APPENDIX 4

PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

28 PALMS RANCH CAMPSITE EXPANSION PROJECT

Assessor's Parcel Numbers 0609-121-14 and -15
Desert Heights Area, San Bernardino County, California

For Submittal to:

County of San Bernardino
Planning Division, Land Use Services Department
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415-0182

Prepared for:

Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, CA 92405

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Charly Shelton, Project Paleontologist
Michael Hogan, Principal Investigator

April 16, 2023

Approximately ten acres
USGS Sunfair, Calif., 7.5' quadrangle
Section 8, T1N R8E, San Bernardino Baseline and Meridian
CRM TECH Project No. 3975P

EXECUTIVE SUMMARY

Between November 2022 and April 2023, at the request of Tom Dodson & Associates, CRM TECH performed a paleontological resources study on the 28 Palms Ranch Stargazing Yurt Village property in the unincorporated Desert Heights area of San Bernardino County, California. The subject property consists of approximately 10 acres of partially developed rural land occupied by the Mongolian yurt glamping park, encompassing Assessor's Parcel Numbers 0609-121-14 and -15. It is located on the northeast corner of Mesa Drive and Lori Lane, in the southeast quarter of Section 8, Township 1 North, Range 8 East, San Bernardino Baseline and Meridian.

The study is a part of the environmental review process for the proposed expansion of the existing campsite by installing additional yurts along with associated amenities and infrastructure improvements. The County of San Bernardino, as the lead agency for the project, required the study pursuant to the California Environmental Quality Act (CEQA). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the proposed project could possibly adversely affect any significant, nonrenewable, paleontological resources and to design a paleontological mitigation program, if necessary.

In order to identify any paleontological resource localities that may exist in or near the project area and to assess the probability for such resources to be encountered during earth-moving activities associated with the project, CRM TECH initiated a paleontological records search, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. Throughout these research procedures, no paleontological resources were identified in the project area. In addition, no known fossil localities were identified within the same geologic formation upon which the project area is immediately situated, which suggest that the project location appears to have a low potential to contain significant paleontological resources in the subsurface sediments.

Based on these findings, the present study concludes that no known paleontological resources will be affected by the proposed project. No further paleontological resources investigation is recommended for the project unless development plans undergo such changes as to include areas not covered by this study. However, if buried paleontological materials are encountered inadvertently during any earth-moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified paleontologist can evaluate the nature and significance of the finds. Under this condition, the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

Between November 2022 and April 2023, at the request of Tom Dodson & Associates, CRM TECH performed a paleontological resources study on the 28 Palms Ranch Stargazing Yurt Village property in the unincorporated Desert Heights area of San Bernardino County, California (Fig. 1). The subject property consists of approximately 10 acres of partially developed rural land occupied by the Mongolian yurt glamping park, encompassing Assessor's Parcel Numbers (APN) 0609-121-14 and -15. It is located on the northeast corner of Mesa Drive and Lori Lane, in the southeast quarter of Section 8, Township 1 North, Range 8 East, San Bernardino Baseline and Meridian (Figs. 2, 3).

The study is a part of the environmental review process for the proposed expansion of the existing campsite by installing additional yurts along with associated amenities and infrastructure improvements. The County of San Bernardino, as the lead agency for the project, required the study pursuant to the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the proposed project could possibly adversely affect any significant, nonrenewable, paleontological resources and to design a paleontological mitigation program, if necessary.

In order to identify any paleontological resource localities that may exist in or near the project area and to assess the probability for such resources to be encountered during earth-moving activities associated with the project, CRM TECH initiated a paleontological records search, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The following report is a complete account of the methods, results, and conclusion of the study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

