APPENDIX R

Paleontological Resource Survey Report



PALEONTOLOGICAL RESOURCE SURVEY REPORT FOR THE SAPPHIRE SOLAR PROJECT, RIVERSIDE COUNTY, CALIFORNIA

September 2023

PALEONTOLOGICAL RESOURCE SURVEY REPORT FOR THE SAPPHIRE SOLAR PROJECT, RIVERSIDE COUNTY, CALIFORNIA

Prepared by:

Jessica DeBusk, B.S., MBA Ben Scherzer, M.S. Heather Clifford, M.S.

Prepared for:

U.S. Department of the Interior Bureau of Land Management Palm Springs South Coast Field Office 1201 Bird Center Drive Palm Springs, California 92262

Technical Report No.: 23-468

PaleoWest, LLC

55 East Huntington Drive Suite 238 Arcadia, California 91006 626.408.8006

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MANAGEMENT SUMMARY

At the request of EDF Renewables Development, Inc., PaleoWest, LLC (PaleoWest) conducted a paleontological resource survey to assess the Potential Fossil Yield Classification (PFYC) of geologic units underlying the Sapphire Solar Project near Desert Center, Riverside County, California (Project). The Project is on approximately 1,192 acres (ac), with 1,082 ac of private land and 110 ac of land administered by the Bureau of Land Management (BLM), California Desert District, Palm Springs–South Coast Field Office.

In accordance with the recommendations in the paleontological assessment report for the Project (Clifford and DeBusk, 2023), a paleontological field survey was conducted of the entire Project area. The purpose of the field survey was to assist in determining where additional paleontological mitigation (e.g., fossil salvage and paleontological monitoring during ground disturbance) may be necessary prior to or during Project development. During the survey, three nonsignificant vertebrate localities, including fossil specimens of rabbit turtle, were collected on private land from the surface of the Project area from geologic units mapped as Quaternary alluvium. The nonsignificant fossils were poorly preserved and ubiquitous turtle shell; therefore, they were documented but not collected. No fossils were observed on BLM-managed land.

Following the pedestrian survey, PaleoWest revised the PFYC rankings of the geologic unit underlying the Project area in accordance with BLM (Bureau of Land Management [BLM], 2016) guidelines. Based on results of the pedestrian survey, the paleontological resource potential of the geologic unit in the Project area was updated from the preliminary PFYC classification recommended by Clifford and DeBusk (Clifford and DeBusk, 2023). The recommended paleontological resource potential of the Quaternary alluvium underlying the Project area was revised to PFYC Class 4 (high).

Based on the results of the pedestrian field survey, there is a high potential that additional fossils may be present at the surface or subsurface in the Project area. Therefore, it is recommended that a management strategy be established that provides for environmental awareness training on paleontological resources to all site workers and requires the preparation and implementation of a Paleontological Resources Mitigation Plan (PRMP) for the Project. With the successful implementation of the recommended management strategy, potential adverse effects to paleontological resources would be reduced to a less-than-significant level as required by the National Environmental Policy Act and in accordance with the requirements of the Paleontological Resources Protection Act.

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1 INTRODUCTION

At the request of EDF Renewables Development, Inc. (EDFR), PaleoWest, LLC (PaleoWest) conducted a paleontological resource survey to assess the Potential Fossil Yield Classification (PFYC) of geologic units underlying the Sapphire Solar Project near Desert Center, Riverside County, California (Project). The Project is on approximately 1,192 acres (ac), with 1,082 ac of private land and 110 ac of land administered by the Bureau of Land Management (BLM), California Desert District, Palm Springs–South Coast Field Office (Figure 1-1).

Following the recommendations in the paleontological assessment report for the Project (Clifford and DeBusk, 2023), a paleontological pedestrian field survey was conducted of the entire Project area (Figure 1-2). The purpose of the field survey was to assist in determining where additional paleontological mitigation (e.g., fossil salvage and paleontological monitoring during ground disturbance) may be necessary prior to or during Project development. Based on the results of the paleontological survey, PaleoWest revised the PFYC rankings of the geologic units underlying the Project area in accordance with BLM guidelines (BLM, 2016).

This technical report serves to document the paleontological field survey, summarize the findings, and provide further management recommendations. It has been prepared to support environmental review under the National Environmental Policy Act (NEPA) and Paleontological Resources Protection Act (PRPA), with the BLM Palm Springs–South Coast Field Office functioning as the Lead Agency for the portion of the Project on BLM-administered land.

1.1 PROJECT LOCATION AND DESCRIPTION

The proposed Project is approximately 4.25 miles (mi) north-northeast of Desert Center and east of State Route (SR) 177 in unincorporated Riverside County. The Project area is within the Chuckwalla Valley in a rural setting and has been previously used for agricultural purposes. It encompasses 25 Assessor's Parcel Numbers: 807172010, 807172011, 808240002 to 808240006, 808240009 to 808240016, and 808250001 to 808250010. The Project includes portions of Section 36, Township (T) 4 South (S), Range (R) 15 East (E); Sections 1 and 2, T5S, R15E; and Section 6, T5S, R16E, on the Victory Pass, California, and East of Victory Pass, California, 7.5-minute U.S. Geological Survey (USGS) quadrangle topographic maps (Figure 1-2). Elevations within the Project area are approximately 570–660 feet (ft) above mean sea level (amsl).

EDFR, on behalf of Sapphire Solar, LLC, proposes the development and operation of a 117megawatt (MW) photovoltaic (PV) solar generation facility with 117 MW of battery storage and an associated generation tie (gen-tie) line. The proposed Project would encompass approximately 1,192 ac, with 1,082 ac of private land and 110 ac of BLM land. The PV panels, a single-axis tracker system, inverters, converters, transformers, electrical collection and communication lines, a 12-kilovolt (kV) distribution line for backup power, an on-site electrical substation, a battery energy storage system, security fence, an operations and maintenance facility including a standalone storage building, up to three onsite groundwater wells, meteorological station and albedometer weather station, a microwave communication tower, and a supervisory control and data acquisition system would be on private land. The proposed Project would also include up to three options for a single 230-kV gen-tie line alignment, main and secondary access road, and 12-kV distribution line and collector line routes located on BLMmanaged land. The Project would interconnect with the Southern California Edison Redbluff Substation via the existing Desert Harvest gen-tie line.

1.2 PURPOSE OF THE INVESTIGATION

The purpose of this investigation is to (1) identify and observe the geologic units within the Project area and assess their paleontological resource potential (i.e., PFYC), (2) determine whether the Project has the potential to adversely affect known scientifically significant paleontological resources, (3) provide Project-specific management recommendations for paleontological resources mitigation as necessary, and (4) demonstrate NEPA compliance. All work was conducted in accordance with professional standards and guidelines set forth by the BLM (BLM, 2008, 2016) and meets the requirements of the PRPA and all other federal laws and regulations described in Section 2.

1.3 PERSONNEL QUALIFICATIONS

Benjamin Scherzer, M.S., Senior Paleontologist, was the primary author of this report. Scherzer received his M.S. in Earth Sciences from Montana State University, Bozeman, and has 15 years of professional experience including conducting and leading paleontological and geological studies in California. Scherzer is currently permitted by the BLM in California on the Paleontological Resource Use Permit (CA-19-01P). He has experience performing stratigraphic analysis, paleontological resource assessments, construction monitoring, geologic mapping and field reconnaissance, and matrix (sediment) sampling for projects on BLM-administered land and privately held land. He has experience preparing environmental documents pursuant to NEPA requirements including paleontological resource assessments, survey reports, and monitoring reports.

