident desert tortoises within any particular linkage, which would be dependent upon several factors.

Based on the best available information, occupancy likely depends on many site-specific factors, including: 1) desert tortoise densities in the vicinity (i.e., lower density sites require larger areas to reliably support sustainable numbers of desert tortoises); 2) length-to-width ratio of the linkage (i.e., longer linkages may need to be wider to preserve the dynamic home ranges and interactions required for gene flow); and 3) potential edge effects and integrity of the ecosystem within and adjacent to the linkage. Another consideration is the extent to which slope and ruggedness of the terrain allows desert tortoise occupancy or passage. In addition, maintaining connectivity of desert tortoise habitats and populations should reflect results from the landscape genetic analyses of Hagerty (2008) and Hagerty et al. (2010) [Hagerty and Tracy 2010]. These analyses showed that desert tortoise gene flow generally occurred historically in a diffuse pattern across the landscape unless otherwise constrained to more narrow, concentrated pathways created by topographic barriers (*e.g., around the Spring Mountains in western Nevada*) [emphasis added]. As a result, it is evolutionarily imperative that conservation is focused on maintaining a series of redundant linkages between core populations and critical habitats. (USFWS 2012a)

Note that BLM quotes the 2012 Western Solar Plan Biological Opinion which highlights that “for gene flow to occur across the range, populations of desert tortoises need to be connected by areas of occupied habitat that support sustainable numbers of reproductive individuals,” and that the integrity of the ecosystem is crucial in maintaining function of a linkage. Industrial energy development disturbs and breaks up the integrity of tortoise habitat. Solar project edge effects, such as the heat island effect, are detailed below.

BLM goes on to discuss the importance of maintaining wide and functional connectivity linkages further in the FEIS:

This connectivity corridor, based on initial surveys by the Applicant and from additional USFWS surveys that took place in the spring of 2024, has densities of desert tortoises in the area that are relatively low. Surveys for the Project in the study area noted high levels of recent mortality and predation in the corridor, likely due to extreme drought conditions preceding the surveys. As described in the previous paragraph, it is even more important to have wider corridors to support connectivity in low density areas (Averill-Murray et al. 2021; Dutcher et al. 2023). Sufficient habitat is also required in order to allow Mojave desert tortoise populations in this area to recover after the mortalities that occurred due to drought, which could take decades. A minimum of two home ranges for desert tortoise is the absolute minimum area recommended to allow for connectivity (approximately 3 miles). However, existing projects in process have already reduced this width below that distance, and there are published recommendations to limit additional disturbance in already narrow connectivity corridors (Averill-Murray et al. 2021).

Habitat connectivity is important to maintain Mojave desert tortoise access to required resources (e.g., water or burrow sites), minimize energetic expenditures to access resources, limit risk of travel-related injury or death by minimizing the need to move through risky or uninhabitable areas, maintain social behaviors and gene flow, and enable

movement with a change in environmental conditions, such as meteorological shift (Lowe and Allendorf 2010; Webster et al. 2002). In a review of numerous definitions of habitat connectivity published in the scientific literature, Kindlmann and Burel (2008) defined habitat connectivity simply as “the ease with which individuals can move about within a landscape.” This definition encompasses both structural (based entirely on landscape configuration independent of the animal) and functional connectivity (including animal responses to landscape features).

Factors in assessing the potential effects of the Project on Mojave desert tortoise habitat connectivity include the following:

- Anthropogenic barriers to tortoise movement

- Habitat fragmentation

- Natural barriers to tortoise movement

Genetic connectivity can be defined as the degree to which gene flow is maintained between populations. For gene flow to occur across an area, populations of Mojave desert tortoise need to be connected by areas of suitable habitat that support sustainable numbers of reproductive individuals. Natural barriers, such as mountain ranges and rivers, reduce genetic connectivity and are thought to have partly resulted in some broad-scale genetic differentiation among tortoise populations within the Mojave Desert (Averill-Murray et al. 2013). It should be noted that tortoises do not migrate or move long distances. Instead, in order for populations to be connected and to preserve gene flow, tortoises need to have sufficient space to have overlapping home ranges, where they have habitat conditions that allow them to survive, interact with other tortoises, reproduce, and provide juvenile tortoises with adequate habitat conditions to survive to adulthood.

The proposed Project is in an area of Mojave desert tortoise habitat that has been modeled for population connectivity of important linkages between Mojave desert tortoise conservation areas (TCAs) (Averill-Murray et al. 2013; USFWS 2011a). The USFWS described the connectivity corridor between Indian Springs and the Amargosa Valley, in which the proposed Project is located, as essential to maintain Mojave desert tortoise connectivity between the Eastern and Northeastern Recovery Units (USFWS 2023d). Additionally, this connectivity corridor is the only remaining corridor connecting Mojave desert tortoise populations on the west side of the Spring Mountains to those on the east side. Habitat connectivity is especially important for Mojave desert tortoise because they are considered corridor dwellers, meaning that for habitats to be considered connected there must be enough suitable habitat to support sustaining populations of Mojave desert tortoises (Averill-Murray et al. 2021).

Several habitat models have been developed to identify connectivity between TCAs [Tortoise Conservation Areas] (Averill-Murray et al. 2013; Nussear et al. 2009; USFWS 2020c), which were incorporated into the 2012 Western Solar Plan to identify Priority 1

and Priority 2 connectivity habitats (BLM and DOE 2012). Table 3-19 summarizes Priority 1 and 2 connectivity habitats that overlap the Project-specific Federally Listed Species Analysis Area (Appendix A, Figure A-10 through Figure A-12).

These models were used in development of recommendations for exclusion areas in the 2024 Western Solar Plan ROD (BLM 2024a). The Project is not subject to the exclusion criteria identified in the 2024 Western Solar Plan ROD, although it is in an area that is otherwise excluded to solar development due to the importance of this corridor for tortoise connectivity. FEIS at 3-55-56.

What BLM is referring to in the last paragraph is that the Bonanza Solar Project application was grandfathered into the revision of the 2024 Western Solar Plan (which weakened the plan), but that the original 2012 Western Solar Plan labeled this corridor as a solar exclusion zone.

BLM then discusses road impacts to connectivity in this linkage area:

The Project Area and Federally Listed Species Analysis Area are both within a least-cost corridor (Averill-Murray et al. 2013) and are designated as Priority 1 connectivity habitat (BLM and DOE 2012), identifying the area as a priority linkage between TCAs within the Eastern Mojave Recovery Unit and important for sustaining demographically viable populations across the landscape (Averill-Murray et al. 2021; USFWS 2020c). The presence of existing anthropogenic disturbance, particularly U.S. 95, has potentially had historic effects and is having ongoing impacts to connectivity within this corridor. Mojave desert tortoise exclusion fencing along U.S. 95 was installed in 2015 (Ironwood Consulting 2022). Prior to the fence installation, Mojave desert tortoises in the area were vulnerable to mortality from vehicle strikes when entering the roadway. Previous studies have reported a road-effect zone that can reduce local Mojave desert tortoise population density and distribution measuring from 0.10 to 0.25 mile wide depending on road size and traffic (Boarman and Sazaki 2006; Peaden et al. 2015). The historic effects from U.S. 95 prior to fence installation could have reduced local Mojave desert tortoise populations impacting both north-south and east-west connectivity (Ironwood Consulting 2022).

Current conditions along U.S. 95 include restricted north-south connectivity partially facilitated by a series of box culverts that tie into the Mojave desert tortoise fencing (Ironwood Consulting 2022). A study of Mojave desert tortoise population densities near culverts along U.S. 93 and U.S. 95 included Mojave desert tortoise surveys within survey plots around each culvert on the north and south side of U.S. 95. Within the U.S. 95 survey plots, 58 Mojave desert tortoises were observed and tagged for future identification by wildlife cameras within the culverts, and 14 adult Mojave desert tortoises had radio transmitters attached for future telemetry and GPS monitoring studies around the culverts. Of the 58 Mojave desert tortoises tagged in this study, two were documented using these culverts to cross under U.S. 95, providing evidence that the culverts do allow Mojave desert tortoises to cross north-south under the highway (Ecocentric, LLC 2021). There are at least 12 culverts within the Federally Listed Species Analysis Area, nine of which provide poor to good Mojave desert tortoise access under

the highway and three of which are unsuitable for Mojave desert tortoise crossing (Heritage 2024:53; Ironwood Consulting 2022:7). FEIS at 3-57.

Given these impacts already existing from US highway 95 on the north side of Spring Mountains, as much intact habitat as possible needs to be preserved in order to maintain ecological integrity in this linkage.

Yet despite this mountain of evidence that this specific connectivity habitat needs conservation, BLM goes on to contract a biologist to develop a model which attempts to negate this evidence and sides with solar development:

Project-specific connectivity modeling (Nussear 2023) was developed to better understand local habitat connectivity near the Project. This suggests that there is sufficient habitat adjacent to the Project to maintain connected Mojave desert tortoise populations. For a complete description of the site-specific connectivity assessment, refer to the *Desert Tortoise Population Connectivity Modeling in the Vicinity of the Proposed Bonanza Solar Project* (Nussear 2023) in Appendix C of the BRTR (Heritage 2024).

The Project-specific connectivity modeling included simulations of local Mojave desert tortoise population demographics over a 100-year period with several hypothetical existing landscape scenarios, including 1) no barriers to movement, 2) roads with full barriers to movement, and 3) existing culverts allowing partial movement (Nussear 2023). Simulations also compared four Project alternatives: 1) Mojave desert tortoises completely excluded from Buildable Areas; and allowing Mojave desert tortoises back into the Buildable Areas with 2) 25%, 3) 50%, and 4) 75% suitable habitat post-construction. Birth rates, mortality rates, numbers of individuals, and movement rates by tortoises among zones were monitored given the different habitat configurations. There were no discernible effects on connectivity or demographics in the simulations that were above the random fluctuations for these parameters modeled by the simulations (Nussear 2023).

It is important to recognize the scope of this modeling effort, and what it is and is not intended to accomplish. These simulations were designed to compare the effects of proposed solar alternatives to the conditions imposed by current habitat configurations, and to more extreme barriers (full barrier), and nonexistent ideal habitat (no barrier), which were meant to bound the range of possible tortoise movements and demographics (Nussear 2023). It should be noted that these are simulations of the relative effects, of the proposed solar facilities, and not of the current or future conditions of the tortoise populations in these areas that may be influenced by disease, wildfire, expanded off-highway vehicle (OHV) use, or similar real-world problems causing declines in tortoise populations (Nussear 2023). These models were populated using limited information of tortoise densities in the Project Area, and thus actual tortoise densities in the larger modeled area may be different (Nussear 2023). These projections did not include, nor was Nussear provided information on the future expansions of U.S. 95 to an interstate, other proposed developments in the area such as for transmission corridors; therefore, these were outside of the scope of this Project.

The discussion section of the modeling report notes that the population sizes of tortoises within the modeled zones were small, reflecting the survey data from the Project. As previously discussed, extreme drought in the year of the initial surveys may have resulted in tortoise mortalities, resulting in lower densities of tortoises in the Project Area (Nussear 2023). The discussion notes that the results showing few differences between scenarios are likely due to the low densities of tortoises incorporated into the model parameters (Nussear 2023). In practical discussions of connectivity through these areas, lower tortoise densities emphasize the importance of retaining the maximum extent of habitat possible, because connectivity is more difficult to retain across a narrow corridor with low population densities (USFWS 2012b).

The modeling was conducted to determine if connectivity could be modeled to be maintained with development of the Project over the next 100 years. There were factors that were not incorporated into the modeling such as drought, additional anthropomorphic change, or wildfires. FEIS 3-57-59.

BLM admits in the above discussion that these are only simulations that may not reflect real-world conditions on the ground. After many years of observing utility-scale solar projects constructed on tortoise habitat we have seen droughts, under-counts of tortoises, and high predation mortality of translocated tortoises. Many direct, indirect, and cumulative effects create numerous stressors to local tortoise populations, as we detail below. We disagree with Nussear's modeled simulations for these reasons.

6. Solar Project Construction Impacts Will Be Significant To Tortoise Populations

BLM admits impacts to tortoise will be severe and significant. As past desert tortoise biological monitors, we believe these impacts are unmitigable. In this long section from the Final EIS, BLM details the large impacts to tortoise populations and to the ecological integrity of tortoise habitat in the linkage:

Proposed Action

Mojave Desert Tortoise

Construction

Impacts to the Mojave desert tortoise associated with construction of the Proposed Action would include changes to available habitat (including loss, modification, and/or fragmentation), potential direct take of Mojave desert tortoise, and increased noise and increased human activity.

Under the Proposed Action, a total of 2,412 acres (2,368 acres within the Buildable Areas and 44 acres outside the Buildable Areas) of Mojave desert tortoise habitat would be disturbed. Under the Proposed Action, up to 863 acres (829 acres within Buildable Areas and 34 acres outside Buildable Areas) would be subject to heavy surface disturbance (D-

3 disturbance category) through grading, soil removal, and loss of vegetation (Table 3-20), resulting in a long-term adverse impact to Mojave desert tortoise connectivity habitat. D-3 disturbance acreage would be permanently lost to Project infrastructure and represents a 2% decrease in available Priority 1 connectivity habitat within the Federally Listed Species Analysis Area. See Section 2.1 for disturbance category definitions.