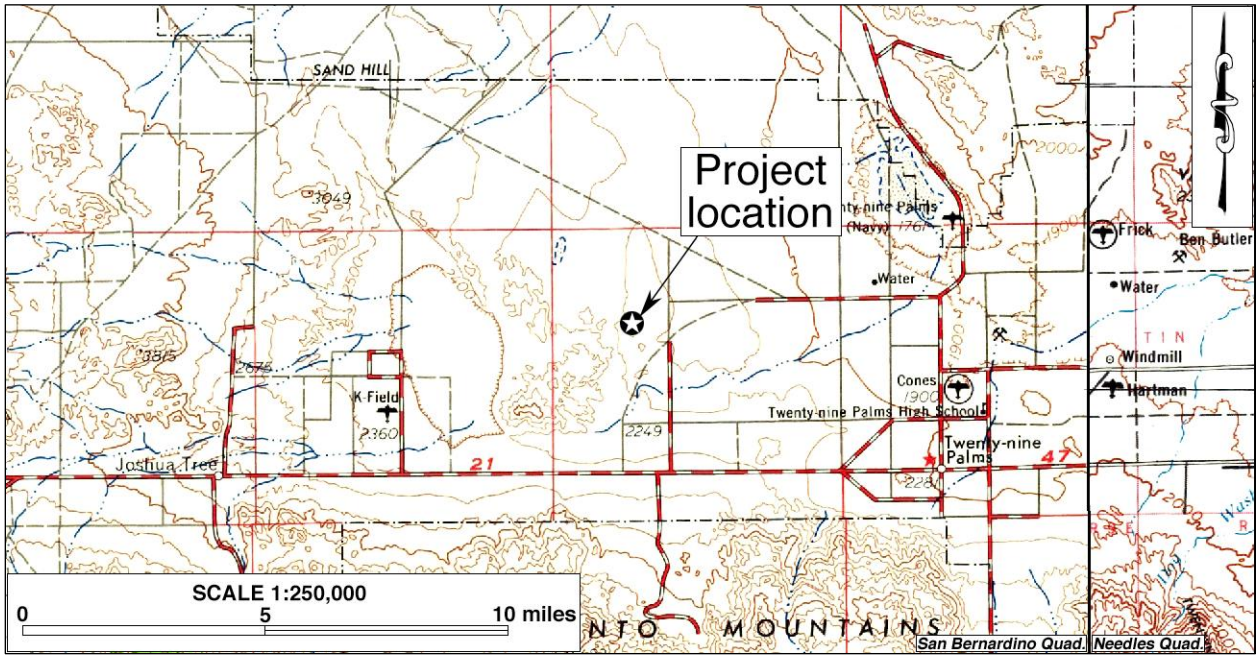

Figure 1. Project vicinity. (Based on USGS Needles and San Bernardino, Calif., 120'x60' quadrangles, 1969 edition)