Jessica DeBusk, B.S., MBA, served as Principal Investigator for the Project and provided quality assurance review of this report. DeBusk received her B.S. in Geology and Paleobiology from the University of Nevada–Reno and her MBA in Sustainability from California State University, Long Beach. DeBusk has 20 years of experience as a professional paleontologist, having successfully completed over 400 paleontological resources inventory and monitoring projects throughout California, Nevada, Arizona, Utah, New Mexico, Colorado, and Texas. As a qualified principal investigator, she holds or has held statewide-issued permits by the BLM in five states, including California, and is the permittee on the Paleontological Use Permit (CA-19-01P). She has field and laboratory experience in paleobotany, paleoentomology, micropaleontology, invertebrate paleontology, and vertebrate paleontology and is an approved Riverside County Paleontological Consultant.

Heather Clifford, M.S. served as Senior Paleontologist and was a contributing author of this report. Clifford received her M.S. in Geology from California State University, Los Angeles, and has 10 years of professional experience, including conducting and leading paleontological and geological studies in California and Nevada. Clifford is currently permitted by the BLM in California on the Paleontological Use Permit (CA-22-01P). She has experience performing stratigraphic analysis, paleontological resource assessments, construction monitoring, geologic mapping and field reconnaissance, and matrix (sediment) sampling for projects on BLM-administered land and privately held land. She has experience preparing environmental

documents pursuant to NEPA requirements, including paleontological resource assessments, survey reports, and monitoring reports.

The pedestrian field survey was directed by BLM-permitted Paleontological Principal Investigator, Benjamin Scherzer, M.S., and performed by Scherzer, PaleoWest BLM-permitted Paleontological Field Directors Silvia Ascari, Ph.D., and Matthew Witte, Ph.D., and PaleoWest Staff Paleontologists Josh Heaps, B.S., and Cynthia Stoddard, B.S.

1.4 REPORT ORGANIZATION

This report documents the results of PaleoWest's paleontological resource survey and assessment of the Project area. First, the report introduces the scope of work, identifies the Project location, describes the Project, defines the purpose of the investigation, and identifies key personnel. Next, the report outlines the regulatory framework governing the Project. The report then defines the paleontological significance and sensitivity criteria used for this assessment then provides an overview of the geology and paleontology of the Project area and provides a summary of museum record results. Next, the report presents methods and the results of the paleontological pedestrian survey. Findings and management recommendations are provided next, and lastly, the references cited are listed.



Figure 1-1. Project vicinity map.



Figure 1-2. The Project Location.

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2 REGULATORY FRAMEWORK

Paleontological resources (i.e., fossils) are considered nonrenewable scientific resources because once destroyed, they cannot be replaced. As such, paleontological resources are afforded protection under various federal, state, and local laws and regulations. The BLM is the Lead Agency for this Project, and the following federal laws will apply.

All work was conducted in accordance with BLM paleontological resource management policies, guidelines, and procedures (BLM Handbook 8720-1 (BLM, 2008)) and established best practices in mitigation paleontology (Murphey et al., 2019; (Society of Vertebrate Paleontology [SVP], 2010). The BLM currently uses the Paleontological Resources Preservation Subtitle of the Omnibus Paleontological Resources Preservation Act of 2009 (PRPA) as the legislative authority for its paleontological resource policies, which satisfies all requirements of the NEPA of 1970 (U.S. Code [USC], § 4321 et seq.; 40 Code of Federal Regulations [CFR], § 1502.25).

2.1 FEDERAL

2.1.1 National Environmental Policy Act of 1969

NEPA (USC, § 4321 et seq.; 40 CFR, § 1502.25), as amended, directs Federal agencies to "Preserve important historic, cultural, and natural aspects of our national heritage (Section 101(b) (4))." The current interpretation of this language has included scientifically important paleontological resources among those resources that may require preservation.

2.1.2 Archaeological and Paleontological Salvage (23 USC 305)

Statute 23 USC 305 amends the Antiquities Act of 1906. Specifically, it states the following:

Funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled "An Act for the preservation of American Antiquities," approved June 8, 1906 (Public Law 59-209; 16 USC 431–433), and State laws where applicable.

This statute allows funding for mitigation of paleontological resources recovered pursuant to federal aid highway projects provided that "excavated objects and information are to be used for public purposes without private gain to any individual or organization" (Federal Register 46(19):9570).

2.1.3 National Historic Preservation Act of 1966 (NHPA; 16 USC 470)

The NHPA only applies to paleontological resources that are found in culturally related contexts, which are then considered cultural resources.

2.1.4 Federal Land Policy and Management Act of 1976

The Federal Land Policy and Management Act (FLPMA, 43 USC 1701-1782) authorizes inventories of paleontological resources on federal land managed by the BLM, which issues a permit for collecting paleontological resources.

2.1.5 Paleontological Resources Preservation Act of 2009

The PRPA is part of the Omnibus Public Land Management Act of 2009 (Public Law [PL] 111-011 Subtitle D), the final rule enacted in 2022 (87 FR 47296). This act directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land and develop plans for inventorying, monitoring, and deriving such resources' scientific and educational use. The PRPA organizes and combines the existing policies of the BLM, National Park Service, U.S. Forest Service, U.S. Bureau of Reclamation, and U.S. Fish and Wildlife Service. The directives of the PRPA include the following:

- Establishes uniform definitions of paleontological resources (as described in Section 2.3)
- Prohibits the removal of paleontological resources of scientific interest from Federal land without a paleontological resource use permit issued under this act and provides uniform and minimum qualifications of permit applicants
- Establishes penalties for violations of this act
- Establishes a program to increase public awareness about such resources
- Requires that paleontological resources collected under a permit remain U.S. property and must be preserved for the public in an approved repository to be made available for scientific research and public education
- Requires that the nature and location of paleontological resources on public lands be kept confidential as a means of protecting paleontological resources from theft and vandalism

2.1.6 Definition of Paleontological Resources

Section 6301 of the PRPA and Departmental Proposed Rule at 43 CFR Part 49 define a paleontological resource as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth, except for the following:

- Any materials associated with an archaeological resource
- Any cultural item
- Resources determined in writing by the authorized officer to lack paleontological interest or not provide information about the history of life on earth, based on scientific and other management considerations

The BLM defines a significant paleontological resource in BLM Instruction Memorandum (IM) No. 2009-011 (BLM, 2008), as the following:

Any paleontological resource that is considered to be of scientific interest, including most vertebrate fossil remains and traces, and certain rare or unusual invertebrate and plant fossils. A significant paleontological resource is considered to be scientifically important because it is a rare or previously unknown species, it is of high quality and well-preserved, it preserves a previously unknown anatomical or other characteristic, provides new information about the history of life on earth, or has identified educational or recreational value. Paleontological resources that may be considered to not have paleontological significance include those that lack provenience or context, lack physical integrity because of decay or natural erosion, or that are overly redundant or are otherwise not useful for research. Vertebrate fossil remains and traces include bone, scales, scutes, skin impressions, burrows, tracks, tail drag marks, vertebrate coprolites (feces), gastroliths (stomach stones), or other physical evidence of past vertebrate life or activities. [Attachment 1-18–1-19]

Consistent with the definition of a paleontological resource under the PRPA, those paleontological resources that lack scientific interest (e.g., ubiquitous, or do not provide information about the history of life on earth, etc.) are considered scientifically nonsignificant fossils.

3 PALEONTOLOGICAL SENSITIVITY

The BLM follows the PFYC system that provides baseline guidance for assessing paleontological resources and allows BLM staff to make initial assessments of paleontological resource potential. The presence of paleontological resources is known to be correlated with mapped geologic units, and the PFYC was created based on available geologic mapping. The PFYC system assigns a class value to each geological unit representing the potential abundance and significance of paleontological resources that occur in that geological unit. A complete discussion of the background and context for the PFYC system is provided in the BLM (2016) IM 2016-124 document. The following descriptions of PFYC class rankings are drawn directly from the BLM guidelines (2016) (Table 3-1).