Another approximately 1,549 acres would be subject to minimal to moderate surface disturbance from overland travel (D-1 disturbance category) and moderate to heavy disturbance from drive and crush activities (D-2 disturbance category) (Table 3-20). Areas subject to D-1 and D-2 disturbances would be temporarily impacted until vegetation regenerates. Areas subject to D-1 and D-2 disturbances represent a 3% decrease in available Priority 1 connectivity habitat within the Federally Listed Species Analysis Area.

The Buildable Areas (2,368 acres total) would be surrounded by a fence, which would exclude Mojave desert tortoise from reoccupying the area until vegetation standards are achieved (Appendix B measures Eco-4, Eco-9, and Tortoise-1). Under the Proposed Action, the Applicant would work to maintain 50% of vegetation cover and 65% of the vegetation density within the solar array fields, which does not include the BESS, O&M building, substation, and exterior roads or areas that require spot-grading within the arrays. Vegetation standards are proposed to be met within 10 years of completion of construction (or a longer period as determined by BLM in the case of drought); restoration would be implemented pursuant to an agency-approved Site Restoration Plan (Rec-1). This disturbance within the Priority 1 connectivity habitat would have a long-term adverse impact to Mojave desert tortoise (Appendix B measure Eco-6).

The estimated number of adult Mojave desert tortoises within the D-1, D-2, and D-3 disturbance categories for the Proposed Action that would be impacted is approximately 35 based on the density estimate of 3.5 adult Mojave desert tortoise/km² (247 acres) (BLM 2024g:36; Heritage 2024:52; Ironwood Consulting 2024:10). Reasonably foreseeable effects include the displacement of these adult individuals expected to be found on the Buildable Areas prior to construction and the permanent loss of Mojave desert tortoise habitat for all Buildable Areas. Displacement of Mojave desert tortoises from the Buildable Areas may put pressure on adjacent habitats by increasing local densities of Mojave desert tortoises. This may result in increased mortality of resident and relocated Mojave desert tortoises. The site would be fenced to exclude Mojave desert tortoise prior to construction (Appendix B measures Eco-4, Eco-6, Eco-9, and Tortoise-3). Prior to construction activities and as needed for the duration of the Project, clearance surveys and translocation to locate and remove all Mojave desert tortoises from harm's way would occur in accordance with the BLM and USFWS-approved Mojave Desert Tortoise Translocation Plan, which is currently under development (Appendix B measure Eco-4).

Due to the difficulty in locating juvenile Mojave desert tortoise and eggs, some Mojave desert tortoises may remain on-site following clearance surveys and could be affected by Project construction. Potential effects would include mortality or injury from being

crushed by moving vehicles while outside of burrows or being crushed while in burrows during ground disturbance. Mortality of Mojave desert tortoises during construction would primarily be minimized by speed limitations, fencing, performing clearance surveys, and translocating Mojave desert tortoises out of the Buildable Areas before construction begins (Appendix B measures Air-1, Eco-2, Eco-4, and Eco-9).

Construction equipment could also temporarily disturb Mojave desert tortoises by creating vibrations, noise, and light pollution (Appendix B measures Eco-2 and Noise-1). Such disturbance could cause Mojave desert tortoises to temporarily avoid otherwise suitable habitat near the construction activities. Mojave desert tortoises could also be affected by fugitive dust and hazardous materials generated on-site, and construction could also increase the risk of predation by the introduction of perch structures for ravens and raptors, and litter or trash produced at the Project could attract ravens and coyotes (*Canis latrans*). An increase of predators such as common ravens (*Corvus corax*), coyotes, or raptors to the Project could lead to increased predation on all age classes of Mojave desert tortoise, including eggs. Implementation of predator monitoring, deterrence, and a control program would help minimize the potential for increased predators in the Project Area (BLM 2024g) (Appendix B, Table B-7). Also, implementation of a Raven Management Plan includes measures intended to deter raven presence and potential predation of species, which would reduce the risk for mortality.

Vibrations and water from dust control measures could draw Mojave desert tortoises out of their burrows during normal periods of dormancy due to the similarities with rainfall noise, vibrations, and humidity. Although there is potential for some adult Mojave desert tortoises to be injured or killed on-site, the number is expected to be low. Adult Mojave desert tortoises are more easily detected during pre-construction surveys because of their large size; therefore, it is expected that most adult Mojave desert tortoises that occur within the construction phase exclusionary fence would be identified and translocated. Because of the difficulty in locating juvenile Mojave desert tortoises and eggs, some may not be found during pre-construction surveys and could be crushed or injured during Project construction (Eco-4, Tortoise-2). Measures outlined in the Dust Control Plan would minimize dust pollution and its potential impacts to surrounding vegetation, which provides habitat to the Mojave desert tortoise (Appendix B measure Air-2; 2024 Western Solar Plan design features AQC-3 and AQC-4). These effects would primarily occur during the construction and decommissioning phases of the Project.

Installing Mojave desert tortoise-proof fencing around the Buildable Areas would prevent resident Mojave desert tortoises and Mojave desert tortoises to be removed from the Buildable Areas from entering the Buildable Areas during construction and potentially being killed or injured (Appendix B measures Eco4, Eco-9, and Tortoise-1; 2024 Western Solar Plan design features ER-15sss and ER-16sss). To avoid Mojave desert tortoise injury or mortality from vehicles and equipment during construction, collector roads and U.S. 95 access roads would include temporary Mojave desert tortoise fencing that would be removed when construction of the facility is complete (Gen-1, MM Wild-6). Project access roads going through existing U.S. 95 Mojave desert tortoise fence

would have turn-backs installed on either side of the proposed access road to prevent Mojave desert tortoise from entering U.S. 95 and to avoid injury or mortality (Tortoise-3). The Site Restoration Plan and Integrated Weed Management Plan would minimize some effects of construction by requiring restoration of temporary disturbance and requiring the treatment of nonnative and noxious weeds (Appendix B, Measure Eco-2).

The risk of vehicle mortality on Mojave desert tortoises prior to temporary fence construction and in unfenced areas of the Project would be minimized by having authorized Mojave desert tortoise biologists and qualified Mojave desert tortoise monitors to monitor construction to ensure the avoidance of all Mojave desert tortoises and avoidance or excavation of Mojave desert tortoise burrows as necessary (Appendix B measures Tortoise-2 and MM Wild-9). Excavation of Mojave desert tortoise burrows would result in ground disturbance throughout the Project Area and result in impacts to vegetation as described in Section 3.2. A WEAP would be prepared and presented to all work crews at the Project (Appendix B measure Eco-2; 2024 Western Solar Plan design feature PW-5).

Although the translocation of Mojave desert tortoises would be used as a measure to reduce Project caused mortality of Mojave desert tortoises during construction, it is also a source of take in the form of harassment of Mojave desert tortoises by temporarily causing stress to the individuals. Translocated Mojave desert tortoise experience high mortality rates, over 50% mortality has been documented in the first three years following translocation, primarily from predation (Mack and Berry 2023). Translocation has been shown to result in reduce geneflow and genetic diversity as male tortoises have been documented to not produce offspring with resident or translocated female tortoises (Mulder et al. 2017). Additionally, translocated and resident Mojave desert tortoise would be at increased risk for disease transmission, including upper respiratory tract disease, which was discovered in 1990 and is currently a major cause of mortality in the western Mojave desert tortoise population (BLM 2024g). As part of the clearance surveys and pre-translocation planning, Mojave desert tortoises would need to be handled to perform health assessments to determine their suitability for translocation; if suitable, they would require subsequent handling and transportation to the recipient site or edge of the Project. Translocated Mojave desert tortoises may be subject to increased stress and mortality due to spending additional time and energy exploring their new habitat and attempting to return to their home ranges, which can lead to increased susceptibility to predation, vehicle collision, thermoregulations challenges due to exposure, and lower fitness. Translocation of Project Mojave desert tortoises is also likely to impact other resident Mojave desert tortoises adjacent to the Project by increasing local densities of Mojave desert tortoise. These effects would be mitigated through following the guidelines established in a Mojave Desert Tortoise Translocation Plan (Appendix B measure Eco-4; 2024 Western Solar Plan design features ER-1sss, ER-3sss, ER-15sss, and ER-16sss).

In addition to the reasonably foreseeable effects of construction on Mojave desert tortoise, permanent disturbance to Mojave desert tortoise habitat would occur. The magnitude of habitat loss from construction of the Project would be greatest for this species under the Proposed Action compared to the other Alternatives due to the amount

of D-3 disturbance and long-term exclusion tortoises from the Buildable Areas. Because Mojave desert tortoises occupy large home ranges, the long-term persistence of extensive, unfragmented habitats is essential for the survival of the species. Connectivity for Mojave desert tortoise is an important concern, and the construction of a large-scale solar Project in an important connectivity corridor, without the opportunity for reoccupying some of the habitat within the facility, constricts the connectivity in this already narrow area. The loss or fragmentation of habitat places the Mojave desert tortoise at increased risk of extirpation.

The effects of habitat destruction and fragmentation may be exacerbated by increasing temperatures, decreasing precipitation, changing frequency of intense storms and related flood events, increased occurrence of wildfires, and persistent drought that have been occurring in the region. Desert tortoises have low and narrow thermal tolerance ranges relative to other desert reptiles (Berry et al. 2021; Zimmerman et al. 1994); therefore, as their environment warms and drought periods increase, their ability to meet their energetic requirements may be reduced as a result of decreased periods of potential activity time for foraging, and lack of forage (Lovich and Ennen 2011).

Additionally, the Project is proposed on the south side of U.S. 95, which has been demonstrated through tortoise surveys to provide the most suitable habitat for tortoises within the important connectivity corridor. Habitat on the north side of U.S. 95 is sparser and surveys have found a much lower tortoise density north of the highway, which means the Project is proposed to be built in one the most important connectivity corridors for tortoises (range-wide) and would occupy some of the best habitat in the corridor for Mojave desert tortoises.

The removal of Priority 1 connectivity habitat would impact east-west landscape connectivity outside of the immediate Project footprint by restricting the amount of habitat that Mojave desert tortoises can use to inhabit the landscape. Mojave desert tortoise are considered corridor dwellers in regard to habitat connectivity and require large blocks of intact habitat to maintain connectivity among populations. Specifically, overlapping home ranges of tortoises are important for connectivity. The removal of 2,412 acres (2,368 acres within the Buildable Areas and 44 acres outside the Buildable Areas) of Priority 1 connectivity habitat (863 acres D-3 permanent disturbance and 1,549 acres D-1 and D-2 temporary disturbance) represents approximately 5.7% of the 42,321 acres of Priority 1 connectivity habitat within the 3-mile Federally Listed Species Analysis Area and constricts the area for overlapping home ranges of tortoises south of the Project. The Proposed Action would create a barrier to Mojave desert tortoise movement, which could reduce the use of at least three adjacent box culverts designed to facilitate tortoise crossing under U.S. 95 (BLM 2024g; Ironwood Consulting 2022). These box culverts are potentially suitable for use by Mojave desert tortoises, and a decline in the box culvert use by Mojave desert tortoises would reduce north-south habitat connectivity on both sides of U.S. 95.

FEIS at 60-64.

7. Solar Project Operation Impacts Will Be Significant To Tortoise Populations

After construction, these solar projects typically exhibit high levels of disturbance, degradation, and fragmentation. BLM in some alternatives is proposing to mitigate the loss of connectivity habitat by allowing tortoises back into the solar field areas during operation of the solar energy facility. This is experimental, with no reports on long-term viability of tortoise populations. BLM discusses their concerns and the impacts of this mitigation option in the Final EIS:

Operation and Maintenance

Impacts to Mojave desert tortoise associated with O&M of the Proposed Action would include potential direct take of Mojave desert tortoise, changes to habitat, reduced connectivity, and increased noise and increased human activity.

Overall, Mojave desert tortoises do not coexist well with human development and disturbances and would be unlikely to persist in the area following construction. Studies have shown that Mojave desert tortoises are essentially absent from habitat within 0.6 mile of areas with greater than 10% development, including urban development, cultivated agriculture, energy development, surface mines and quarries, pipelines and transmission lines, and roads and railroads (Carter et al. 2020). O&M activities along the gen-tie and access roads and within the Buildable Areas would be a continued source of noise and ground-vibration disturbance, resulting in long-term impacts to behavior, and mortality or injury of Mojave desert tortoise from being crushed by Project-related vehicle traffic. Implementation of mitigation measures and BMPs such as reduced speed limits, maintain compliance with noise design elements and WEAP training for personnel would minimize impacts to Mojave desert tortoise during O&M activities (Appendix B measures Air-1, Eco-2, and Eco-3; 2024 Western Solar Plan design features AQC-4, PW-5, ER-1sss, ER-3sss, ER-15sss, and ER-16sss).

The Proposed Action, as described in the Applicant's POD, includes removing Mojave desert tortoise exclusion fencing post-construction to allow for Mojave desert tortoises' passive reoccupation of the Buildable Areas (Appendix B measures Eco-3, Eco-4, and Tortoise-2).

However, the BLM and USFWS have expressed concerns that the Proposed Action's retention of vegetation cover post-construction may not be sufficient to provide suitable habitat to allow for passive reoccupation by Mojave desert tortoise of the Buildable Areas. Under the Proposed Action, the removal of the exclusion fencing for passive reoccupation by the Mojave desert tortoise would not occur.