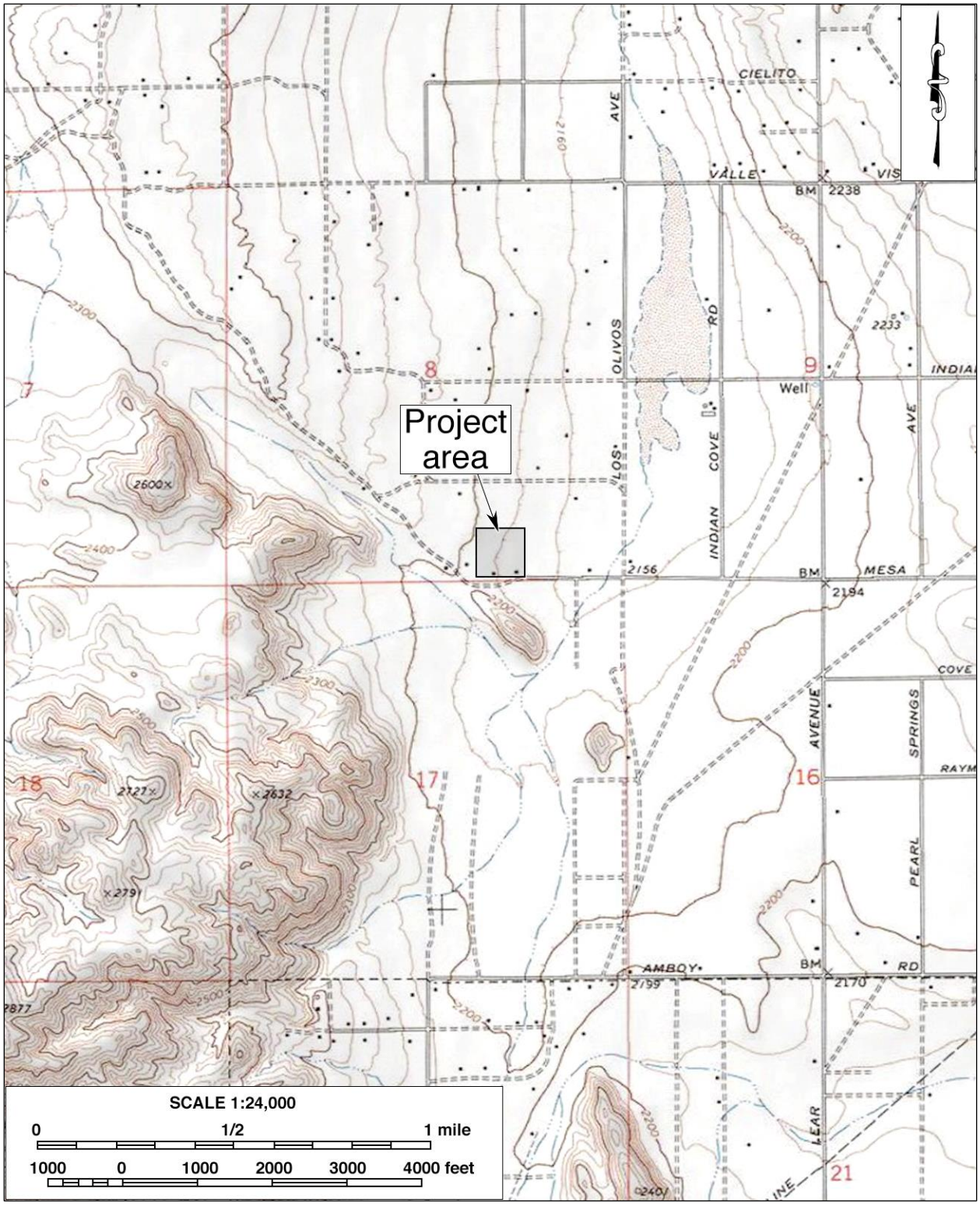

Figure 2. Project area. (Based on the USGS Sunfair, Calif., 7.5’ quadrangle, 1994 edition)

Figure 3. Recent satellite image of the project area. (Based on Google Earth imagery.)

PALEONTOLOGICAL RESOURCES

A brief review of paleontological resources and what might be considered to be significant paleontological resources is presented here. Also presented is information regarding types of paleontological resources and the depositional contexts in which they may be found.

DEFINITION

Paleontological resources represent the remains of prehistoric life, exclusive of any human remains, and include the fossils themselves as well as the sedimentary rock formations in which they were found. The defining character of fossils or fossil deposits is their geologic age, typically older than recorded human history and/or older than the middle Holocene Epoch, which dates to circa 5,000 radiocarbon years (Society of Vertebrate Paleontology 2010:11).

Common fossil remains include marine and freshwater mollusk shells; the bones and teeth of fish, amphibians, reptiles, and mammals; leaf imprint assemblages; and petrified wood. Fossil traces, another type of paleontological resource, include internal and external molds (impressions), trackways, and casts created by these organisms. These items can serve as important guides to the age of the rocks and sediments in which they are contained and may prove useful in determining the temporal relationships between rock deposits from one area and those from another as well as the timing of geologic events. They can also provide information regarding evolutionary relationships, development trends, and environmental conditions.

Fossil resources generally occur only in areas of sedimentary rock (e.g., sandstone, siltstone, mudstone, claystone, or shale). Because of the infrequency of fossil preservation, fossils, particularly vertebrate fossils, are considered nonrenewable paleontological resources. Occasionally fossils may be exposed at the surface through the process of natural erosion or because of human disturbances; however, they generally lay buried beneath the surficial soils. Thus, the absence of fossils on the surface does not preclude the possibility of their being present within subsurface deposits, while the presence of fossils at the surface is often a good indication that more remains may be found in the subsurface.

SIGNIFICANCE CRITERIA

According to guidelines proposed by Scott and Springer (2003:6), paleontological resources can be considered to be of significant scientific interest if they meet one or more of the following criteria:

1. The fossils provide information on the evolutionary relationships and developmental trends exhibited among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or the interactions between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

PALEONTOLOGICAL SENSITIVITY

The fossil record is unpredictable, and the preservation of organic remains is rare, requiring a particular sequence of events involving physical and biological factors. Skeletal tissue with a high percentage of mineral matter is the most readily preserved within the fossil record; soft tissues not intimately connected with the skeletal parts, however, are the least likely to be preserved (Raup and Stanley 1978). For this reason, the fossil record contains a biased selection not only of the types of organisms preserved but also of certain parts of the organisms themselves. As a consequence, paleontologists are unable to know with certainty the quantity of fossils or the quality of their preservation that might be present within any given geologic unit.