BLM PFYC Designation	Guidelines and Management Summary
1 = Very Low	Geologic units are not likely to contain recognizable paleontological resources. Units are igneous or metamorphic excluding air-fall and reworked volcanic ash units. Units are Precambrian in age.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
2 = Low	Geologic units are not likely to contain paleontological resources. Field surveys have verified that significant paleontological resources are not present or are very rare. Units are generally younger than 10,000 years before present (B.P.). Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely. Management concern is generally low, and impact mitigation is usually unnecessary except in occasional or isolated circumstances.
3 = Moderate (a) or Unknown (b)	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Marine in origin with sporadic known occurrences of paleontological resources. Paleontological resources may occur intermittently, but these occurrences are widely scattered. The potential for authorized land use to impact a significant paleontological resource is known to be low to moderate. Management concerns are moderate. Management options could include record searches, predisturbance surveys, monitoring, mitigation, or avoidance. Surface-disturbing activities may require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action could affect the paleontological resources.

Table 3-1. Potential Fossil Yield Classification (BLM, 2016)

BLM PFYC Designation	Guidelines and Management Summary
4 = High	Geologic units that are known to contain a high occurrence of paleontological resources. Significant paleontological resources have been documented but may vary in occurrence and predictability. Surface-disturbing activities may adversely affect paleontological resources. Rare or uncommon fossils, including nonvertebrate (such as soft body preservation) or unusual plant fossils, may be present. Illegal collecting activities may impact some areas.
	Management concern is moderate to high depending on the proposed action. A field survey by a qualified paleontologist is often needed to assess local conditions. On-site monitoring or spot checking may be necessary during land-disturbing activities. Avoidance of known paleontological resources may be necessary.
5 = Very High	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. Significant paleontological resources have been documented and occur consistently. Paleontological resources are highly susceptible to adverse impacts from surface-disturbing activities. Unit is frequently the focus of illegal collecting activities.
	Management concern is high to very high. A field survey by a qualified paleontologist is almost always needed, and on-site monitoring may be necessary during land-use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.
U = Unknown	Geologic units that cannot receive an informed PFYC assignment. Geological units may exhibit features or preservation conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is known. Geologic units represented on a map are based on lithologic character or basis of origin but have not been studied in detail. Scientific literature does not exist or does not reveal the nature of paleontological resources. Reports of paleontological resources are anecdotal or have not been verified. Area or geologic unit is poorly or understudied. BLM staff has not yet been able to assess the nature of the geologic unit.
	Until a provisional assignment is made, geologic units with unknown potential have medium-to-high management concerns. Field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.
W = Water	Includes any surface area that is mapped as water. Most bodies of water do not normally contain paleontological resources. However, shorelines should be carefully considered for uncovered or transported paleontological resources. Reservoirs are a special concern because important paleontological resources are often exposed during low water intervals. In karst areas, sinkholes and cenotes may trap animals and contain paleontological resources. Dredging river systems may result in the disturbance of sediments that contain paleontological resources.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
I = Ice	Includes any area that is mapped as ice or snow. Receding glaciers, including exposed lateral and terminal moraines, should be considered for their potential to reveal recently exposed paleontological resources. Other considerations include melting snow fields that may contain paleontological resources with possible soft-tissue preservation.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.

4 RESOURCE CONTEXT

4.1 GEOLOGIC SETTING

The Project area is within the Mojave Desert geomorphic province in southeastern California (Norris, 1976). A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and tectonic history. The Mojave Desert geomorphic province extends from the San Andreas and Garlock faults toward the Basin and Range Province and Colorado Desert (Dibblee and Hewett, 1966). The Mojave Desert was formed as a result of Cenozoic uplift of the San Bernardino Mountains and Sierra Nevada, resulting in a rain shadow effect, creating the smallest of North America's desert provinces. The western Mojave Desert is on top of an uplifted and rotated basement block composed of Proterozoic to Mesozoic crystalline rocks. The basement rock is offset by Neogene high angle normal faults that form grabens infilled with Cenozoic sedimentary rock and Quaternary alluvium (Garfunkel, 1974). In general, the Mojave Desert is dominated by broad alluvial basins and uplifted, unroofed basement rock. The Mojave Desert is entirely landlocked and elevation averages 2,500 ft amsl (Norris, 1976).

The Project area is at the northwestern end of the Chuckwalla Valley, southeast of the base of the Eagle Mountains and northwest of the Chuckwalla Mountains. These mountains are part of the eastern extension of the Transverse Ranges province. The Chuckwalla and Eagle mountains are composed of diverse plutonic igneous lithologies from a Mesozoic batholith that intruded into Precambrian to Paleozoic metamorphic basement rock (Powell et al., 1984) (Powell and Watts, 1984). As such, the mountains have a bajada (coalescing alluvial fan aprons) of angular igneous and metamorphic clasts of varied composition and age (Jennings, 1967) (Figure 4-1).

4.2 SITE-SPECIFIC GEOLOGY AND PALEONTOLOGY

A paleontological resource assessment of the Project area was prepared by PaleoWest and submitted to the BLM prior to fieldwork (Clifford and DeBusk, 2023). The assessment included literature review, geology, and paleontology of the Project area; museum records results; and PFYC recommendations for geologic units in the Project area. The assessment recommended a preliminary paleontological resource potential of unknown (PFYC 3b) for the entire Project area. The site-specific geology and paleontology described in the paleontological resource assessment report is summarized below.

The geology of the Project area is mapped at a scale of 1:250,000 by Jennings (1967) and is entirely underlain by Quaternary alluvial deposits of Chuckwalla Valley (Qal, "Quaternary alluvium") (Figure 4-1).

Museum records for nearby solar energy developments identified numerous significant Pleistocene vertebrate localities from valley axis alluvium deposits (Aspen Environmental, 2020; Kottkamp, 2022; Mueller, 2022; Stoneburg, 2022). In addition to vertebrate localities identified in the Chuckwalla Valley, Pleistocene alluvial deposits similar to those mapped in the Project area have proven to yield significant vertebrate fossils throughout Riverside County, including mammals such as Columbian mammoth (*Mammuthus columbi*), horse (*Equus* sp.), camel (*Camelops* sp.), bison (*Bison* sp.), Harlan's ground sloth (*Glossotherium harlani*), ground sloth (*Megalonyx* sp.), and lamine camel (*Hemiauchenia* sp.), (Jefferson, 1991a, 1991b; Reynolds et al., 1991; Springer et al., 2009; University of California Museum of Paleontology [UCMP], 2023). A full list of the previously recorded vertebrate localities reported by the museums is available in the paleontological resource assessment report (Clifford and DeBusk, 2023).

Based on the museum records results, literature review, and review of unpublished reports from other nearby solar developments in the Chuckwalla Valley, the paleontological resource assessment report (Clifford and DeBusk, 2023) recommended a preliminary paleontological resource potential of geologic units in the Project area. A rating of PFYC Class 3b (unknown) was recommended for Qal until a field survey could be conducted within the Project area to evaluate the geologic unit for the potential to contain preserved fossil material.



Figure 4-1. Regional geologic map (1:250,000); Qal mapped within the Project area: Holocene age alluvium; modified from Jennings (1967).

5 FIELD INVESTIGATION

5.1 FIELD METHODS

Following the recommendations in the paleontological assessment report (Clifford and DeBusk, 2023), a paleontological field survey was conducted in the Project area. A pedestrian survey was performed on all private land in the Project area on October 11, 18, and 19 by PaleoWest BLM-permitted Paleontological Field Directors Benjamin Scherzer, M.S., and Matthew Witte, Ph.D. Subsequently, on April 3–6 and April 10–13, 2023 a paleontological survey was conducted on all BLM-managed land in the Project area by PaleoWest BLM-permitted Paleontological Field Director, Silvia Ascari, Ph.D., with assistance from Staff Paleontologists Cynthia Stoddard, B.S., and Josh Heaps, B.S.