Passive reoccupation by Mojave desert tortoise of the Buildable Areas would not occur under the Proposed Action, which would result in fewer reasonably foreseeable impacts to individuals within the fenced Buildable Areas during O&M but could result in long-term impacts to movement and connectivity of the species around the fenced Buildable Areas. Additional effects are also expected to occur to Mojave desert tortoise habitat in and around the Buildable Areas from anticipated increases in temperatures resulting from the high level of removal of vegetation from the site under the Proposed Action (Adeh et al. 2019; Barron-Gafford et al. 2019; Devitt et al. 2022; Williams et al. 2023). One study

identified temperatures to be warmer by between 9°F to 14.4°F outside of a solar facility in the Mojave Desert, with the most effects found within 984 feet of the site (Devitt et al. 2022). Temperature increases could affect annual and perennial vegetation within and outside of the solar facility and cause reduced use of the area by Mojave desert tortoises.

Due to the high likelihood for adverse impacts to the species from Project O&M activities and the reduced habitat quantity and quality within the Buildable Areas under the Proposed Action, exclusion of Mojave desert tortoise is the most effective method for minimizing impacts to the species (Appendix B measures Eco-9 and Tortoise-1).

During O&M, there may be a continued risk of colonization by nonnative plant species. It is unlikely that the composition of the vegetation would be the same as the existing vegetation. Noxious and invasive weeds will outcompete native vegetation from reestablishing in the Project Area (Chamber et al. 2013). Invasive annual grasses are not nutritionally beneficial to Mojave desert tortoises and, if eaten as a large percentage of their diets, can lead to negative effects on their health and increased susceptibility to disease or other related problems. In the case of juvenile tortoises, eating invasive annual grasses can lead to mortality (Drake et al. 2016). Continued monitoring and management of nonnative plant species through the Site Restoration Plan and Integrated Weed Management Plan would help to minimize these risks (Appendix B, Eco-2; 2024 Western Solar Plan design feature PW-5 and ER-11g). Once construction has been completed there would be considerably less vibration and noise created during the O&M phase (Appendix B measure Noise-1).

Once completed, the gen-tie could provide habitat for avian predators, particularly common ravens; however, the Proposed Action includes installation of perch deterrents to reduce potential use of the gen-tie by common ravens (Appendix B measures Eco-7 and MM Wild-6; 2024 Western Solar Plan design feature ER-6g). The gen-tie would also be co-located with other transmission lines to reduce the area that transmission lines may impact adjacent habitats.

Project access roads are not anticipated to decrease population connectivity substantially beyond the existing conditions. As discussed in the 2011 Recovery Plan (USFWS 2011a) and elsewhere, habitat linkages are essential to maintaining range-wide genetic variation (Averill-Murray et al. 2021) and the ability to shift distribution in response to environmental stochasticity. Natural and anthropomorphic constrictions (such as development and highways) can limit gene flow and the ability of Mojave desert tortoises to move between larger blocks of suitable habitat and populations (Dutcher 2020). In the Federally Listed Species Analysis Area, existing anthropogenic constrictions compound effects of natural barriers on Mojave desert tortoise population connectivity.

FEIS 3-64-66, emphasis ours.

8. Agencies Are Unsure That Tortoises Can Successfully Re-Occupy the Solar Project Site

BLM seemed to wrestle with the applicant's plan to allow tortoises to passively re-occupy the solar fields in an attempt to maintain connectivity through the area. BLM and USFWS pushed back on this:

As described in the Applicant's POD, if the Project Area reaches vegetation cover thresholds, the Mojave desert tortoise exclusion fencing around the Buildable Areas would be removed. However, the BLM and USFWS have expressed concerns that the Proposed Action's retention of vegetation cover post-construction may not be sufficient to provide suitable habitat to allow for passive reoccupation by Mojave desert tortoise of the Buildable Areas. Under the Proposed Action, the removal of the exclusion fencing for passive reoccupation by the Mojave desert tortoise would not occur. FEIS 3-38

Alternative 2a, the BLM Preferred Alternative, would have the same Project components, construction phase, operation phase, and decommissioning phase as the Proposed Action and would have higher requirements for soil and vegetation retention, with the goal of allowing passive reoccupation of Mojave desert tortoise into the facility based on coordination with BLM and USFWS. Final Environmental Impact Statement at 2-26.

The solar energy project applicant came back with a modified project plan that they claimed would accommodate tortoises living in the solar fields:

Modified Proposed Action, which resulted from the Applicant's revised site plan, would construct solar panel fields within a modified layout of the Buildable Areas totaling 1,766 acres and would allow for heavy disturbance of up to 580 acres (548 acres within Buildable Areas and 32 acres outside Buildable Areas). Outside of graded areas, a 75% (of reference conditions) perennial vegetation cover standard would be required to be met within 10 years of construction completion. If the cover standard is not met within 10 years of construction completion, restoration actions would be implemented. This alternative includes additional features to facilitate Mojave desert tortoise reoccupation of the site and would avoid a tribally identified trail (Section 2.3 and Appendix A, Figure A-4). FEIS ES-5

BLM still pushed back on this modified proposed action because of impacts to tortoise connectivity. BLM developed several mitigation measures above and beyond the applicant's, in order to try to further reduce significant impacts to tortoise habitat and the crucial connectivity corridor here. This is detailed in BLM's Preferred Alternative 2a, which would construct five individually fenced Buildable Areas that would total 1,766 acres.

The BLM's Preferred Alternative 2a would be similar except for some modifications, including a higher vegetation standard during operation before BLM would agree to allowing tortoises to re-occupy habitat in the constructed solar fields. Under Alternative 2a, a total of 1,814 acres (1,766 acres within the Buildable Areas and 48 acres outside the Buildable Areas) of Mojave desert tortoise habitat would be disturbed. Under Alternative 2a, approximately 326 acres be subject to

heavy surface disturbance through grading, soil removal, and loss of vegetation (D-3 disturbance category) “resulting in a long-term adverse impact to Mojave desert tortoise connectivity habitat,” according the FEIS at 3-79. Another approximately 1,488 acres would be subject to surface disturbance from overland travel (D-1 disturbance category) and drive and crush activities (D-2 disturbance category). BLM states that “areas subject to D-1 and D-2 disturbances would be temporarily impacted until vegetation regenerates; thereby supporting the goal of maintaining 75% of reference perennial vegetation cover within the Buildable Areas.” *Id.*

Stormwater control grading would be permanently fenced off from tortoise entry. Alternative 2a has an increased risk of vehicle mortality for Mojave desert tortoises compared to the Proposed Action, Alternative 1, and Alternative 2, because it has three additional collector access roads.

9. Ecological Integrity of Tortoise Habitat Will be Too Disrupted To Maintain Viability of the Population

In trying to recover as much tortoise habitat as possibly after an industrial construction lasting typically two years, BLM raised the requirement for vegetation in Alternative 2a before considering whether tortoises could be allowed to re-occupy the solar fields:

Vegetation Standards: The Applicant would maintain 75% of reference conditions for perennial vegetation cover within the Buildable Areas. These vegetation cover standards would not apply to facilities outside of the array areas such as the BESS, O&M building, substation, and exterior roads.

If the vegetation cover threshold is not met within two years of construction (or a longer period as determined by the BLM Authorized Officer, in coordination with the USFWS, in the case of drought), restoration actions would be implemented to reach the 75% of reference sites perennial vegetation cover pursuant to an agency-approved Site Restoration Plan.

If restoration is required to meet the cover standards, actions in the Site Restoration Plan would be designed with the goal of reaching the cover standard within three to five years of the end of the initial two-year natural recovery period. The goal would be for the site to have reached the 75% of reference sites conditions within a maximum of seven years from construction completion.

The compliance metrics described in Table 2-9 and Table 2-10 under Alternative 1 would still apply to Alternative 2a, with modifications made for the grading percentages. FEIS at 2-27.

Vegetation is given two years of recovery time in a 50-year Right-of-Way. This is highly experimental and untested. Long-term impacts to tortoise habitat vegetation will degrade ecological integrity:

Long-Term Effects: Changes in the characteristics or quality of habitat and habitat loss from the operation of the solar facility and associated components. FEIS at 2-35, emphasis ours.

And for Earth Resources and soils:

Long-Term Effects: Permanent ground disturbance causes erosion, compaction, vegetation loss, adversely impact sensitive soils, and soil productivity would be permanently lost. Effects from trimming and maintenance of remaining vegetation. *Id.*

How do we know that this will ensure tortoises have adequate habitat to maintain sufficient populations to maintain interconnected networks across the landscape, as is one of the most critical recovery criteria?

Biological Soil Crusts, or biocrusts, provide soil cohesion, water retention, and stability to tortoise habitat. We found extensive biocrusts in our field surveys, and believe the percentage of the project area with biocrusts is greater than 2%. BLM states:

Biotic soils have been documented in the Project Area, composing up to 103 acres or 2% of the area surveyed during baseline rare plant surveys (Heritage 2024).

Research shows there are three soil types with the greatest potential to support biocrusts: gypsiferous soils, noncalcareous sandy soils, and limestone-derived soils (Bowker and Belnap 2008). Soils in the Project Area are primarily derived from limestone and dolomite (NRCS 2006, 2015). Gypsum-containing soils have been documented in the Project Area, but few data on the surface expression of gypsum and its relation to biotic soils are available. Biotic soils are susceptible to effects related to surface-disturbing activities. FEIS 3-87

Desert pavements for part of tortoise habitat and are easily degraded by drive-and-crush construction methods and vehicle traffic. BLM states:

Desert pavements are a matrix of rock fragments that form smooth, pavement-like surfaces and provide a protective soil covering that reduces underlying sediments from being removed by erosion (Wood et al. 2005). Desert pavement makes up approximately 44% of the area surveyed (Heritage 2024). Desert pavements are susceptible to effects related to surface-disturbing activities. *Id.*

Caliche layers provide excellent areas features for tortoise burrows, as tortoises burrow under hard caliche layers cut through in dry washes. As burrowing reptiles, desert tortoises depend on good soil resources for survival. BLM says:

Layers of moderately hard to very hard, moderately to strongly cemented soils (petrocalcic soils or also known as caliche) were encountered in previous subsurface explorations in the Project Area and are common in southern Nevada (Ninyo & Moore

Geotechnical & Environmental Sciences Consultants 2022). Petrocalcic soils are naturally occurring cemented soils with rock-like characteristics (Reeves 1976). Id.

BLM says that solar project construction would degrade soil habitat:

Soil Resources

Construction

Effects of the Proposed Action on soil resources would occur primarily due to ground-disturbing activities, such as grading, excavation, and soil compaction activities. The four defined disturbance levels (D-0, D-1, D-2, D-3) are described in Table 2-1 and are summarized in Table 3-29 below as they relate to the impact levels to soil resources. Short-term, long-term, and permanent reasonably foreseeable impacts to soil resources are anticipated on approximately 2,412 acres (2,368 acres within the Buildable Areas and 44 acres outside the Buildable Areas) vegetation or 17% of the Geological Hazards and Mineral Resources Analysis Area which fall under D-1, D-2, and D-3 disturbance levels.

Permanent impacts to vegetation from construction activities are anticipated where clear and cut with soil removal construction methods (D-3) would be required. Under the Proposed Action, this disturbance level would not exceed 863 acres throughout the Project Area (829 acres or 35% of the Buildable Areas and 34 acres outside of Buildable Areas). Surface-disturbing activities, particularly D-3 surface disturbance, could result in changes to soil quality and characteristics, loss of biotic soils, loss of desert pavement, loss of soil productivity, and increase in erosion potential during wind and precipitation events. Vegetation clearing, topsoil clearing, and grading could result in newly exposed disturbed soils within the Buildable Areas that could be subject to increased erosion by water and wind. Potential physical effects of soil compaction may include reduced permeability and porosity and increased potential erosion. The Proposed Action would result in the largest adverse impacts to soils when compared to the other Action Alternatives.

Soil erosion in areas of ground disturbance would also have a greater potential until the soil is stabilized by successful revegetation efforts, such as reseeding or planting. Disturbed soils not successfully reclaimed or stabilized are likely to lose productivity and sustain vegetation. Over time, this would reduce watershed health and contribute to sedimentation in surface water or degradation of local air quality. The effects of erosion would be lessened by APMs (Appendix B), and Geo-1 would minimize ground disturbance and construction time frames, preventing channel erosion and controlling water runoff. The adoption of APM Air-2 would have a dedicated dust monitor on-site to enforce erosion control measures as well as the Dust Control Plan. Throughout construction APMs Geo-1 and WR- 2 would implement design elements to minimize erosion, including installing sediment controls. These measures would ensure the Project complies with Section 404 of the Clean Water Act. Additionally, applicable design

features in the 2024 Western Solar Plan (BLM 2024a) would also be implemented. Appendix B lists the 2024 Western Solar Plan design features that are most relevant to the Project and earth resources, which include avoiding ground disturbance in areas with intact biological soil crust and desert pavements; leaving vegetation root systems intact (GS-3); constructing facilities to minimize water runoff (WR-3ro, WR-8ro); maintaining a minimum of 75% native perennial vegetation cover as compared with an adjacent reference site (ER-11g); and responding to impacts to soil resources during construction, O&M, and decommissioning (PW-17).