Sedimentary units that are paleontologically sensitive are those geologic units (mappable rock formations) with a high potential to contain significant nonrenewable paleontological resources. More specifically, these are geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or are likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontological resources anywhere within their geographical extent as well as sedimentary rock units temporally or lithologically amenable to the preservation of fossils.

A geologic formation is defined as a stratigraphic unit identified by its lithic characteristics (e.g., grain size, texture, color, and mineral content) and stratigraphic position. There is a direct relationship between fossils and the geologic formations within which they are enclosed and, with sufficient knowledge of the geology and stratigraphy of a particular area, it is possible for paleontologists to reasonably determine the formation's potential to contain significant nonrenewable vertebrate, invertebrate, marine, or plant fossil remains.

The paleontological sensitivity for a geologic formation is determined by the potential for that formation to produce significant nonrenewable fossils. This determination is based on what fossil resources the particular geologic formation has produced in the past at other nearby locations. Determinations of paleontologic sensitivity must consider not only the potential to yield a large collection of fossil remains but also the potential to yield a few fossils that can provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The Society of Vertebrate Paleontology issued a set of standard guidelines intended to assist paleontologists to assess and mitigate any adverse effects/impacts to nonrenewable paleontological resources. The guidelines defined four categories of paleontological sensitivity for geologic units that might be impacted by a proposed project, as listed below (Society of Vertebrate Paleontology 2010:1-2):

- **High Potential**: Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- **Undetermined Potential**: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment.
- **Low Potential**: Rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances.
- **No Potential**: Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

SETTING

Desert Heights is a sparsely populated rural residential area situated on the southern rim of the Mojave Desert, to the northwest of the City of Twentynine Palms. The climate and environment of the surrounding region is typical of the southern California "high desert" country, so-called because of its relatively higher elevation than the Colorado Desert to the south. Seasonal patterns are marked by extremes in temperature and aridity, with summer highs reaching over 110ºF and winter lows dipping below freezing. Average annual precipitation is less than five inches, most of which occurs during late winter, early spring, and the occasional monsoon storms in summer.

The project area is a square-shaped tract of desert land containing the existing facilities of the 28 Palms Ranch Stargazing Yurt Village, including two single-family residences near the southern boundary and six yurts on the eastern parcel (APN 0609-121-14; Fig. 3). The surrounding area features predominantly vacant desert land mixed with some widely scattered residential properties (Fig. 3). Elevations in the project area range approximately between 2,170 and 2,195 feet above mean sea level, sloping slightly upward over relatively level terrain toward a crag of hills to the west. The surface soils are composed of light brown, fine to coarse alluvial sands mixed with small rocks and gravel. Creosote bushes and a single palo verde tree comprise the only notable vegetation besides the typical small grasses and shrubs (Fig. 4).

Copper Mountain, to the west, is the closest mountain to the project location, with the Pinto Mountains to the southeast. Both of these local mountains are composed of granitic and metamorphic rock of Mesozoic age. There has been some recent volcanic activity just north—but far to the west—of Yucca Valley at Black Top Butte. The hills to the west of the project location consist exclusively of non-fossiliferous granite and gneiss of Cretaceous or older age, which may be the source rock of the local alluvium upon which the project area is situated (Fig. 5).

Figure 4. Overview of the project area. (Photograph taken on January 17, 2023; view to the north)