The purpose of the field survey was to inspect the ground surface visually for exposed fossils, evaluate geologic exposures for their potential to contain buried fossils, and assist in determining where additional paleontological mitigation (e.g., fossil salvage or paleontological monitoring during ground disturbance) may be necessary prior to or during Project development. Field data were collected during the survey using a digital camera, GPS unit with submeter accuracy, and a digital database loaded on tablet computers. All work was conducted in accordance with the terms of California Statewide Paleontological Resources Use Permit #CA-19-01P (Appendix A) and Paleontological Field Authorization #23-02 (Appendix B).

During fieldwork, an intensive pedestrian survey was accomplished, and published geologic maps were verified. PaleoWest's survey team inspected the ground surface for evidence of paleontological resources. PaleoWest used a tablet computer equipped with topographic maps, geologic maps, paleontological sensitivity GIS data, and aerial photographs. Notes were taken on the lithology of geologic units encountered, and photographs were taken to document the survey.

5.2 PALEONTOLOGICAL PEDESTRIAN SURVEY

The survey encompassed a total of 1,192 ac, including 1,082 ac of private land and 110 ac of BLM-managed land. The Project area was intensively surveyed for paleontological resources using evenly spaced, 10–30-meter (m) parallel transects covering 100 percent of the Project area. Transects were widened or narrowed at the discretion of the Field Director and Principal Investigator, dependent upon field conditions and degree of exposure of the underlying geology. Project areas obscured by heavy vegetation, agricultural mulch, or developed roads were not comprehensively examined because of lack of visibility of the underlying geological unit. Vegetation was generally sparse with localized dense growth in the eastern Project area accounting for approximately 10 percent of the surface cover (Figure 5-1).

The terrain in the Project area consists of a wide, flat playa, crossed by heavily used unpaved agricultural roads and transmission line access roads. The Project area includes a former Jojoba Farm, with the agricultural rows still visible on the ground surface. The geologic unit mapped by Jennings (1967) as undifferentiated Quaternary alluvium (Qal) is exposed at ground surface with absent to very thin local soil development. The Quaternary alluvium is moderately consolidated, light brown to light tan, with clay, silt, and coarse-grained sand. Development of minor desert pavement is apparent with subangular to subrounded pebbles to cobbles (Figure 5-2).



Figure 5-1. Overview of Project area in BLM land, view to the north.



Figure 5-2. Quaternary alluvium (QaI) exposed at ground surface in the Project area is composed of light brown to light tan, with clay, silt, and coarse-grained sand and angular pebbles; plan view.

No paleontological localities were identified on the surface of the Project area in BLM-managed land. A total of three nonsignificant paleontological localities were identified on the surface of the Project area on private land. The fossils specimens include very weathered fragments of partially fossilized Holocene turtle and possible coprolite. Refer to Figure 5-3 for the location of documented fossil localities in the Project area. The nonsignificant localities are summarized in Table 5-1. Refer to Figure 5-3 for the location of significant fossil localities in the Project area.

Locality No.	Geologic Unit/ Lithology	Age	Таха	Significance	Notes
F221011_BAS_1	Quaternary alluvium, Unconsolidated, tan, clay/silt, coarse-grained sand with minor desert pavement	Holocene	Tortoise (<i>Testudines</i>) shell fragment, very weathered, and possible coprolite	Nonsignificant	Ex situ, isolated, not collected
F20221018_MKW_01	Quaternary alluvium, sands	Holocene	Turtle (<i>Testudines</i>) humerus (proximal end), fragmented, with some infill	Nonsignificant	Ex situ, isolated, not collected
F221019_MKW_1	Quaternary alluvium	Holocene	Tortoise (<i>Testudines</i>) shell fragment	Nonsignificant	Ex situ, isolated, not collected



Figure 5-3. Nonsignificant fossil localities documented in the Project Area during the paleontological pedestrian survey.

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Paleontological Resource Survey Report for the Sapphire Solar Project | 18

6 FINDINGS

One hundred percent of the Project area was subject to a pedestrian paleontological survey. The geological unit mapped in the Project area, Quaternary alluvium (Qal), was well exposed and observed at ground surface. No fossil localities were observed on the surface of the Project area on BLM-managed land, and a total of three nonsignificant paleontological localities were identified on the surface of the Project area in private land that yielded surface fossils of turtle.

6.1 DETERMINATION OF POTENTIAL FOSSIL YIELD CLASSIFICATION FOR GEOLOGIC UNITS WITHIN THE PROJECT AREA

In general, the potential for a given project to result in adverse impacts to paleontological resources is directly proportional to the amount of ground disturbance associated with the project. As this Project entails installation of a solar power plant, surface disturbance throughout the Project area is anticipated via grading, trenching, and other earth-moving operations related to Project development.

In accordance with BLM guidelines (BLM, 2008), this report uses the PFYC system (BLM, 2016) to assess paleontological sensitivity and the level of effort required to manage potential impacts to significant fossil resources. Using this system, the resource potential of geologic units was determined based on the relative abundance and risk of adverse impacts to vertebrate fossils and significant invertebrates and plants.

Fieldwork results confirmed surface fossils are present in the Project area. All visible surface fossils were identified during the field survey. Additional surface or near-surface fossils may be exposed by ongoing eolian and alluvial processes that rework or remove thin layers of sediment that may obscure fossils. The Quaternary alluvium (Qal) throughout the Project area has proven conducive to the preservation of vertebrate remains and may contain an unknown number of buried fossil resources in the subsurface particularly if fine-grained playa deposits are encountered at depth (East et al., 2021). As such, it is recommended the preliminary paleontological resource potential for Quaternary alluvium be revised and increased from PFYC 3b (unknown) to PFYC 4 (high). This classification is supported by the desktop analysis conducted for the California Desert District Potential Fossil Yield Classification Study report (Donohue et al., 2018), which determined a PFYC 4 classification is appropriate for the Quaternary alluvial sediments in the Chuckwalla Valley. The updated recommended PFYC rankings of the geologic units underlying the Project area are listed in Table 6-1 and depicted on Figure 6-1.

Geologic Unit ¹	Map Abbreviation	Age	Typical Fossils	Preliminary Recommended Potential Fossil Yield Classification ²	Updated Recommended Potential Fossil Yield Classification
Quaternary alluvium	Qal	Late Pleistocene– Holocene	Turtle	Class 3b (unknown)	Class 4 (high)

Table 6-1. Geologic Units Underlying the Project Area and Their Updated PFYC Recommendation

¹Jennings (1967) .

²Clifford and DeBusk (2023).



Figure 6-1. Recommended PFYC map of the Project area.

7 MANAGEMENT RECOMMENDATIONS

Based on the results of the pedestrian field survey and the paleontological assessment of the Project area there is a high potential that additional fossils may be present at the surface or subsurface in the Project area; therefore, it is recommended that a management strategy be established that (1) provides for environmental awareness training on paleontological resources to all site workers and (2) requires the preparation and implementation of a Paleontological Resources Mitigation Plan (PRMP) should any future ground-disturbing work be planned for the Project area.

With the successful implementation of the recommended management strategy and specific mitigation measures described below, potential adverse effects to paleontological resources would be reduced to a less-than-significant level as required by NEPA and the PRPA and would also be consistent with other federal and local laws and regulations.

7.1 MANAGEMENT STRATEGY

This management strategy should be carried out in accordance with the BLM's General Procedural Guidance for Paleontological Resource Management Handbook (H-8270, H-8270-1) (BLM, 1998a, 1998b) and Instruction Memorandums 2008-009 and 2009-011 (BLM, 2008), which establish criteria for the sensitivity and significance assessment and mitigation of sensitive fossil resources.

7.1.1 Worker's Environmental Awareness Program (WEAP)

All field personnel will receive a worker's environmental awareness training on paleontological resources. The training will provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the Project area, an outline of steps to follow in the event that a significant fossil discovery is made, and contact information for the qualified paleontologist (Principal Investigator). The training will be developed by the qualified paleontologist and can be delivered concurrent with other training, including cultural, biological, safety, or other training or provided as a brochure.