Soil contamination could result from accidental material or fuel spills during construction activities. If spills occur, contamination could result in the removal and disposal of large amounts of soil. Saturated contaminated soils have the potential to disperse to groundwater or surface water. APM Haz-1 (Appendix B) would help reduce the risk of a spill or release of hazardous materials within the site by developing a Hazardous Materials and Waste Management Plan. This measure would reduce the potential of soil contamination and help meet state and federal requirements. FEIS 3-88-90.

And,

Construction

Under Alternative 2a, approximately 326 acres (294 acres within Buildable Areas and 32 acres outside of Buildable Areas) would be subject to heavy surface disturbance through grading, soil removal, and loss of vegetation (D-3 disturbance category) (Table 3-33), resulting in a long-term adverse impact to soil. D-3 disturbance acreage would adversely impact sensitive soils, and soil productivity would be permanently lost. Alternative 2a would result in the least adverse impacts to soils when compared to all other Action Alternatives.

Another approximately 1,488 acres would be subject to minimal to moderate surface disturbance from overland travel (D-1) and drive and crush activities (D-2) (Table 3-33). Areas subject to D-1 and D-2 disturbances would be temporarily impacted until vegetation regenerates; thereby supporting the goal of maintaining 75% of reference perennial vegetation cover within the Buildable Areas. With the application of less intensive and disruptive construction methods, soil compaction would be reduced, and on-site vegetation would have a higher likelihood to survive and regrow after construction and during operations. Erosion and sedimentation would be reduced due to retention of vegetation in these areas. FEIS at 3-95.

Restoration of biocrusts, desert pavements, and burrowing substrates can take decades or centuries in arid desert habitats.

Healthy soils, which are integral to functioning tortoise habitat, would be severely impacted:

3.14.4 Earth Resources

Surface-disturbing activities associated with blading, grading, vegetation removal, and soil compaction would result in the permanent loss of soil health, soil productivity, and sensitive soils. Soil compaction could decrease water infiltration and runoff, leading to a redistribution of soil moisture and vegetation productivity response within the immediate landscape. Biotic soils cannot be salvaged, so the Project would result in a long-term loss of these sensitive soils. FEIS 3-211-212

Mitigation measures show that ground disturbance will result in erosion, and measures to halt erosion and minimize soil degradation are not enough to keep this large block of undisturbed tortoise habitat from becoming degraded:

HYD-3: Silt fences would be installed after topsoil removal and before construction leveling begins and must remain in place until interim reclamation is complete and there is adequate vegetation present to stabilize the soil. Silt fences would be constructed in locations where surface erosion is evident or potential for surface erosion exists, such as areas of steep slopes or highly erosive soils. Fences would be installed at the inside edge of disturbance. Appendix B-7.

The entire area is a large alluvial fan subject to flash-flooding and rain runoff from the adjacent Spring Mountains. Numerous. Braided, dry washes cross the fan, and these are important microhabitats for tortoise burrowing into caliche-layered banks. Solar project construction will degrade and destroy many of these microhabitats, even with mitigation to try to avoid the numerous ephemeral washes:

Hyd-7: Avoid, when possible, construction and/or reclamation that would block or change the natural course of any drainage, nor would topsoil, waste, or fill material be deposited below high-water lines in riparian areas, floodplains, or in natural drainage ways unless an appropriate permit is acquired. The lower edge of soil or other material stockpiles would be located outside active floodplains. All spoils would be placed where they can be retrieved without creating additional surface disturbance and where they do not impede and/or contribute sediment to watershed and drainage flows.

Biocrusts are admitted to be sensitive parts of tortoise habitat and significant stands cannot be all avoided in our experience, as construction trucks, water trucks, heavy machinery, drive across the site.

BC-1: Avoidance: Due to their low rate of formation, biocrusts are extremely vulnerable to environmental disturbances and anthropogenic impacts. Natural recovery of biocrusts may be hindered by inadequate supply of spores and water. To the extent feasible, significant stands of biocrust would be avoided by design and/or by vehicles and equipment throughout the life of the Project. Appendix B-8.

BLM allows flood-control structures to be built on the former tortoise habitat in the solar project site, and rock riprap has been known to entrap tortoises, resulting in mortality. This is yet another habitat modification that can potentially result in Take of tortoises:

Wild-1: Gravel and/or riprap, where Mojave desert tortoises and other wildlife may be present, must have prior approval from BLM and be small enough that a juvenile Mojave desert tortoise and other wildlife can move through it without becoming stuck. All areas in which riprap is utilized must either be access prohibitive to Mojave desert tortoise or backfilled with pea gravel to eliminate large pore spaces that may trap, injure, or kill individuals of the species. *Id.*

BLM needs to designate this area now as an ACEC in order to preserve function as a tortoise linkage corridor, as recommended in the Recovery Plan and mandated by FLPMA.

10. Temporary Mitigation of a Solar Energy Development Will Be Unsuccessful In Maintaining Tortoise Connectivity Function Due to Significant Impacts

Vegetation surveys were undertaken due to the importance of vegetation as a factor for possible Mojave desert tortoise passive reoccupation of the Project Area as well as in maintaining habitat connectivity for this species. Average density of cacti and Mojave yuccas was approximately 63 per acre. Extrapolated totals for the Application Area's 5,133 acres yield an estimate of 169,445 cacti and yuccas across the Application Area. FEIS 3-7

BLM detailed mitigation measures that would supposedly keep tortoise habitat more intact and lessen tortoise mortality. But these are admitted to be experimental.

MM Wild-9: Potential Mojave Desert Tortoise Passive Reoccupation

Vegetation Management

Vegetation monitoring would be conducted, at a minimum, annually for every year of both the natural and active recovery time period, as those time periods are defined by the ROD. Vegetation monitoring may conclude earlier than the timeframe determined by the ROD if BLM and USFWS determine that the Project has met the 15% or 75% perennial vegetation goal. If the Project has not met the vegetation goals by the end of the natural or active recovery period, monitoring will continue until the goal is met. Reoccupation of Mojave desert tortoise is dependent on the alternative selected in the ROD and would not be considered until vegetation standards in the ROD have been met as determined by the USFWS and BLM. This would require adaptive management over time, as Mojave desert tortoise reoccupation of solar facilities is currently entirely experimental.

The Applicant would limit grading to the maximum extent possible within the Project Area. Grading would be limited to the minimum size necessary for the substation, roads, operations building, etc.

The Applicant would immediately begin restoring disturbed areas once use of those areas is complete. Applicant would restore these areas to BLM's standards as described in the Site Restoration Plan.

The Applicant would use appropriate reference sites and spatial recognition programs, in coordination with BLM, to adequately determine cover standards in the Buildable Areas postconstruction.

The Applicant would control non-native vegetation species within the Project Area before the non-native vegetation has gone to seed.

Mojave Desert Tortoise Safety

The Applicant would minimize Project roads and would have road widths no wider than 20 feet.

The Applicant would install Mojave desert tortoise fencing in line with security fencing to minimize disturbance and would install BLM-approved wildlife escape openings above the Mojave desert tortoise fencing to facilitate wildlife escape during construction.

The Applicant would install security fencing 10 inches above the ground, with bend-and-pin Mojave desert tortoise fencing installed along the bottom of the security fence. Once construction is complete, in coordination with BLM and USFWS, the Mojave desert tortoise fencing may be considered for removal to allow Mojave desert tortoise reoccupation if appropriate vegetation metrics have been met.

The Applicant would only use riprap with coordination with BLM, and riprap size must be small enough that a juvenile Mojave desert tortoise can move through without becoming entrapped.

All areas in which riprap is utilized must either be access prohibitive to Mojave desert tortoise or backfilled with pea gravel to eliminate large pore spaces that may trap, injure, or kill individuals of the species.

The Applicant would have a maximum speed limit of 25 mph anywhere within the site to improve the likelihood of noticing a Mojave desert tortoise on the road.

The Applicant would geospatially demarcate and flag cleared Mojave desert tortoise burrows for avoidance within the site during construction for reoccupation after construction. The Applicant would provide geospatial locations of cleared burrows to the BLM and USFWS. The Applicant would ensure there are a minimum number of burrows available per area, in coordination with BLM and USFWS, which may include building additional replacement burrows after construction is completed.

The Applicant would avoid, to the extent possible, filling or channeling desert ephemeral drainages. Ephemeral drainages are important for Mojave desert tortoise connectivity

across the landscape and would be maintained in their natural condition to improve Mojave desert tortoise use of the Project Area.

Any areas of D-3 used for spot grading would salvage topsoil, which would be distributed back across the soil surface after the area is graded but before solar components are installed. These areas are considered temporary disturbance and would be subject to restoration and restoration timeframes as described in the Site Restoration Plan.

Should a Mojave desert tortoise enter the area of activity, all activity shall cease until such time the animal leaves the area of its own accord.

All drivers must check underneath vehicles and equipment before moving to ensure no Mojave desert tortoise has taken cover underneath parked vehicles. Appendix B-12-13, emphasis ours.

Tortoises dig and use many burrows, not just one, for winter brumation, thermoregulation, shelter from summer heat, and nesting. Disruption of burrow networks, heavy machinery use nearby, and potential collapse of burrows during construction activities pose a serious threat to tortoise survival here.

11. Tortoise Translocation Is a Mitigation Measure That Can Have Many Failure Points

Another mitigation measure seems to contradict the mandate to preserve some burrows to allow tortoises less stress when re-occupying the solar fields. During translocation activities just prior to breaking ground for construction, usually all burrows are excavated by authorized biologists, and all tortoise adults are moved to a recipient site off the project site. Yet no clear plan for which burrows will be preserved and which will be excavated is given. Will individual tortoise home ranges and burrow complexes be mapped? What minimum number of burrows will be preserved so that tortoise fitness is preserved and stress reduced? How will population-level reproductive success and viability be monitored to see how the removal of so many burrows impacts this population and connectivity?

Mitigation Measure RPM-1g, which seems to apply to the whole project, not just gravel pits, represents the older and standard procedure for translocation:

Mojave desert tortoise clearance — Prior to surface-disturbing activities, ADTBs, potentially assisted by Mojave desert tortoise monitors, would conduct a clearance survey to locate and remove all Mojave desert tortoises from harm's way, including areas to be disturbed, using techniques that provide full coverage of all areas (USFWS 2009). During the more-active season, clearance surveys would be conducted either the day prior to, or the day of, any surface-disturbing activity. If exclusionary fencing has not been installed to prevent Mojave desert tortoises from re-entering the surveyed area that would be disturbed, clearance surveys would occur the day of, and immediately before ground disturbance. During the less-active season, clearance surveys would be conducted within

seven days prior to any surface-disturbing activity. No surface-disturbing activities would begin until two consecutive surveys yield no individuals.

A Mojave desert tortoise authorized biologist would excavate all burrows that have characteristics of potentially containing Mojave desert tortoises in the area to be disturbed with the goal of locating and removing all Mojave desert tortoises and Mojave desert tortoise eggs. During clearance surveys, all handling of Mojave desert tortoises and their eggs and excavation of burrows would be conducted solely by an ADTB in accordance with the most current USFWS-approved guidance (USFWS 2009). If any Mojave desert tortoise active nests are encountered, the USFWS must be contacted immediately, prior to removal of any Mojave desert tortoises or eggs from those burrows, to determine the most appropriate course of action. Unoccupied burrows would be collapsed or blocked to prevent Mojave desert tortoise entry. Outside of construction work areas, all potential Mojave desert tortoise burrows and pallets within 50 feet of the edge of the construction work area would be flagged. If the burrow is occupied by a Mojave desert tortoise during the less-active season, the Mojave desert tortoise would be temporarily penned (see Term and Condition 1.j.). No stakes or flagging would be placed on the berm or in the opening of a Mojave desert tortoise burrow. Mojave desert tortoise burrows would not be marked in a manner that facilitates poaching. Avoidance flagging would be designed to be easily distinguished from access route or other flagging and would be designed in consultation with experienced construction personnel and authorized biologists. All flagging would be removed following construction activities.

An ADTB would inspect areas to be backfilled and areas where excavation spoil piles would be created immediately prior for Mojave desert tortoise activity. Appendix B-27.

The Biological Opinion, however, states a different translocation standard, modifying burrow excavation to try an experimental new approach to leave burrows intact within the construction site after extracting tortoises from within their burrows. We still do not know the impacts to population viability, tortoise stress, burrow damage, and habitat restoration time from this kind of experimental mitigation:

Mojave desert tortoise: Passive Reoccupation

Tortoise Burrows. Tortoise burrows will be flagged, marked geospatially, and reported to the BLM prior to LNTP. Tortoise burrows will be avoided if at all possible. The entity responsible for translocation will be responsible for surveying burrow sites after construction. If the burrow has been impacted, this will be identified in the attribute table for that data point. A minimum of one new burrow within a 6-foot diameter of the original burrow location will be reconstructed to provide similar habitat and shelter for tortoises if they reenter the site. The USFWS and the BLM will provide BMPs for burrow creation. Adaptive management will be used to determine if other actions are necessary to improve habitat within the panel array blocks for tortoise reoccupation. Appendix B-50.

The Final Environmental Impact Statement for the Copper Rays Solar Project in Pahrump Valley, Nevada, on the other side of the Spring Mountains details translocation impacts well. BLM admits that translocation is risky, and that tortoise mortality and lowered fitness are likely, based on previous experience with the unsuccessful Yellow Pine Solar Project tortoise translocation, where badgers predated 33 tortoises.