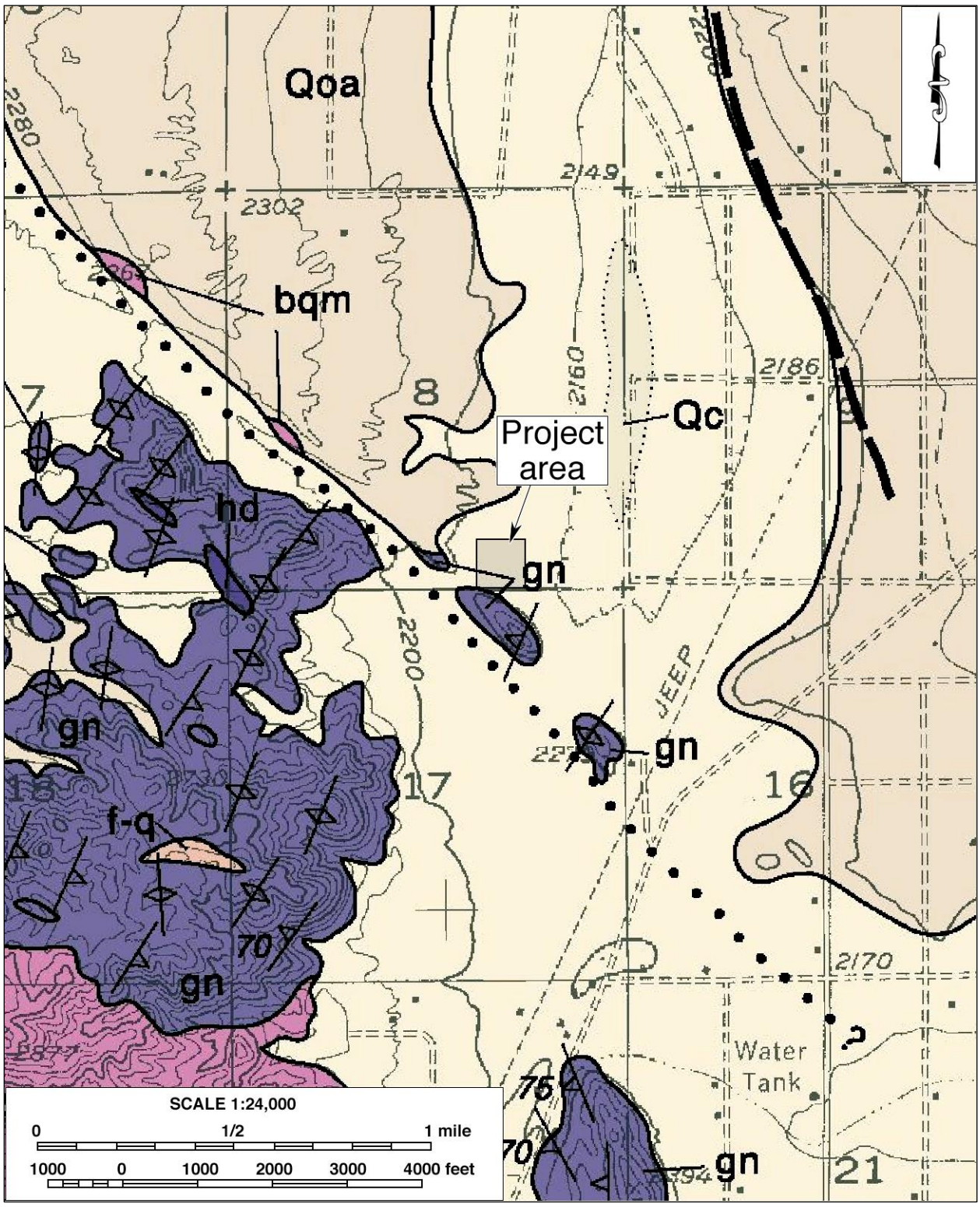

Figure 5. Geologic map of the project area. (Source: Dibblee 2008)

RESEARCH METHODS

RECORDS SEARCH AND LITERATURE REVIEW

The paleontological records search service for this study was provided by the San Bernardino County Museum in Redlands, California, which is one of the local institutions that maintain files on the Regional Paleontological Locality Inventory (RPLI) as well as supporting maps and documents. The records search results were used to identify any known paleontological localities and previously performed paleontological resource studies within a one-mile radius of the project area.

In conjunction with the records search, CRM TECH paleontologist Charly Shelton conducted a geological and paleontological literature review on the project vicinity. Sources consulted for this research include primarily published literature on regional geology; topographic, geologic, and soil maps of the project vicinity; aerial and satellite images available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software; and other materials in the CRM TECH library, including unpublished reports from similar surveys nearby.