7.1.2 Paleontological Resource Mitigation Plan

Prior to the commencement of ground-disturbing activities, a qualified professional paleontologist should be retained to prepare and implement a PRMP for any future proposed project in the Project area. The PRMP should address the recommended approach to specific locations and intensity of monitoring as well as fossil recovery and collection if necessary.

7.1.3 Paleontological Mitigation Monitoring

BLM management options described in the PRMP for geologic units designated as PFYC 4 (high) could include full-time construction monitoring. Monitoring will entail the visual inspection of excavated or graded areas and trench sidewalls. If the project paleontologist determines full-time monitoring is no longer warranted, based on the geologic conditions at depth, they may recommend to the BLM Authorized Officer that monitoring be reduced or cease entirely.

7.1.4 Fossil Discoveries

If a paleontological resource is discovered, the monitor will have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the project paleontologist shall complete the following:

- (1) **Salvage of Fossils**: If fossils are discovered, all work in the immediate vicinity should be halted to allow the paleontological monitor or project paleontologist to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the project paleontologist (or paleontological monitor) should recover them following standard field procedures for collecting paleontological specimens as outlined in the PRMP prepared for the project. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils, such as complete skeletons or large mammal fossils, require more extensive excavation and longer salvage periods. In this case, the paleontologist should have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossils can be removed in a safe and timely manner.
- (2) Fossil Preparation and Curation: The PRMP will identify the museum that has agreed to accept fossils that may be discovered during project-related excavations. Upon completion of fieldwork, all significant fossils collected will be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossils specimens will be identified to the lowest taxonomic level practical prior to curation at an accredited museum. The fossil specimens must be delivered to the accredited museum or repository no later than 90 days after all fieldwork is completed. The cost of curation will be assessed by the repository and will be the responsibility of the client.

7.1.5 Final Paleontological Mitigation Report

Upon completion of ground-disturbing activity (and curation of fossils if necessary), the project paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils including the scientific significance of those fossils, and where fossils were curated.

8 REFERENCES CITED

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Appendix A. Bureau of Land Management Paleontological Resources Use Permit



United States Department of the Interior

BUREAU OF LAND MANAGEMENT California State Office 2800 Cottage Way, Suite W1623 Sacramento, CA 95825 www.blm.gov/office/california-state-office



In Reply Refer To: 8151(CA-930) P

Jessica DeBusk PaleoWest, LLC 517 S Ivy Ave Monrovia, CA 91016

Dear Ms. DeBusk:

Thank you for your correspondence of July 13, 2022, requesting personnel amendments to Paleontology Resource Use Permit (*CA-22-01P*). BLM professional staff reviewed your permit file and the materials you submitted in support of your request for amendment.

Per your request, BLM has approved the following staff members as Field Agents: Heather Clifford, Geoff Flora, John Munson, and Matthew Witte. Note that Madeline Weigner and Silvia Ascari are already listed as Field Agents on the permit, having been added via modification request on March 18, 2022. Candidates Esmerelda Elsrouji, Nick Oliver, and David Schroeder do not qualify for Field Agent at this time, and will not be listed on the permit.

Should you have any questions, please call John Fogerty at (279) 202-7035 or send an email to jfogerty@blm.gov.

Sincerely,

Danielle Chi Deputy State Director



T: 626.408.8006 info@paleowest.com LOS ANGELES COUNTY 517 S. Ivy Avenue Monrovia, CA 91016

July 13, 2022

James Barnes Bureau of Land Management 2800 Cottage Way, Suite W-1928 Sacramento, California 95825 Transmitted via email to <u>jjbarnes@blm.gov</u>

RE: Request for Modification of Statewide Paleontological Resources Use Permit CA-22-01P

Dear Mr. Barnes,

PaleoWest LLC (PaleoWest) is respectfully requesting a modification of Statewide Paleontological Use Permit #CA-22-01P for survey and limited collection. At this time, we wish to add the following individuals to the permit: Heather Clifford (Field Agent), Silvia Ascari (Field Agent), Esmerelda Elsrouji (Field Agent,) Geoff Flora (Field Agent), John Munson (Field Agent), Nick Oliver (Field Agent), David Schroeder (Field Agent), Madeline Weigner (Field Agent), and Matthew Witte, (Field Agent). Please find below individual contact information. Enclosed herein, for your reference, is a copy of our current permit.

- Heather Clifford, 323-327-8692, <u>hclifford@paleowest.com</u>
- Silvia Ascari, 612-227-3049, <u>sascari@paleowest.com</u>
- Esmerelda Elsrouji, 725-666-9868, eelsrouji@paleowest.com
- Geoff Flora, 303-579-5024, gflora@paleowest.com
- John Munson, 847-477-7306, jmunson@paleowest.com
- Nick Oliver, 619-840-2780, noliver@paleowest.com
- David Schroeder, 714-345-1654, dschroeder@paleowest.com
- Madeline Weigner, 770-880-1521, <u>mweigner@paleowest.com</u>
- Matthew Witte, 440-986-1790, mwitte@paleowest.com

If you have any questions regarding PaleoWest's paleontological resource investigations in California, please contact us.

Sincerely,

Jess DeBush

Jessica DeBusk, B.S., M.B.A. Regional Principal



United States Department of the Interior

BUREAU OF LAND MANAGEMENT California State Office 2800 Cottage Way, Suite W1623 Sacramento, CA 95825 www.blm.gov/office/california-state-office



In Reply Refer To: 8151(CA-930) P

Jessica DeBusk Paleontology Program Manager PaleoWest, LLC 517 S Ivy Ave Monrovia, CA 91016

Dear Ms. DeBusk:

The Bureau of Land Management (BLM) is pleased to issue a Paleontological Resource Use Permit (*CA-22-01P*) to PaleoWest, LLC for use on public lands managed by the BLM California as specified in your permit. This permit is issued under the authority of the Federal Land Policy and Management Act (FLPMA) and the Paleontological Resources Preservation Act. Keep a copy with you at all times in the field.

The BLM would like to emphasize a few points. First, this permit assigns to your firm the responsibility to submit reports and other documents in a timely fashion and such submittal will be a major point of review of your firm's performance under this permit. Second, you are required to contact the appropriate Field Office to obtain a Fieldwork Authorization before you begin any fieldwork. Please allow the Field Office sufficient lead-time to process your application for a Fieldwork Authorization. The Field Office may impose additional conditions and stipulations at that time. Third, this permit assigns to your firm the responsibility to submit an annual report to the BLM California State Office by December 31st of each year the permit is active. This submittal will be a major point of review of your performance under the permit.

Our office is enclosing a map of BLM California Field Offices with phone numbers of staff contacts and a copy of your permit with attached National special permit conditions. BLM draws your attention to these stipulations and encourages you to read and understand them. Please sign page 5, as indicated, and return a copy of this signature page to the BLM California State Office within 30 days of your receipt of the permit. Your permit will be valid after your signature is received.

Should you have any questions contact James Barnes at email jjbarnes@blm.gov or by phone 916-978-4676.

Sincerely,

DANIELLE CHUCHI Digitally signed by DANIELLE CHUCHI Date: 2021.12.08 07:50:22 -08'00'

Deputy State Director

Enclosures as stated



United States Department of the Interior

PERMIT FOR PALEONTOLOGICAL INVESTIGATIONS

To conduct archeological work on Department of the Interior lands and Indian lands under the authority of:

E Paleontological Resources Preservation Act of 2009 (P.L. 111-11, Title VI, Subtitle D; 16 U.S.C. §§ 470aaa - 470aaa-11).

□ Supplemental regulations (25 CFR 262) pertaining to Indian lands.