BLM explains how translocation results in health stress impacts and mortality on tortoises:

Capturing, handling, and relocating desert tortoises out of the Project site could also result in stress, injury, or death (Hinderle et al. 2015; Averill-Murray 2002). While translocation away from the Project site would reduce effects to the desert tortoise from construction activities, there would likely still be injury or mortality to a percentage of those translocated. For example, the Stump Springs Regional Augmentation Site, the proposed recipient site for desert tortoises translocated from the Project area, has been used recently for the development of the adjacent Yellow Pine Solar Project (#3), and tortoises experienced a high mortality rate following release (County of Clark et al. 2022). This was primarily from predation at the augmentation site. Translocated tortoises often expend more energy exploring and attempting to return to their home ranges, which can lead to several other effects such as increased mortality due to exposure or vehicle collision, lower fitness to environment, and increased mortality and stress due to interactions with resident tortoises in the translocation area. There could also be an increase in mortality and stress to tortoises currently living in the translocation area caused by the introduction of new tortoise individuals since they too could be affected by the stress from interactions with foreign tortoises and competition for resources. Translocation can adversely affect individuals from harassment and stress or injury during handling.

Copper Rays Solar Project FEIS at 3.4-7.

Specifically, about 30 adult translocated tortoises were predated by American badgers (*Taxidea taxus*) in the Stump Springs recipient site after being moved in spring 2021 from the Yellow Pine Solar Project site.¹ Drought conditions apparently exacerbated predation mortality.

Translocation mortality is a recurring problem, yet BLM intended to use vague “adaptive management” in order to reduce mortality, instead of avoiding high-quality habitat.

The BLM and USFWS are working to implement adaptive measures to determine predator presence, habitat quality, and other factors in response to mortalities that have occurred at the translocation site. *Id.*

BLM admits translocation has not been successful. A 30-year study will be initiated to study the impacts of translocation from Copper Rays to the Stump Springs Augmentation Site in Pahrump Valley, NV, comparing such methods as spring translocations versus fall translocations.

¹ <https://knpr.org/show/knprs-state-of-nevada/2021-07-21/from-solar-fields-to-badgers-desert-tortoises-face-many-risks>

Data from the overall success of translocation and survivability post translocation will be analyzed based upon the seasonality of translocations occurring in the spring and those occurring in the fall. This data may serve to increase the total success and survivability for desert tortoise in future translocation efforts. Copper Rays Solar Project FEIS 3.4-8

12. Experimental Mitigation Measures to Maintain Ecological Integrity of Tortoise Habitat in the Connectivity Corridor Area Likely to be Unsuccessful

The Biological Opinion for the Bonanza Solar Project further discusses experimental mitigation measures that seem designed to force a solar project construction on top of intact tortoise habitat. What does “no less than 2% of reference conditions” mean in the below paragraph? If this refers to 2% disturbance, we see now way that a utility-scale solar project construction using numerous truck traffic and heavy machinery will keep surface and vegetation disturbance under 2%. This needs better definition.

Habitat Restoration Criteria for Tortoise Reoccupation. The BLM and the USFWS’s current best management practice for allowing tortoises to reoccupy solar facilities is a minimum of 15% native perennial cover or a minimum of 75% native perennial cover compared to reference sites, whichever is greater, or a cover that is no less than 2% of reference site conditions. The BLM and the USFWS continue to try to refine these recommendations, and further research is required to determine best practices. Additional abiotic factors may influence the decision to allow tortoises to reenter the site, including temperature and microsite conditions. For this reason, it is imperative that a third-party research group is present on-site to monitor not only vegetation recovery, but also these abiotic factors (see MM 52). At the time at which the Project has shown that it has met its responsibility to meet the 15% or 75% native perennial cover vegetation standard, the BLM and the USFWS will meet to determine and document if site conditions appear to be sufficient to allow tortoises to passively reoccupy the site. If not, additional time may be needed for the site to recover to a condition more closely matching natural conditions. At that point, the BLM will provide the Applicant written notice to remove the desert tortoise fence. Appendix B-49.

What if the vegetation does not ever meet these recovery standards for the 50-year lifetime of the solar project? Then this tortoise connectivity habitat could be lost and the area permanently degraded for tortoises. This mitigation could be a complete loss.

Invasive weeds, which can represent poor-quality tortoise food, are not common here, as we found as well during our own field surveys.

This experimental plan may fail to mitigate and minimize vegetation disturbance and tortoise habitat intactness during and after construction, so BLM has built in a series of post-construction mitigation measures to try to try to speed up perennial vegetation standards required by tortoises for survival. Droughts are regular and cyclical in the Mojave Desert, and vegetative growth is

often very slow. A much better plan would be to avoid all of this, and designate the area as an ACEC.

Vegetation disturbance would be minimized to the maximum extent possible.

If, during annual monitoring during the natural recovery period, it becomes clear that the Project has not maintained sufficient perennial vegetation on-site to meet the perennial vegetation cover standard identified for the Project, the Authorized Officer may require active restoration to begin sooner than the end of the natural recovery period.

If there is a documented drought during the natural recovery period, the BLM Authorized Officer, in coordination with the USFWS, would evaluate extending the natural recovery period under certain circumstances, and when extending the natural recovery period is of benefit to the natural resources. However, enough vegetation must be maintained on the site such that it can recover naturally. If the site will clearly have no chance of recovery during the natural recovery period (for example, only 10% of reference site perennial vegetation cover maintained), the BLM will not extend the recovery period and may require supplemental restoration during the natural recovery period.

If the success standards are not met at the end of the natural recovery period, supplemental and targeted remedial activities will be described in the Restoration Plan to meet the perennial vegetation standard within a period of time as described in the selected alternative for active restoration.

Surveys for special status plants, cacti and yucca, biocrust, and desert pavement would be conducted during the biologically appropriate time of year in any areas that were not previously surveyed prior to disturbance (e.g., driveway, temporary gen-tie work area outside of the gen-tie line corridor) to determine presence and appropriate salvage or avoidance measures. In addition to these areas, all areas within 100 feet of previously mapped suitable habitat for Pahrump Valley buckwheat would be surveyed during appropriate climatic conditions and blooming periods to verify boundaries of suitable and occupied habitat and develop additional protective measures as needed. Appendix B-15-16, emphasis ours.

Interim and/or final restoration of temporary work areas would be conducted as soon as possible after activities requiring these areas are completed in order to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats. More details regarding pre-disturbance surveys, revegetation, soil stabilization, and erosion-reduction measures to ensure temporary use areas are restored would be included in the Site Restoration Plan.

At any point prior to construction of the Project, but after the NTP is issued, the Applicant would collect native seeds from within the Project Area if seeds are present. Collection of seed prior to construction is required when seed is present in order to use

native plant material from the site for local restoration efforts within the site. Contractor, if used, would obtain all appropriate permits from BLM prior to seed collecting. This would generally be best timed in a similar time period to installation of Mojave desert tortoise fencing/clearance of Mojave desert tortoise from the site.

This plant recovery will be slowed and hindered because BLM will allow the solar project to regularly trim perennial vegetation to a short height so that it does not interfere with operation of the energy facility:

MM Veg-4

Timing of Vegetation Maintenance

Vegetation maintenance would be coordinated with the BLM to ensure vegetation maintenance is performed, to the extent possible, when plants are dormant (generally November through January), outside of the blooming period, until plants have completed their reproductive process and have gone to seed. This includes trimming or other vegetation maintenance that would remove or damage plants and their parts. Appendix B-17.

The Biological Opinion clarifies that hand-trimming should be to 24 inches. Appendix B-51.

BLM claims that any tall cacti and Mojave yucca that cannot be avoided “and in graded temporary disturbance areas must be salvaged by a BLM-approved contractor, stored appropriately during construction, and then planted back into the disturbed area in natural patterns and densities after construction.” Appendix at B-18. There needs to be a minimum 80% survival standard, according to BLM mitigation measures. This is notoriously difficult to do without a lot of trucked in water for an extended time. We have watched such salvaged yuccas and cacti die in large numbers on other solar project sites after construction. There may be over 100,000 cacti and yuccas on buildable areas, calculated using BLM’s density numbers from applicant surveys. This is a rich, dense succulent area, therefore worthy of conservation in an ACEC.



^Bonanza Solar Project site, Indian Springs Valley, NV: Mojave yucca, silver cholla, and hedgehog cholla on the proposed solar project site. Would 50,000 of these be avoided and the other 50,000 replanted and watered for years until they recover? We doubt this will happen. Photo: Laura Cunningham.



^Mojave yuccas blooming on the site of the proposed Bonanza Solar Project. These can be 150 years old or older at maturity. How will so many be avoided in order to build the solar project? These will not return in two years. Photo: Kevin Emmerich.



^Drive-and-Crush construction methods (D-2) at Yellow Pine Solar Project, Pahrump Valley, NV. Mojave yuccas have been crushed and destroyed in many rows in the solar field. The Spring Mountains are in the distance. Photo: Laura Cunningham.

BLM states:

The nonnative, invasive common Mediterranean grass (*Schismus barbatus*), red brome (*Bromus rubens*), redstem stork's bill (*Erodium cicutarium*), and prickly Russian thistle (*Salsola tragus*) were ubiquitous in very low densities throughout the IVR survey area. FEIS at 3-8

Yet the construction and solar project operation activities will disturb ground, break soil crusts, and likely lead to the increase in invasive weeds on the site. This will lower the intactness and quality of tortoise habitat.

The Yellow Pine Solar Project in Pahrump Valley, NV, had a recent invasive weed outbreak and project operators sprayed herbicides on a significant part of the project site on 2024.

BLM says that the Proposed Action will have significant impacts to tortoise habitat:

Native Vegetation Communities

Construction

Construction of the Proposed Action would result in reasonably foreseeable impacts to vegetation communities through the removal and/or crushing of vegetation, and the removal and/or compactions of soils from the construction of the solar array fields, gentle, and new access roads. The Sonora-Mojave Creosotebush-White Bursage Desert

Scrub vegetation community would be the most impacted vegetation community, making up 98% of the Project Area. The Mojave Mid-Elevation Mixed Desert Scrub makes up 1.5% of the Project Area. The Inter-Mountain Basins Semi-Desert Shrub Steppe and Sonora-Mojave Mixed Salt Desert Scrub vegetation communities make up less than 1% of the Project Area. FEIS 3-8

Effects from construction would vary based on the type of site preparation methods and construction techniques used. Construction impacts to vegetation communities would occur from clearing and cutting or grading and leveling, soil removal, trenching and excavation, overland travel with machinery and vehicles, and trimming of vegetation. The four defined disturbance levels (D-0, D-1, D-2, D-3) are described in Section 2.1 and summarized below (Table 3-4) as they relate to the impact levels to vegetation. Short-term, long-term, and permanent effects are anticipated for the approximately 2,412 acres (2,368 acres within the Buildable Areas and 44 acres outside the Buildable Areas) of vegetation or 3% of the Vegetation Analysis Area which fall under the D-1, D-2, and D-3 disturbance levels.

Permanent impacts to vegetation from construction activities are anticipated where clear and cut with soil removal construction methods (D-3) would be required. Under the Proposed Action, this disturbance level may be up to 863 acres of the Application Area, or up to 829 acres or 35% of the Buildable Areas (solar arrays and other Project facilities). Effects from D-3 disturbances would result in the removal of vegetation, roots, and soils; loss of the seedbank; reduced biodiversity; and high levels of soil compaction. Areas of soil disturbance are more susceptible to invasive species infestations. Future restoration of these areas would be substantially more difficult due to the abovementioned effects, and reclamation of these areas may take 100 years or more after decommissioning occurs (Abella 2010; Grodsky and Hernandez 2020; Webb 2002).

Temporary long-term impacts to vegetation from construction activities are anticipated where drive and crush (D-2) disturbance would be required on 442 acres under the Proposed Action. Effects from D-2 disturbances would trim some vegetation, crush vegetation and retain roots, and leave soils and seedbanks in place. The level of impact to vegetation from crushing and soil compaction may vary depending on the type of vehicles used and the number of vehicle passes that occur; if the level of impact to vegetation is severe enough, this level of disturbance may raise to the level of permanent impacts to vegetation. D-2 disturbances have an increased potential for the native vegetation to recover post-construction due to the roots remaining intact and the retention of the seedbank. Increased levels of disturbance to perennial plants from repeated drive and crush further reduces their likelihood to resprout. Annual plant species may be able to germinate in this disturbance level.

Temporary, short-term impacts to vegetation would occur where overland travel (D-1) access would be required on 1,107 acres under the Proposed Action, and the number of vehicle passes would be limited, resulting in less damage to vegetation and less soil compaction. These areas are the most likely to recover naturally after construction, and they provide ecosystem benefits such as reduced runoff, reduced dust, and lowered

temperatures through vegetation retention (Adeh et al. 2019; Barron-Gafford et al. 2019; Devitt et al. 2022; Williams et al. 2023).

The Proposed Action would result in long-term impacts to vegetation within the entire 5,133-acre Application Area as well as the adjacent habitat. The Proposed Action has the largest amount of proposed D-3 disturbance (up to 35% of the Buildable Areas). The greater the impacts to soils and vegetation within the Project Area, the greater the effects would be to adjacent and undisturbed habitats.