E Bureau-specific statutory and/or regulatory authority: Federal Land Policy and Management Act of 1976 (Public Law 94-570), and Section 302 of Public Law 94-4579

Please use this number when referring to this permit

No.: CA-22-01P					
1. Permit issued to	2. Under applie	2. Under application dated			
Paleowest, LLC	September 28,	September 28, 2021			
3. Address:	4. Telephone n	4. Telephone number(s)			
517 S Ivy Ave	(626) 408-800	(Office) (Field Party)			
Monrovia, CA 91016	5. E-mail addr	uss(es)			
	jdebusk@pale	jdebusk@paleowest.com			
6. Name of Permit Administrator:	7. Name of Principal Investigator(s):				
Jessica DeBusk	Jessica DeBusk				
Telephone number(s): (626) 408-8006	Joshua Bonde				
Email address(es): jdebusk@paleowest.com	Benjamin Scherzer				
8. Name of Field Director(s) authorized to carry out field projects:	Telephone number(s): (760) 271 6042 (Field Party)				
Tara (Redinger) Kloess, Mathew Carson, Niranjala Kottachchi	(700) 271-0945 (Field Fally)				
9. Activity authorized					
Survey and limited surface collection.					
10. On lands described as follows					
All public lands administered by the Bureau of Land Management-California.					
11. During the duration of the projectFrom December 7, 2021To December 7, 2024					
12. Name and address of the curatorial facility in which collections, records, data, photographs, and other documents resulting from work under this nermit shall be denosited for permanent preservation on behalf of the United States Government.					
Western Science Center, 2345 Searl Pkwy, Hemet, CA 92543					
13. Permittee is required to observe the listed standard permit conditions and the special permit conditions attached to this permit.					
14. Signature and title of approving official		15. Date			
DANIELLE Digitally signed by DANIELLE CHI					
CHI Date: 2021.12.08 07:50:43 -08'00'					
Deputy State Director, Division of Natural Resources					

15. Standard Permit Conditions

- a. This permit is subject to all applicable provisions of 43 CFR Part 3, 43 CFR 7, and 25 CFR 262, and applicable departmental and bureau policies and procedures, which are made a part hereof.
- b. The permittee and this permit are subject to all other Federal, State, and local laws and regulations applicable to the public lands and resources.
- c. This permit shall not be exclusive in character, and shall not affect the ability of the land managing bureau to use, lease or permit the use of lands subject to this permit for any purpose.
- d. This permit may not be assigned.
- e. This permit may be suspended or terminated for breach of any condition or for management purposes at the discretion of the approving official, upon written notice.
- f. This permit is issued for the term specified in 11 above.
- g. Permits issued for a duration of more than one year must be reviewed annually by the agency official and the permittee.
- h. The permittee shall obtain all other required permit(s) to conduct the specified project.
- i. Archeological project design, literature review, development of the regional historic context framework, site evaluation, and recommendations for subsequent investigations must be developed with direct involvement of an archeologist who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation; fieldwork must be generally overseen by an individual who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation.
- j. Permittee shall immediately request that the approving official (14. above) make a modification to accommodate any change in an essential condition of the permit, including individuals named and the nature, location, purpose, and time of authorized work, and shall without delay notify the approving official of any other changes affecting the permit or regarding information submitted as part of the application for the permit. Failure to do so may result in permit suspension or revocation.
- k. Permittee may request permit extension, in writing, at any time prior to expiration of the term of the permit, specifying a limited, definite amount of time required to complete permitted work.
- 1. Any correspondence about this permit or work conducted under its authority must cite the permit number. Any publication of results of work conducted under the authority of this permit must cite the approving bureau and the permit number.
- m. Permittee shall submit a copy of any published journal article and any published or unpublished report, paper, and manuscript resulting from the permitted work (apart from those required in items q. and s., below), to the approving official and the appropriate official of the approved curatorial facility (item 12 above).
- n. Prior to beginning any fieldwork under the authority of this permit, the permittee, following the affected bureau's policies and procedures, shall contact the field office manager responsible for administering the lands involved to obtain further instructions.
- o. Permittee may request a review, in writing to the official concerned, of any disputed decision regarding inclusion of specific terms and conditions or the modification, suspension, or revocation of this permit, setting out reasons for believing that the decision should be reconsidered.
- p. Permittee shall not be released from requirements of this permit until all outstanding obligations have been satisfied, whether or not the term of the permit has expired. Permittee may be subject to civil penalties for violation of any term or condition of this permit.

15. Standard Permit Conditions (continued)

- q. Permittee shall submit a preliminary report to the approving official within a timeframe established by the approving official, which shall be no later than 6 weeks after the completion of any episode of fieldwork, setting out what was done, how it was done, by whom, specifically where, and with what results, including maps, GPS data, an approved site form for each newly recorded archeological site, and the permittee's professional recommendations, as results require. If other than 6 weeks, the timeframe shall be specified in Special Permit Condition p. Depending on the scope, duration, and nature of the work, the approving official may require progress reports, during or after the fieldwork period or both, and as specified in Special Permit Condition r.
- r. Permittee shall submit a clean, edited draft final report to the agency official for review to insure conformance with standards, guidelines, regulations, and all stipulations of the permit. The schedule for submitting the draft shall be determined by the agency official.
- s. Permittee shall submit a final report to the approving official not later than 180 days after completion of fieldwork. Where a fieldwork episode involved only minor work and/or minor findings, a final report may be submitted in place of the preliminary report. If the size or nature of fieldwork merits, the approving official may authorize a longer timeframe for the submission of the final report as specified in Special Permit Condition q.
- t. Two copies of the final report, a completed NTIS Report Documentation Page (SF-298), available at http://www.ntis.gov/pdf/rdpform.pdf, and a completed NADB-Reports Citation Form, available at http://www.cr.nps.gov/aad/tools/nadbform_update.doc, will be submitted to the office issuing the permit.
- u. The permittee agrees to keep the specific location of sensitive resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.
- v. Permittee shall deposit all artifacts, samples and collections, as applicable, and original or clear copies of all records, data, photographs, and other documents, resulting from work conducted under this permit, with the curatorial facility named in item 12, above, not later than 90 days after the date the final report is submitted to the approving official. Not later than 180 days after the final report is submitted, permittee shall provide the approving official with a catalog and evaluation of all materials deposited with the curatorial facility, including the facility's accession and/or catalog numbers.
- w. Permittee shall provide the approving official with a confirmation that museum collections described in v. above were deposited with the approved curatorial facility, signed by an authorized curatorial facility official, stating the date materials were deposited, and the type, number and condition of the collected museum objects deposited at the facility.
- x. Permittee shall not publish, without the approving official's prior permission, any locational or other identifying archeological site information that could compromise the Government's protection and management of archeological sites.
- y. For excavations, permittee shall consult the OSHA excavation standards which are contained in 29 CFR §1926.650, §1926.651 and §1926.652. For questions regarding these standards contact the local area OSHA office, OSHA at 1-800-321-OSHA, or the OSHA website at http://www.osha.gov.
- z. Special permit conditions attached to this permit are made a part hereof.