Effects outside the disturbance area would primarily be associated with the introduction and increased presence of noxious and nonnative invasive species; dust generated from construction, O&M, and decommissioning; and dust generated from exposed soils that would accumulate on plants, reduce photosynthesis, and hinder plants' growth and reproduction.

Cactus and yucca plants would be removed from areas of D-2 and D-3 disturbance and would be unlikely to recover in D-3 areas given the high degree of disturbance. These species are long lived and provide important structure for wildlife habitat in the desert, and their long-term removal from the 863 acres (D-3 disturbance category) of the Application Area would likely be a permanent loss.

Dust created from equipment and vehicle use on disturbed soils would accumulate on plants, which would reduce photosynthesis and subsequently hinder plant growth and reproduction and may reduce a plant's ability to compete with nonnative invasive plant species. The effects of dust on plants along roadways are compounded because vehicles are common vectors for the spread of invasive plant species. Herbicides have the potential to drift off-site and impact adjacent plant communities or suppress restoration efforts after Project completion.

Additional effects are also expected to occur on vegetation in and around the Project Area from anticipated increases in temperatures resulting from the high level of removal of vegetation from the site under the Proposed Action (Adeh et al. 2019; Barron-Gafford et al. 2019; Devitt et al. 2022; Williams et al. 2023). One study identified temperatures to be warmer by between 9 to 14.4 degrees Fahrenheit (°F) outside of a solar facility in the Mojave Desert, with the most effects found within 984 feet of the site (Devitt et al. 2022). Temperature increases could affect annual and perennial vegetation within and outside of the Project Area. FEIS 3-9-11.

BLM references the heat island effect created by the industrial solar field. As we stated in prior comments, this could alter sex ratios in tortoise eggs in or around the solar project (Western Watersheds Project and Basin and Range Watch 2024.).

BLM goes on:

Implementation of Project design features and APMs Eco-2 (which includes developing a Grading Plan to delineate areas to be cleared of vegetation), Eco-5, Rec-1, Air-1, and Air-

2 (Appendix B) would reduce short-term and long-term effects from the Proposed Action; however, effects would not be eliminated and would remain high anywhere there is soil disturbance. Short-term and long-term effects would be further reduced through the implementation of mitigation measures from the following required plans: Dust Abatement Plan, Site Restoration Plan, Integrated Weed Management Plan, Worker Environmental Awareness Plan (WEAP), Grading Plan, and Access Management Plan. Applicable design features in the 2024 Western Solar Plan (BLM 2024a) would also be implemented. Appendix B lists the 2024 Western Solar Plan design features that are most relevant to the Project and vegetation communities, which include Worker Environmental Awareness Training (WEAT) (including the identification of federal and state recognized noxious weeds and invasive species [PW-5]); ensuring that perennial vegetation is maintained to support the ecological function of the affected areas and maintain a minimum of 75% native perennial vegetation cover as compared with an adjacent reference site (ER-11g); and leaving vegetation root systems in place (GS-3). FEIS 3-11.

Because desert tortoises have home ranges and site fidelity to burrows, foraging areas, water sources, and thermoregulation sites, translocation of tortoises off the solar project site to make way for construction often results in tortoises trying to walk back to their known home ranges. In past years on solar projects, tortoises would hit the perimeter exclusion fence and would pace back and forth trying to get in. This resulted in mortality events from over-heating and predation. In order to lessen these impacts, small artificial shade structures have lately been placed on the outside of the perimeter fence to give tortoises a chance of finding shelter. This, however, highlights the disruption and harassment tortoises undergo during translocation.

Shade structures (polyvinyl chloride [PVC] or equivalent half pipe) would be placed every approximately 1,000 feet along all fence perimeters to provide shade for any Mojave desert tortoises pacing/walking along the fence. The shelters would be designed and installed to provide shelter for both small and large Mojave desert tortoises. Shelters would be made from either PVC tubes or similar material with a diameter of 12–15 inches or greater. Tubes should be cut into 6-foot lengths and cut horizontally. Each shade structure would have 3–4 inches of soil piled on top to keep them from being blown away and to assist with thermoregulation within the shelter. Appendix B-9.

Operation activities would also have significant impacts to tortoise, according to BLM:

Operation and Maintenance

Under the Proposed Action, the Applicant has the goal of achieving 50% of vegetation cover and 65% of vegetation density within the non-graded Buildable Areas, with a 10-year natural recovery period. If the Project has not met these standards with natural recovery after 10 years, the Applicant would implement active restoration pursuant to an agency-approved Site Restoration Plan (Section 2.2.1). Therefore, 35% of the Buildable Areas would be bare ground throughout O&M, whereas the remaining 65% of the Buildable Areas may have 50% of reference sites perennial vegetation cover (<7% cover) and 65% of reference perennial sites vegetation density within a maximum of 20 years. Given the Proposed Action's extensive time period to wait for natural recovery, the

Buildable Areas may remain heavily impacted and, even with restoration, would still have extensive areas of grading where vegetation is not expected to naturally recover within the 40-year lifetime of the ROW grant. These areas would experience prolonged erosion (from wind and water) and would be more likely to facilitate invasive plant species and noxious weeds proliferation. Other effects are also expected to occur on vegetation in and around the Buildable Areas from anticipated increases in temperatures resulting from the high level of removal of vegetation from the site under the Proposed Action (Adeh et al. 2019; Barron-Gafford et al. 2019; Devitt et al. 2022; Williams et al. 2023). One study identified temperatures to be warmer by between 9°F to 14.4°F outside of a solar facility in the Mojave Desert, with the most effects found within 984 feet of the site (Devitt et al. 2022). Temperature increases could affect annual and perennial vegetation within and outside of the solar facility.

During O&M, native vegetation disturbed under all disturbance levels during construction activities would be allowed to regrow; however, continued impacts to vegetation within the Buildable Areas would occur where trimming and maintenance of remaining vegetation would be required to avoid interference with the panels. This would result in temporary long-term impacts to vegetation that would hinder plant growth and reproduction and result in reduced perennial vegetation cover. Vehicle and equipment travel through the Project Area during O&M would facilitate the spread of invasive plant species and noxious weeds. Dust from vehicle use 3-12 during O&M, as well as from disturbed soil surfaces, would result in long-term impacts to vegetation similar to those described under construction activities but to a lesser extent. Herbicide applications performed in accordance with the Project's approved Integrated Weed Management Plan could have effects on remaining and adjacent vegetation communities.

Effects anticipated during O&M would be reduced through the implementation of Project design features and APMs Eco-2, Eco-5, Air-1, and Air-2 (Appendix B) as well as the following required plans: Dust Abatement Plan, Site Restoration Plan, Integrated Weed Management Plan, WEAP, and Access Management Plan. Additionally, the 2024 Western Solar Plan (BLM 2024a) design features PW-5, PW-17, and mitigation measures MM Veg-1, MM Veg-2, MM Veg-3, MM Veg-4, and MM Veg-5 listed in Appendix B would be implemented during O&M to prevent the spread of nonnative species and minimize impacts to ecological resources. FEIS 3-11-12.

Invasive weeds would likely spread:

This level of soil disturbance increases the potential for noxious weeds and nonnative invasive species to occupy the area as these species are better adapted to disturbance than native desert plants (Abella 2010). Higher cover and density of invasive plant species within and adjacent to the Project Area are expected over time and would result in reduced biodiversity, increasing competition with native species, and increased fire hazards. Invasive plant species and noxious weeds may be transported throughout the site and introduced from outside the site in materials used for erosion control and through seeds and/or plant parts unknowingly clinging to construction vehicles, equipment, and crews; access roads would serve as weed vectors into the site. FEIS 3-13

Many mitigation plans are deferred and not available for public inspection:

...developing a Grading Plan to delineate areas to be cleared of vegetation and using certified weed-free seed and mulching where applicable (Appendix B), as well as the following required plans: Integrated Weed Management Plan.... Id.

Herbicides may be approved for use.

The use of herbicides to control invasive plant species and noxious weeds could inadvertently result in damage or mortality to native plants that are in close proximity.
FEIS 3-14

Healthy soils, which are integral to functioning tortoise habitat, would be severely impacted and mitigation measures would not reduce impacts to less than significant:

3.14.4 Earth Resources

Surface-disturbing activities associated with blading, grading, vegetation removal, and soil compaction would result in the permanent loss of soil health, soil productivity, and sensitive soils. Soil compaction could decrease water infiltration and runoff, leading to a redistribution of soil moisture and vegetation productivity response within the immediate landscape. Biotic soils cannot be salvaged, so the Project would result in a long-term loss of these sensitive soils. FEIS 3-211-212

Mitigation measures show that ground disturbance will result in erosion, and measures to halt erosion and minimize soil degradation are not enough to keep this large block of undisturbed tortoise habitat from becoming degraded:

HYD-3: Silt fences would be installed after topsoil removal and before construction leveling begins and must remain in place until interim reclamation is complete and there is adequate vegetation present to stabilize the soil. Silt fences would be constructed in locations where surface erosion is evident or potential for surface erosion exists, such as areas of steep slopes or highly erosive soils. Fences would be installed at the inside edge of disturbance. Appendix B-7.

The entire area is a large alluvial fan subject to flash-flooding and rain runoff from the adjacent Spring Mountains. Numerous. Braided, dry washes cross the fan, and these are important microhabitats for tortoise burrowing into caliche-layered banks. Solar project construction will degrade and destroy many of these microhabitats, even with mitigation to try to avoid the numerous ephemeral washes:

Hyd-7: Avoid, when possible, construction and/or reclamation that would block or change the natural course of any drainage, nor would topsoil, waste, or fill material be deposited below high-water lines in riparian areas, floodplains, or in natural drainage

ways unless an appropriate permit is acquired. The lower edge of soil or other material stockpiles would be located outside active floodplains. All spoils would be placed where they can be retrieved without creating additional surface disturbance and where they do not impede and/or contribute sediment to watershed and drainage flows.

Biocrusts are admitted to be sensitive parts of tortoise habitat and significant stands cannot be all avoided in our experience, as construction trucks, water trucks, heavy machinery, drive across the site.

BC-1: Avoidance: Due to their low rate of formation, biocrusts are extremely vulnerable to environmental disturbances and anthropogenic impacts. Natural recovery of biocrusts may be hindered by inadequate supply of spores and water. To the extent feasible, significant stands of biocrust would be avoided by design and/or by vehicles and equipment throughout the life of the Project. Appendix B-8.

BLM allows flood-control structures to be built on the former tortoise habitat in the solar project site, and rock riprap has been known to entrap tortoises, resulting in mortality. This is yet another habitat modification that can potentially result in Take of tortoises:

Wild-1: Gravel and/or riprap, where Mojave desert tortoises and other wildlife may be present, must have prior approval from BLM and be small enough that a juvenile Mojave desert tortoise and other wildlife can move through it without becoming stuck. All areas in which riprap is utilized must either be access prohibitive to Mojave desert tortoise or backfilled with pea gravel to eliminate large pore spaces that may trap, injure, or kill individuals of the species. *Id.*

BLM needs to designate this area now as an ACEC in order to preserve function as a tortoise linkage corridor, as recommended in the Recovery Plan and mandated by FLPMA.

13. An ACEC Designation Is Supported Because Cumulative Solar Project Impacts to Connectivity Would Be Significant and Not Mitigable

Reasonably Foreseeable Impacts to Resources (RFFAs) give more support to designate an ACEC in this area in order to protect the crucial tortoise connectivity corridor. BLM states that for tortoise populations and the connectivity corridor, cumulative impacts would be large:

There are two RFFAAAs for federally listed species: the Mojave Desert Tortoise RFFAAA for impacts to Mojave desert tortoise and federally protected bird species, and the Water Resources RFFAAA, which is used for RFFA analysis for groundwater dependent species in Ash Meadows NWR. The major types of past, present, and RFFAs that could contribute to reasonably foreseeable effects on Mojave desert tortoise, federally protected bird species, and groundwater dependent species with the Ash Meadows NWR include transmission lines, energy development, mining and mineral

exploration and operations, roadways, and commercial, industrial, and residential development.

There are 15 RFFAs that were identified within the Mojave Desert Tortoise RFFAAA. These projects consist of pending applications for three solar projects totaling 16,125 acres, one wind testing project totaling 6 acres, one communication project (acreage unknown), six road/recreation use improvement projects, two transmission line projects, and two wildlife management projects totaling over 58,000 acres. The RFFAs with publicly available, quantifiable project areas represent 4.8% of the Mojave Desert Tortoise RFFAAA.

The majority of threats to the Mojave desert tortoise and connectivity habitat are associated with actions that result in mortality of Mojave desert tortoise and permanent habitat loss across large areas, such as urbanization, large-scale energy projects, and projects that fragment and degrade habitats such as roads and mining exploration. The past, present, and RFFAs have and would result in Mojave desert tortoise mortality and injury due to collisions with vehicles and crushing of burrows and eggs, harassment during translocation, increased stress which could contribute to a weakened immune system and reduced reproductive success, an increase in predation from predators due to the presence of trash and other human-related nuisances as well as an increase in roosting and foraging structures, habitat fragmentation, restricted gene flow, and a reduction in quality habitat from vegetation disturbance (USFWS 2011a). Natural and anthropomorphic constrictions (such as development and highways) can limit gene flow and the ability of Mojave desert tortoises to move between larger blocks of suitable habitat and populations (Dutcher 2020).