16. Special Permit Conditions

- **x** a. Permittee shall allow the approving official and bureau field officials, or their representatives, full access to the work area specified in this permit at any time the permittee is in the field, for purposes of examining the work area and any recovered materials and related records.
- **E** b. Permittee shall cease work upon discovering any human remains and shall immediately notify the approving official or bureau field official. Work in the vicinity of the discovery may not resume until the authorized official has given permission.
- **x** c. Permittee shall backfill all subsurface test exposures and excavation units as soon as possible after recording the results, and shall restore them as closely as reasonable to the original contour.
- A. Permittee shall not use mechanized equipment in designated, proposed, or potential wilderness areas unless authorized by the agency official or a designee in additional specific conditions associated with this permit.
- E e. Permittee shall take precautions to protect livestock, wildlife, the public, or other users of the public lands from accidental injury in any excavation unit.
- **E** f. Permittee shall not conduct any flint knapping or lithic replication experiments at any archeological site, aboriginal quarry source, or non-site location that might be mistaken for an archeological site as a result of such experiments.
- g. Permittee shall perform the fieldwork authorized in this permit in a way that does not impede or interfere with other legitimate uses of the public lands, except when the authorized officer specifically provides otherwise.
- A. Permittee shall restrict vehicular activity to existing roads and trails unless the authorized officer provides otherwise.
- i. Permittee shall keep disturbance to the minimum area consistent with the nature and purpose of the fieldwork.
- j. Permittee shall not cut or otherwise damage living trees unless the authorized officer gives permission.
- k. Permittee shall take precautions at all times to prevent wildfire. Permittee shall be held responsible for suppression costs for any fires on public lands caused by the permittee's negligence. Permittee may not burn debris without the authorized officer's specific permission.
- 1. Permittee shall conduct all operations in such a manner as to prevent or minimize scarring and erosion of the land, pollution of the water resources, and damage to the watershed.
- **x** m. Permittee shall not disturb resource management facilities within the permit area, such as fences, reservoirs, and other improvements, without the authorized officer's approval. Where disturbance is necessary, permittee shall return the facility to its prior condition, as determined by the authorized officer.
- In. Permittee shall remove temporary stakes and/or flagging, which the permittee has installed, upon completion of fieldwork.
- O. Permittee shall clean all camp and work areas before leaving the permit area. Permittee shall take precautions to prevent littering or pollution on public lands, waterways, and adjoining properties. Refuse shall be carried out and deposited in approved disposal areas.
- p. Permittee shall submit the preliminary report within ______ days/weeks of completion of any episode of fieldwork..
- q. Permittee shall submit the final report within ______ days/weeks/months after completion of fieldwork..
- □ r. Permittee shall submit progress reports every _____ months over the duration of the project.
- s. California special permit conditions are attached.

Special Permit Conditions Continuation Sheet: California Conditions

- a. Work under this permit is limited to specific service approved for each permit. This may consist of non-collection survey, limited testing to determine site content and limits or extensive testing emergency excavation and/or salvage projects. Testing/ excavation projects may be conducted under the authority of this permit only upon completion of ARPA consultation with Native American Groups and written approval from the Bureau for such work. (CARIDAPs for the purpose of the identification of archaeological resources are authorized under a FLPMA/ARPA Permit).
- b. Permittees shall verbally and subsequently in writing contact the appropriate BLM Field Manager prior to the beginning of each of his field operations (with follow-up written notification) to inform the BLM of specific work to be conducted. At this time, the BLM Field Manager may impose additional stipulation as deemed necessary to provide for the protection and management of resource values in the general site or project area.
- c. All cultural artifacts and other related materials such as notes, photographs, etc., acquired under the provisions of this permit remain the property of the United States Government and may be recalled at any time for the use of the Department of the interior or other agencies of the Federal Government. Cultural materials collected under the provisions of this permit must be curated at a repository approved by the BLM. Curation shall be at a local qualified repository, if feasible, and an approved curation facility shall be designated prior to all field projects. An itemized list of all materials with accession numbers, curated at the repository will be submitted to the State Office and to the appropriate Field Office within 180 days of the completion of individual field projects. A copy of a receipt from the curation facility must be submitted with the list or catalogue.
- d. Permittees shall acquire a primary number from the appropriate Information Center for each cultural resource documented while undertaking work authorized by this permit.
- e. The BLM Field Manager or authorized representative may require a monthly letter progress report outlining what was accomplished. This report, if required, is due by the fifth day of the following month, unless different arrangements are approved.
- f. The individual(s) in direct charge must be academically qualified and possess adequate field experience. At least two weeks prior to initiation field work, the permittees must provide the BLM Field Manager with the vitae of individuals proposed to be in direct charge if not approved at the time of permit issuance. A list of field crew members should be submitted at the same time. Only the individual(s) listed in Item No. 8 of the permit is/are authorized to be in direct charge of field work conducted under this permit.
- g. The person(s) in direct charge of field work, shall be on site at all times when work is in progress. Failure to comply with permit stipulations will result in removal of subject's name(s) from the approved list of person-in-direct-charge.
- h. Care should be exercised to avoid directly or indirectly increasing access or potential vandalism to sensitive sites.
- i. All National Permit Stipulations are binding. The authority for issuing permits in the Bureau of Land Management rests solely with the State Director as Delegated by the Secretary of the Interior and all further delegation is prohibited by Secretarial Order. No Modification of National Permit Conditions 8 or 9 or of the California Special Permit Conditions may occur except by written decision of the State Director.
- j. The Bureau of Land Management shall be cited in any report of work done under this permit, including publications such as books, news articles and scientific publications, as well as oral reports, films, television programs, and presentations in other media.

By signing below, I, the Principal Investigator, acknowledge that I have read and understand the Permit for Archeological Investigations and agree	0
its terms and conditions as evidenced by my signature below and initiation of work or other activities under the authority of this permit.	

DocuSigned by:

Jess DeBush C8B5A3DF95EF42A

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Date:

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Appendix B. Field Work Authorization



United States Department of the Interior BUREAU OF LAND MANAGEMENT

Palm Springs South Coast Field Office 1201 Bird Center Drive Palm Springs, CA 92262 www.blm.gov/california



2/6/23

In Reply Refer To: 8270 (P) CACA-059265 CAD066.65

PaleoWest Inc. 517 S. Ivy Avenue Monrovia, CA 91016

Attention: Ms. Jessica DeBusk

Dear Ms. DeBusk:

Enclosed is your Paleontological Field Authorization (PFA), #2023-02, for PaleoWest to conduct a paleontological pedestrian survey at the Easley Renewable Energy Project. The Project is located on land administered by the BLM Palm Springs Field Office, as well as private lands. The Project encompasses approximately 6,426 acres, of which 2,629 acres are managed by the BLM.

The Project is located near the unincorporated Desert Center area of eastern Riverside County occupying portions of Sections 25 and 34-36 of Township 4 South, Range 15 East; Sections 19 and 30-31 of Township 4 South, Range 16 East; Sections 1-3, 10-15, and 22-24 of Township 5 South, Range 15 East; and Sections 5-8, 17-21, 25, and 28 of Township 5 South, Range 16 East, on the Victory Pass, East of Victory Pass, Desert Center, and Corn Spring, California U.S. Geological Survey 7.5' Quadrangles (See attached map).

This authorization applies only to paleontological surveying and monitoring conducted within the project area on public Federal lands under jurisdiction of the Bureau of Land Management (BLM), Palm Springs South Coast Field Office. The authorized activities include: (1) broad ranging survey/reconnaissance work; (2) locate, and may collect, vertebrate fossil localities for inventory or planning purposes, and (3) identify, in advance of development, which areas may threaten resource localities.

During all monitoring activities the following stipulations apply:

1. All standard and special conditions of Permit for Paleontological Investigations No. CA-22-01P issued will remain in effect and in force. The individual in charge of fieldwork must carry a copy of this permit and associated authorizations during the duration of onsite inventory.

2. Please note that only the individual(s) listed in Item No. 7 of the permit is/are authorized to be in direct charge of fieldwork conducted under this permit.

PFA-23-02

3. A "Field Contact Representative" (FCR) is defined as a person designated by the project proponent who is responsible for overseeing compliance with desert tortoise protective measures and for coordination with the agency compliance officer. The FCR must be on-site during all project activities. The FCR must have the authority to halt all project activities that are in violation of these measures. The FCR must have a copy of all desert tortoise protective measures when work is being conducted on the site.

4. Limit the collection of materials to easily collectible vertebrate fossils, which result in very little or no significant surface disturbance. Isolated gar scales, chelonid (turtle) carapace or plastron fragments, crocodile and fish teeth are not to be collected. However, if these fragments are seen, the location of these fragments must be recorded, and a description of the fossil material noted in the field notes and on a BLM Locality Form as part of the report. A separate notification must be required for the collection of vertebrate paleontological resources that are not easily collectable and/or will require surface disturbance. You must notify this field office prior to making any collections which result in excavations and/or significant surface disturbance, not related to matrix screening.

5. The following Conservation Management Actions (CMA) are prescribed in association with the request:

CMA 1.	Vehicle speeds shall not exceed 15 miles per hour.
CMA 2.	Motor vehicle access shall be limited to maintained roads and designated routes.
CMA 3.	All trash and food items shall be properly contained. Trash and food items will be removed from the project site the same day to reduce the attractiveness of the area to ravens and other tortoise predators.
CMA 4.	All staff will check under and around vehicles for desert tortoise before moving vehicles. If a desert tortoise is discovered, the vehicle cannot be moved until the tortoise has moved out from under or around the vehicle on its own accord. A BLM authorized biologist can move the tortoise, if available.
CMA 5.	If a live desert tortoise is found, do not touch, or harass the tortoise and maintain 10 feet of distance from the tortoise.
CMA 6.	No pets are allowed on Federal Lands within the project site.
CMA 7.	A biological monitor is present during project activities.
CMA 8.	If a dead or injured desert tortoise is discovered on site it will be immediately reported to BLM and USFWS within 24 hours.
CMA 9.	During the migratory bird nesting season (January 15 - August 31), a 30-foot buffer around vegetation will be applied to avoid impacts to nesting migratory birds.
CMA 10.	A Worker Environmental Awareness Program (WEAP) training will be provided to all field personnel prior to the start of the assessment and survey that will include basic ecology and protection status of Mojave Desert tortoise, the above measures established for the project, and what to do if they encounter a tortoise during project activities.
CMA 11.	Due to the potential for California rare, threatened, or endangered plants to occur within the project footprint (Harwood's Milkvetch and Crucifixion Thorn, both rare plant rank 2B.2) no vegetation disturbance is allowed unless verification of plant species has occurred.

6. You must notify the BLM Palm Springs South Coast Field Office when fieldwork has been completed.

7. Reports of the general findings and the background information must be submitted to the BLM project manager or Authorized Officer no later than 180 days after completion of fieldwork. Reports must include the following details, as applicable. Items (a) and (b) should appear at the beginning of the report and may be presented as a title page in multi-page reports. Some of these categories may be combined.

- a.) Name, affiliation, address, date of report, and permit number (if consultant) of paleontologist doing the survey.
- b.) Project name and number (if used), name of proponent, and general location of project.
- c.) Date(s) of survey and names of any personnel assisting with the survey.
- d.) Brief description of the proposed project, emphasizing potential impacts to paleontological resources.
- e.) Descriptions of background research conducted. Include overview of known paleontological information, institutions consulted, previous surveys in the area, previous projects of similar nature in the area, and general description of survey techniques employed.
- f.) Summary of regional and local geology. May reference earlier projects for relevant information.
- g.) Summary of regional and local paleontology. May reference earlier projects for relevant information.
- h.) Summary of the testing results.
- i.) Significance of findings.
- j.) Potential impacts to paleontological resources resulting from the project.
- k.) Detailed mitigation recommendations that may lessen potential adverse impacts.
- 1.) Potential fossiliferous areas to allow for future assessment of sites if applicable.
- m.) Cited and other pertinent references.
- n.) Map of project area, indicating areas surveyed, known localities, and new discoveries.
- o.) Relevant photos, diagrams, tables to aid in explaining, clarifying, or understanding the findings.
- p.) Listing of collected material, including field numbers, field identifications, and elements, cross-referenced to locality field numbers. This list may be submitted in electronic format, preferably in spreadsheet format.
- q.) BLM locality form (8270-3) or equivalent for each new locality (including localities where fossils were observed but not collected) with a 1:24000 scale map showing the localities (not reduced in scale during photocopying).

The work conducted under this fieldwork authorization is anticipated to extend for a period of 1-year, expiring December 30, 2023. If the project is anticipated to extend beyond this period, you must notify this office a minimum of 2-weeks prior to that date. Should you have questions, please call Jeffrey Johnston, BLM Palm Springs Field Office Geologist/Paleontological contact, at (760) 833-7134.

Sincerely,

Date: 2023.02.06 13:56:11 -08'00' Dite: 2023.02.06 13:56:11 -08'00'

Timothy D. Gilloon Field Manager Enclosure (2):

1. Paleontological Fieldwork Authorization Application

2. Detailed work area maps

FIELDWORK AUTHORIZATION REQUEST

For BLM Use Only

To Conduct Specific Cultural Resource Work under the Authority of a Cultural Resource Use Permit Issued by the Bureau of Land Management Pursuant to Sec. 302 (b) of P. L. 94-579, October 21, 1976, 43 USC 1732 Sec. 4 of P. L. 96-95, October 31, 1979, 16 USC, 470cc

1. Permit Number and Date Issued CA-22-01P Issued 12/07/2021	2. Name of Permittee Jessica DeBusk, PaleoWest
 3. Mailing Address and Telephone Number 517 S. Ivy Ave Address: Monrovia, CA 91016 	Telephone [(626) 408-8006]

4. Nature of Cultural Resources Work Proposed (if Consultation Work, Identify Client and Project)

IP Easley, LLC (IP Easley), proposes to construct, operate, and decommission the Easley Renewable Energy Project, a utility-scale solar photo-voltaic (PV) electrical generating and storage facility, and associated infrastructure to generate and deliver renewable electricity to the statewide electricity transmission grid. The Project would be on land administered by the BLM Palm Springs Field Office, as well as private lands. The Project encompasses approximately 6,426 acres, of which 2,629 acres are managed by the BLM. The Project would generate 650 megawatts of renewable energy via arrays of solar photovoltaic panels and ancillary facilities. These would interconnect to the region-wide electricity grid via a 500-kV generation tie (gen-tie) transmission line with a 175-foot right-of-way (ROW) that totals 7.73 miles, into the Southern California Edison Red Bluff Substation, which is an existing substation south of Interstate 10 at the western end of the Project.

PaleoWest will conduct a pedestrian survey in the Project area and gen-tie corridor within areas identified as potentially sensitive for fossil resources (PFYC Class 3 or higher) – this includes 100 percent of the Project footprint, and about 95 percent of the gen-tie ROW. The survey will assist in determining where additional paleontological mitigation (e.g., fossil salvage and/or paleontological monitoring during construction) may be necessary prior to or during project development. During the course of fieldwork, PaleoWest will record the geologic conditions at the surface and document any fossil observations. PaleoWest will not make any collections, nor will we conduct any excavations during the survey. The survey will be limited to documenting fossil localities and associated data.

 Location of Proposed Work (Include Map) a. Description of Public Lands Involved 	b. Identification of Cultural Resource(s) Involved (if applicable)
Sections 25 and 34-36 of Township 4 South, Range 15 East; Sections 19 and 30-31 of Township 4 South, Range 16 East; Sections 1-3, 10-15, and 22-24 of Township 5 South, Range 15 East; and Sections 5-8, 17-21, 25, and 28 of Township 5 South, Range 16 East, on the Victory Pass, East of Victory Pass, Desert Center, and Corn Spring, California U.S. Geological Survey 7.5' Quadrangles.	N/A
6. Period During Which Work Will Be Conducted	
From [mm/dd/yy]: 01/16/2023	To [mm/dd/yy]: 12/31/23

7. Name of Individual(s) Responsible for Planning and Supervising Fieldwork and Approving Report, Evaluations, and Recommendations

Jessica DeBusk, B.S., MBA and Benjamin Scherzer, M.S., will serve as Principal Investigators. Field work will be overseen by individuals listed as Field Directors on PaleoWest's Paleontological Resources Use Permit, including Michaela Adler, Tara Kloess, Madeline Weigner, Silvia Ascari, Heather Clifford, Cecilio Garcia, and Matthew Witte.

8 Signature	9. Date [12/30/2022]
10. Approved	11. Date [mm/dd/yy]:
(Timothy D. Gilloon BLM Authorized Officer)	







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For General Inquiries:

T: 886.563.2536 T: 602.254.6280 info@paleowest.com

Phoenix, Arizona T: 602.261.7253 319 East Palm Lane

Phoenix, AZ 85004 info@paleowest.com

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www.paleowest.com