In the Mojave Desert Tortoise RFFAAA, existing anthropogenic constrictions in conjunction with the development RFFAs listed above compound effects of natural barriers on Mojave desert tortoise population connectivity. The combination of habitat loss and fragmentation from existing roadways in conjunction with the development RFFAs listed above would result in adverse reasonably foreseeable effects on Mojave desert tortoise populations and connectivity. This species in particular requires large expanses of lower-elevation Mojave vegetation to survive, and the more vegetation that is permanently removed, the harder it is for this species to persist. Due to the large amounts of habitat that would be excluded from Mojave desert tortoises and removed and/or degraded from construction once all of the other RFFAs are developed in this area, it is possible that Mojave desert tortoise would not be able to reoccupy the areas covered by RFFAs until the vegetation has been sufficiently restored and the site is again safe for desert tortoises. Under the Proposed Action, assuming similar conditions for other RFFAs, this would be a minimum of 50 years after construction is completed. However, the site would have the potential to be renewed for another 50 years after the initial 50 year ROW period, and so desert tortoises could be excluded from the site and other RFFAs for upward of 100 years. If not enough native seed is available, or if atmospheric and meteorological conditions change such that vegetation cannot be restored, Mojave desert tortoise may never reoccupy the approximately 16,125 acres of habitat loss.

The proposed Project is in one of the most important Mojave desert tortoise connectivity corridors in southern Nevada as it is essential to maintain Mojave desert tortoise connectivity and population genetics between the Eastern and Northeastern Recovery Units (USFWS 2023d) as well as being the only remaining corridor connecting Mojave desert tortoise populations on the west side of the Spring Mountains to those on the east side. The Mojave Desert Tortoise RFFAAA includes 67,263 acres of Priority 1 connectivity habitat (20% of the Mojave Desert Tortoise RFFAAA) and 1,831 acres of Priority 2 connectivity habitat (less than 1% of the Mojave Desert Tortoise RFFAAA) identified under the 2012 Western Solar Plan (BLM and DOE 2012) (Appendix A, Figure A-27). In addition to the proposed Project, within the Mojave Desert Tortoise RFFAAA, the pending large-scale solar project RFFAs Aypa Vegas Valley Solar Project (9,000 acres), Kawich Solar Project (4,352 acres), and South Solar Ridge Project (2,773 acres) are also proposed within Priority 1 connectivity habitat (Appendix A, Figure A-27 and Appendix F, Figure F-2). The pending large-scale solar RFFAs within the Mojave Desert Tortoise RFFAAA total 16,125 acres (4.8% of the Mojave Desert Tortoise RFFAAA and 24% of Priority 1 connectivity habitat within the Mojave Desert Tortoise RFFAAA). These RFFAs would adversely impact Mojave desert tortoise habitat because it is assumed that much, if not all, of the project areas would exclude Mojave desert tortoises, at least until vegetation objectives that may be set for the project are achieved. The reasonably foreseeable effects of all of these projects would have a high risk of severing Mojave desert tortoise connectivity and be substantially adverse to the species, particularly because of the long-term nature of the RFFAs that would limit the already narrow corridor.

The effects of habitat destruction and fragmentation may be exacerbated by increasing temperatures, decreasing precipitation, changing frequency of intense storms and related flood events, increased occurrence of wildfires, and persistent drought that have been occurring across the region. Desert tortoises have low and narrow thermal tolerance ranges relative to other desert reptiles (Berry et al. 2021; Zimmerman et al. 1994); therefore, as their environment warms and drought periods increase, their ability to meet their energetic requirements may be reduced as a result of decreased periods of potential activity time for foraging, and lack of forage (Lovich and Ennen 2011). Compounded effects of land use would reduce habitat suitability and landscape connectivity for current and future conditions for the tortoise “in the eastern, central, and southern regions of the tortoise’s range” (Parandhaman 2023).

The RFFAs in the Mojave Desert Tortoise RFFAAA would likely result in increased spread of noxious weeds and nonnative invasive plants which would degrade the species habitat and increase the risk of wildfire frequency and intensity. Mojave desert tortoise and their connectivity may be adversely impacted within the Mojave Desert Tortoise RFFAAA by future fires, drought conditions, and changes in atmospheric and meteorological conditions which were not considered in the Project-specific connectivity modeling (Nussear 2023). Some of the impacts to Mojave desert tortoise could be mitigated depending on use of Mojave desert tortoise fencing and wildlife crossing

culverts suitable for Mojave desert tortoise use and restoration of disturbance areas. ESA compliance that requires payment into a mitigation fund would help offset impacts to ESA-listed species. Requests for authorizations in the nominated Cactus Springs ACEC would have to comply with interim special management until a decision is made whether an ACEC would be designated. The interim special management requires maintaining hydrologic connectivity and retention of maximum vegetation cover that reduces impacts to Mojave desert tortoise habitat. FEIS 3-189-191, emphasis ours.

BLM details how these solar project impacts would be permanent, thus not mitigable:

3.14 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources refer to impacts to or loss of resources that cannot be reversed or recovered, respectively.

3.14.1 Vegetation Communities

Implementation of the Project would result in irreversible or irretrievable impacts to up to 2,634 acres of native vegetation across the largest Buildable Area configuration (Alternative 3) across all Action Alternatives and up to 120 acres of NDOT mineral material site relocation. The Project could result in the permanent loss of native vegetation on up to 863 acres (D-3) under the Proposed Action, with additional loss and degradation of vegetation across the remaining acreage where drive and crush methods would be implemented (D-1 and D-2). Site reclamation efforts are not expected to restore these impacted areas to pre-construction conditions. Restoration could take decades in an arid environment, such as the Mojave desert. Many species would not be expected to recolonize the site, and changes to native species composition would be permanent. Other effects from the Project (e.g., dust, spread of invasive weed species) would persist beyond the anticipated duration of the Proposed Action.

Due to the time scale to restore desert vegetation communities (70 to over 200 years) (Abella 2010), habitat loss in disturbed areas could also be considered irreversible. Many cacti and yucca species would not be expected to recolonize the site, and changes to native species composition would be permanent. FEIS 3-210-211.

And to the tortoise specifically:

Implementation of the Project would result in irreversible or irretrievable impacts to up to 2,634 acres of Mojave desert tortoise connectivity habitat across the largest Buildable Area configuration (Alternative 3) across all Action Alternatives and up to 120 acres of NDOT mineral material site relocation. The Project could result in the permanent loss of Mojave desert tortoise connectivity habitat on up to 863 acres under the Proposed Action resulting from grading and soil removal (D-3) in the Project Area. The loss of habitat would result in Mojave desert tortoises having to rely more heavily on habitat outside of

the Project footprint. Site reclamation, even with substantial effort, is not expected to restore these impacted areas to pre-construction conditions. FEIS 3-211.

Further points of the Project which we protest:

14. Bureau of Land Management's Purpose and Need

The BLM's purpose is to respond to the FLPMA ROW application submitted by the Applicant to construct, operate, maintain, and eventually decommission a solar PV electric generating facility and associated facilities that would generate 300 MW of electricity under Title V of FLPMA (43 USC 1761).

The need for this action is established by the BLM's responsibilities under FLPMA and its ROW regulations to consider the application. The BLM is required by FLPMA Section 103(c) to manage public lands for multiple uses that consider the long-term needs of future generations for renewable and non-renewable resources. The BLM is authorized by the Secretary of the Interior to grant ROWs on public lands for systems of generation, transmission, and distribution of electric energy (43 USC 1761(a)(4)). The Proposed Action and Action Alternatives have been evaluated for conformance with the 1998 Las Vegas RMP. Two RMPA alternatives have been identified for the 1998 Las Vegas RMP and are discussed in detail in Section 2.9 and Chapter 4 of the Final EIS/RMPA.

FEIS at 1-3-4.

Response: The BLM must also respond and consider Area of Critical Environmental Concern nominations under FLPMA § 202(c)(3), 43 U.S.C. § 1712(c)(3). The mandate to the Secretary to “*give priority to the designation and protection of areas of critical environmental concern*” in developing and revising land use plans. FLPMA § 102(a)(11), 43 U.S.C. § 1701(a)(11). The requirement in the FLPMA policy section that “regulations and plans for the protection of public land areas of critical environmental concern be promptly developed.”

In 2022, Basin and Range Watch and Western Watersheds Project nominated the 59,000-acre Cactus Springs Area of Critical Environmental Concern to be considered as an alternative to the proposed action. Because two resource management plan amendments are being considered in the EIS, the BLM could add conservation and the ACEC nomination to the Purpose and Need Statement.

The Las Vegas Resource Management plan has not fully been updated since 1998. While there have been revisions, the plan is outdated by several changes including a land rush to develop as much solar as possible on federal lands. Southern Nevada has grown in population since 1998 and several people value the public lands in Southern Nevada for conservation purposes. The BLM attempted to revise the whole plan in 2014 but paused it in 2018.

The Federal Lands Management Policy Act (FLPMA) states that according to the Bureau of Land Management's Resource Management Planning regulations, there is no single fixed schedule for how often plans must be updated — instead, updates are triggered by changing conditions, new information, or policy changes.

Since 1998, there have been several changes in Southern Nevada including increased population and more demand for public land recreation. Since 1998, mining projects have really increased in Southern Nevada. Since 1998, BLM has aggressively tried to develop large-scale solar and wind energy on several thousand acres. The Western Solar Plan was released in 2012 and revised in 2024.

15. Alternatives Considered and Eliminated from Detailed Analysis

While these are not mentioned in the Final Environmental Impact Statement, Appendix J provides an analysis of alternatives that were considered. In spite of several requests to create a Conservation Alternative which would eliminate the solar project and create a Cactus Springs Area of Critical Environmental Concern, a conservation alternative is not analyzed.

A Conservation Alternative would recognize a need to comply with rules and regulations that have been implemented to protect the sensitive resources on public lands in the Mojave Desert. These would include the Endangered Species Act, the Paleontological Resources Protection Act, The Clark County Multiple Species Habitat Conservation Plan, and the Old Spanish National Historic Trail Comprehensive Administrative Strategy. The alternative could map out avoidance areas that keep development out of the 5 miles buffer for the Old Spanish Trail, avoid the Priority 2 Desert Tortoise Connectivity Habitat, avoid sensitive biological resources and avoid potential fossil sites. It could help protect the view-shed by upgrading the Visual Class to VRM Class II and creating permanent protections for resources in the area.

FLPMA Section 103(a) defines ACECs as places where “special management attention is required to protect and prevent irreparable damage” to significant values. Section 202(c)(3) gives the BLM authority to “give priority to the designation and protection” of ACECs.

The BLM did evaluate the Conservation Alternative for three other large-scale solar and transmission projects that have undergone NEPA analysis. These are the Purple Sage Energy Center, the Copper Rays Solar Project, and the GridLiance West Core Upgrade Project. While the alternative has been rejected so far, it seems unresponsive and irresponsible for BLM to write this off without analysis. It was requested by several stakeholders who own our public land.

The Bonanza Solar project analysis is very extensive and BLM is showing a personal bias by refusing to evaluate a reasonable, requested alternative.

The Regulation: 43 CFR § 1610.7-2 To be a potential ACEC, both of the following criteria shall be met:

- **Relevance:** There shall be present a significant historic, cultural, or scenic value; a fish or wildlife resource or other natural system or process; or a natural hazard.

Relevance Value	Yes/No	Rationale for Determination
A fish and wildlife resource (including habitat for endangered, sensitive or threatened species, or habitat essential for maintaining species diversity).	Threatened and Endangered Species - Yes	The threatened Mojave Desert Tortoise is the only species that is listed by the USFWS that is known to occur within the revised nominated ACEC area.
	BLM Sensitive Species - Yes	BLM Nevada Special Status Species are known to occur within the revised nominated ACEC area, including Golden Eagle (<i>Aquila chrysaetos</i>), Ferruginous Hawk (<i>Buteo regalis</i>), Willow Flycatcher (<i>Empidonax traillii</i>), Pinyon Jay (<i>Gymnorhinus cyanocephalus</i>), Loggerhead Shrike (<i>Lanius ludovicianus</i>), Lewis's Woodpecker (<i>Melanerpes lewis</i>), Sage Thrasher (<i>Oreoscoptes montanus</i>), Phainopepla (<i>Phainopepla nitens</i>), Brewer's Sparrow (<i>Spizella breweri</i>), Ring-necked Snake (<i>Diadophis punctatus</i>), Desert Iguana (<i>Dipsosaurus dorsalis</i>), Common Chuckwalla (<i>Sauromalus ater</i>), Gila Monster (<i>Heloderma suspectum</i>), and Mojave Desert Tortoise .
	Endemic Species - Yes	Rare bees that are endemic to southern Nevada that occur within proximity of the revised nominated ACEC area: Las Vegas Fairy Bee (<i>Perdita cracens</i>), Apache Plume Fairy Bee (<i>Perdita fallugiae</i>), and Mojave Mountain Fairy Bee (<i>Perdita vicina</i>).

- **Importance:** The above-described value, resource, system, process, or hazard shall have substantial significance and values. This generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern.

Importance Value	Yes/No	Rationale for Determination
Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared with any similar resource.	Yes	Threatened and Endangered Species - This revised nominated ACEC encompasses one of the most important Desert Tortoise connectivity corridors in the entire range of the species. The revised nominated ACEC boundary is along the north slope of the Spring Mountains, which remains the only connectivity corridor connecting Desert Tortoises on the south and west side of the Spring Mountains to tortoises on the North and East side of the Spring Mountains. This is the only remaining functional corridor between the Northeastern Mojave Recovery Unit and the Eastern Mojave Recovery Unit. Las Vegas valley used to be the other remaining corridor from north to south for the species, however, as the City of Las Vegas has grown, connectivity for tortoises has been essentially severed on the west side of Las Vegas by housing developments all the way up into the foothills of the east side of the Spring Mountains, and Las Vegas Wash and Lake Mead cut off connectivity for tortoises on the east side of Las Vegas. Therefore, the relatively small, 4-mile-wide corridor on the north side of the Spring Mountains remains vitally important in retaining population and genetic connectivity between tortoise populations south of Las Vegas and populations north of Las Vegas.

The BLM found that the Priority One Desert Tortoise Connectivity Habitat meets both Relevance and Importance for the ACEC nomination. There are precedents for designating an ACEC. In 2014, the Bureau of Land Management established a 31,000-acre Ivanpah Area of Critical Environmental Concern through a plan amendment for the Silver State South Solar Project.

Priority 1 desert tortoise connectivity habitat is the set of least-cost habitat linkages identified by the U.S. Fish and Wildlife Service (USFWS) that connect existing desert tortoise conservation areas, offering the highest likelihood of sustaining viable tortoise populations.

Least-cost connectivity is a GIS-based method for modeling how species can move between habitat patches while avoiding high-resistance areas such as roads, urban development, or degraded land.

In the BLM's own words for the 2012 Western Solar Plan:

"Least-Cost Connectivity in Habitat Modeling: In habitat science, 'least-cost connectivity'" refers to using least-cost path analysis to identify the most energetically feasible routes between habitat patches by minimizing the cumulative 'cost' or 'resistance' of the landscape."

16. Visual Resources

Page 3-161 of the FEIS states:

Under the Modified Proposed Action, visual effects from construction would be less than those from the Proposed Action. The Modified Proposed Action would include the goal of reaching 75% perennial vegetation cover in Buildable Areas versus 50% of pre-construction cover and 65% vegetation density, which would decrease the degree of visual contrast with increased retention of cover and decreased disturbance of vegetation within the Project boundary. The Buildable Areas would be 1,766 acres, which is less than the 2,368 acres with the Proposed Action. Areas subject to grading and soil removal (D-3 disturbance category) would be limited to 580 acres versus 863 acres, reducing the overall footprint of heavy surface disturbance. Under the Modified Proposed Action, there would be no impacts to the NDOT mineral material sites, which would avoid the adverse effects associated with relocating the mineral material sites to the east side of the Application Area. It is anticipated that the changes proposed by the Modified Proposed Action for visual resources (Appendix A, Figure A-31) during the construction, O&M, and decommissioning phases of the Project would have minimal impacts to the landscape's scenic quality and the degree of visual contrast introduced by the Project within the characteristic landscape.

Response: It was never the intention of the BLM or EDF Renewables to build out the entire 5,100 acre Right of Way. This statement claims to be some sort of mitigation with a win/ win scenario, but as it stands now, there is no major development onsite so any smaller alternative is not mitigation, but a brand new significant impact.

The feasibility of reaching 75 percent perennial vegetation is low. Many of the plants would need to be pruned and trimmed to grow under and around solar panels. The visual impacts would not be minimized from higher elevations due to the sharp contrast made by dark solar panels.

Downgrading Visual Resource designations is not consistent with FLPMA objectives on Visual Resources as defined by BLM Visual Manual 8400:

Federal Land Policy and Management Act of 1976, 43 U.S.C. 1701 et. seq.; 1. Section 102 (a)(8). States that "...the public lands be managed in a manner that will protect the quality of the...scenic...values...."

2. Section 103 (c). Identifies "scenic values" as one of the resources for which public land should be managed.

3. Section 201 (a). States that "The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values (including...scenic values)...."

4. Section 505 (a). Requires that “Each right-of-way shall contain terms and conditions which will... minimize damage to the scenic and esthetic values....”²

And the National Environmental Policy Act:

National Environmental Policy Act of 1969, 43 U.S.C. 4321 et. seq.;

1. Section 101 (b). Requires measures be taken to “ ...assure for all American...esthetically pleasing surroundings....”

2. Section 102. Requires agencies to “Utilize a systematic, interdisciplinary approach which will ensure the integrated use of...Environmental Design Arts in the planning and decision making....”

The Las Vegas Resource Management Plan has not been updated since 1997 and has also had plan maintenance. Designation of an ACEC would require the BLM to re-evaluate the site for VRM standards and under FLPMA through resource management plan amendments.

Maintaining the VRM Class III designations would be possible, but some areas in the Indian Springs Valley and the Mercury Valley could be re-evaluated under VRM Class II which has an objective of: *retaining the existing character of the landscape. Allowed Level of Change: The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer.*

The Bonanza Solar Project should be paused until a Resource Management Plan revision can be fully implemented.

17. Socioeconomics

Page 3-163:

To what extent would disturbances that affect humans (e.g., noise, dust, traffic, visual alterations, electromagnetic fields) impact local property values?

Response: There is no analysis on how a water drawdown could impact local wells at Cactus Springs. There is no information or suggested mitigation that would assist landowners from this big project.

18. Groundwater

Page 3-99:

The project is located in the partially designated Indian Springs Valley groundwater basin (Basin 161). Designated basins are those with all permitted groundwater rights approaching or exceeding the estimated average annual recharge. The designated portion

² [mediacenter_blnpolicymanual8400.pdf](#)

of the Indian Springs Valley groundwater basin consists of the area roughly south of U.S. 95 and is inclusive of the Project Area (NDWR 2021b).

Response: The water analysis fails to address local drawdown at Cactus Springs and impacts to local wells.

Page 3-100:

The Project Area is located in a part of the Indian Springs Valley groundwater basin that has been identified as sitting on a “megachannel” that is connected to Devils Hole, home of the endangered, endemic fish species, the Devils Hole pupfish. Devils Hole is located in a detached unit of Death Valley National Park administered by the NPS and is adjacent to the Ash Meadows NWR that is administered by the USFWS, approximately 28 miles from the Project Area. Devils Hole and Ash Meadows NWR are also home to other groundwater dependent endemic, threatened, and endangered species. Devils Hole and Ash Meadows NWR are within the Amargosa Desert groundwater basin, and the Proposed Action is within the Indian Springs groundwater basin, however the mega-channel connects the Indian Springs groundwater basin to the Amargosa Desert groundwater basin, and therefore the Ash Meadows NWR. While the mega-channel does not intersect with the Project Area, a USGS study did find that there is a connection between pumping in the carbonate rock aquifer of the Indian Springs groundwater basin and water levels in Devils Hole (USGS 2020a, 2020b).

Response: The BLM fails to require an offsite water source. An offsite source could easily resolve issues related to Devil’s Hole, local springs and local wells. Decline of groundwater levels in Devil’s Hole, even if the numbers are not large, adds to the cumulative impacts water use in the region would have on the Endangered Devil’s Hole pupfish. This violates the Endangered Species Act.

This also violates conservation mandates in FLPMA which require:

Multiple Use and Sustained Yield: Lands must be managed to provide a balance of uses—such as recreation, grazing, mining, and wildlife conservation—without degrading the land for future generations.

Resource Management Plans (RMPs): BLM must develop and update RMPs to identify environmental values, set management goals, and guide decision-making

Protection of Natural Resources: The Act requires BLM to protect water, wildlife, and other natural resources, and to ensure that land use decisions do not cause unnecessary damage.

There is an error in the FEIS where a groundwater drawdown table referenced in the text is left out of the document:

Cactus Springs, Indian Springs, and the unnamed spring that exist outside the Project Area would also experience effects from the development of the Proposed Action, specifically the Project's water demand (Table 3-37). FEIS at 3-102

Yet in the FEIS, the referenced table has only air quality information:

Table 3-37. 2022 Design Values for Clark County and Nye County, Nevada (FEIS at 3-130)

This error needs fixing in a Supplemental EIS so that the public can review these important and possibly significant groundwater impacts.

19. The Project Violates the Clark County Multiple Species Habitat Conservation Plan (MSHCP)

We addressed issues of how the solar project applications do not meld with the Clark County MSHCP in our comments on the Draft EIS (see Western Watersheds Project and Basin and Range Watch 2024). The purpose of Clark County's Multiple Species Habitat Conservation Plan is to achieve a balance between long-term management and recovery of the diversity of natural habitats and native species of plants and animals that make up an important part of the natural heritage of Clark County and the orderly and beneficial use of land to promote the economy, health, well-being, and custom and culture of the growing population of Clark County.

Yet BLM admits throughout the Final EIS that the large-scale solar project will fragment tortoise habitat and degrade soils and vegetation. Restoration is experimental at best and not guaranteed to maintain or increase viable tortoise populations. We contend that there will be a net loss of tortoise habitat because mitigation is deferred, relying on future restoration, while proposed disturbance to present habitat is admitted to be adverse.

20. Nevada Needs a DRECP

In our scoping comments on the Bonanza Solar Project, we discuss tortoise connectivity and the need for conservation. We note: The BLM Southern Nevada District Office states in its Medium Priority determination worksheet letter for the Bonanza Solar Project that this area is "the most critical Desert Tortoise connectivity corridor in southern Nevada." (Basin and Range Watch and Western Watersheds Project 2023)

California successfully implemented a Desert Renewable Energy Conservation Plan (DRECP)³ across 10.8 million acres, which sought to balance solar development on public and private lands with protection of large areas. The Record of Decision in 2016 designated hundreds of thousands of acres of ACECs and National Conservation Areas (NCAs) in order to protect desert tortoise habitat, historic areas, important natural resources, views, and sensitive plant communities.

³ <https://www.blm.gov/programs/planning-and-nepa/plans-in-development/california/desert-renewable-energy-conservation-plan>

Nevada, on the other hand, is plunging ahead chaotically with a huge bias given towards corporate development choices, while bypassing opportunities to protect significant resources with ACEC and NCA designations. Nevada is developing its public lands in a very unbalanced manner, making weak and temporary protective efforts for tortoise and historic trails while favoring massive amounts of development that clashes with sensitive resources. We need to slow down and do this right with better planning and inclusion of all voices.

US Fish and Wildlife Service emphasizes better planning in its Biological Opinion to the Purple Sage Energy Center Project:

In California, the BLM's Desert Renewable Energy Conservation Plan Land Use Plan Amendment to the California Desert Conservation Act Plan of 1980 included numerous conservation and management actions that addressed issues relevant to the desert tortoise. As part of the land use plan amendment, the BLM established new limits on ground-disturbing activities of 0.1–1.0 percent relative to its lands within desert tortoise conservation areas and mapped linkages between these areas. The land-use plan amendment also increased the amount of land that the BLM manages for conservation in California (e.g., areas of critical environmental concern, California Desert National Conservation Lands, etc.) from 6,118,135 to 8,689,669 acres. All of these areas are not within desert tortoise habitat; however, management as conservation areas will likely benefit desert tortoises indirectly because conservation management would limit subsidies to common ravens and other indirect effects.

The threats that led to the listing of the desert tortoise (i.e., the five-factor analysis required by section 4(a)(1) of the Endangered Species Act) continue. The status of the desert tortoise has continued to decline and most of the previously identified threats continue to affect populations.

Biological Opinion for the Purple Sage Energy Center dated April 29, 2025 at 34, emphasis ours.

USFWS is almost asking BLM to update its Resource Management Plans and undertake a broad Nevada Desert Renewable Energy Conservation Plan here, in order to better mitigate tortoise impacts.

The Las Vegas Resource Management Plan has laid out objectives for Areas of Critical Environmental Concern:

Objectives AC-1.

Establish areas of critical environmental concern specifically for management of desert tortoise within the Northeastern Mojave and Eastern Mojave recovery units identified in the Tortoise Recovery Plan Manage a sufficient quality and quantity of desert tortoise habitat, which in combination with tortoise habitat on other Federal, State and private

land, will meet recovery plan criteria. Maintain functional corridors of habitat between areas of critical environmental concern to increase the chance of long-term persistence of desert tortoise populations within the recovery unit.

BLM received our Area of Critical Environmental Concern nomination in a timely manner as cumulatively significant utility-scale solar development is planned for Indian Springs valley and impacting high-value resources on public lands.

BLM found the ACEC nomination worthy, yet chose to defer designation to the future, while using unproven “temporary management” to try to stave off “irreparable damage” to relevant and important values.

As we have described above, mitigation measures proposed for tortoise connectivity are experimental and do not provide assurance that significant impacts will be avoided.

21. Conclusion

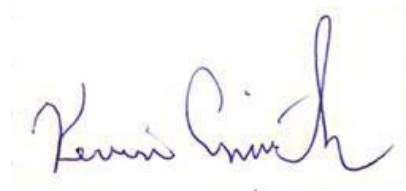
BLM should choose the No Action Alternative and avoid degrading and fragmenting this crucial Mojave desert tortoise connectivity corridor. BLM should amend the Las Vegas Resource Management Plan to designate the Cactus Springs Area of Critical Environmental Concern as nominated.

Please keep us informed of all further substantive stages in this and related NEPA processes and documents.

Sincerely,



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References:

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