FIELD SURVEY

On January 17, 2023, CRM TECH paleontological surveyor Hunter O'Donnell carried out the field survey of the project area. The survey was conducted at an intensive level by walking a series of parallel east-west transects spaced 15 meters (approximately 50 feet) apart. The transects began at the southwestern corner of the property and continued across all open land, ending with an inspection of the existing residences and a fenced area in the southeastern portion. In this way, the ground surface in the entire project area was systematically and carefully examined for any indications of paleontological resources. Ground visibility was very good (90-95%) due to the very sparse vegetation growth (Fig. 4).

RESULTS AND FINDINGS

RECORDS SEARCH AND LITERATURE REVIEW

The records search at the SBCM identified no paleontological resources within the project area (Kottcamp 2023:2; see App. 2). The nearest locality, SBCM 1.85.2, is approximately 3.7 miles southwest of the project area. No fossils were recorded at SBCM 1.85.2, however, as the locality appears to pertain only to sediment samples (*ibid.*). A black permineralized fragment of a rodent humerus was found at an adjacent locality, SBCM 1.85.1, within a lightly west-dipping bed of sandy silt (*ibid.*).

The geologic units in the project area have been mapped as Holocene-age alluvial deposits (*Qa*) composed of medium- to coarse-grained sand and gravel (Dibblee 2008). The *Qa* deposits are unlikely to be fossiliferous themselves, but they may overlie older Pleistocene alluvial deposits (*Qoa*) that may contain fossils. According to the CBSM, there is a surface deposit of *Qoa* at the northwestern corner of the project area, a terminal arm of a much bigger fan of *Qoa* extending from the north (Kottcamp 2023). In this area, *Qoa* mostly consists of older fan deposits sourced from the Pinto Mountains, probably deposited between ~2.5 million to ~11,000 years ago (*ibid.*). As

mentioned above, the hills to the west of the project area may be the source of rock of the local alluvium, and they are known to consist exclusively of non-fossiliferous granite and gneiss of Cretaceous or older age (Dibblee 2008).

FIELD SURVEY

The field survey encountered no evidence of any fossil remains or paleontologically sensitive soil on the surface. The surface soils in the project area are typically coarse, angular granitics and monzonite with a moderate amount of milky quartz and jasper of gravel to small cobble size overlying the tan to tannish-brown, fine-grained, windblown sand and heavier silt.

SUMMARY

No paleontological localities were previously reported within the project area, and no indications of any fossil remains were found in the surface sediments during the survey. While Kottcamp (2023) states that *Qoa* sediments extend into the property, mapping by Dibblee (2008) does not have that deposit reaching the project location (Fig. 5). Additionally, Kottcamp (2023) notes that the *Qoa* near the project site commonly occurs as poorly bedded to non-bedded granitic cobble-pebble gravel and sand, which would not be conducive to fossil preservation. Kottcamp further states that it is probable that there is at least 11,000 years of accumulated Recent alluvium (*Qa*) on top of the older *Qoa*.

CONCLUSION AND RECOMMENDATIONS

CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that public agencies in the State of California determine whether a proposed project would "directly or indirectly destroy a unique paleontological resource" during the environmental review process. The present study, conducted in compliance with this provision, is designed to identify any significant, non-renewable paleontological resources that may exist within or adjacent to the project area, and to assess the possibility for such resources to be encountered in future excavation and construction activities.

Based on the research findings presented above, the project area is situated upon surface exposure of Holocene-age alluvial sediments. Such sediments have little potential to contain significant, nonrenewable paleontological resources. Additionally, any potentially fossiliferous sediments that may be present below the surface are presumed to be below any project related excavations. Therefore, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low.

Based on these findings, the present study concludes that no known paleontological resources will be affected by the proposed project. No further paleontological resources investigation is recommended for the project unless development plans undergo such changes as to include areas not covered by this study. However, if buried paleontological materials are encountered inadvertently during any earth-moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified paleontologist can evaluate the nature and significance of the finds. Under this condition, the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

REFERENCES

Dibblee, Thomas W., Jr.
2008 Geologic Map of Joshua Tree and Twentynine Palms 15 Minute Quadrangle, Riverside and San Bernardino Counties, California. Dibblee Geology Center Map #DF-390. Santa Barbara, California.

Kottcamp, Scott
2023 Paleontology Records Review for Proposed Site of Proposed Yurt Campground Project, Desert Heights, San Bernardino County, California. Prepared by Division of Earth Sciences, San Bernardino County Museum, Redlands, California. (See Appendix 2)

Raup, David M., and Steven M. Stanley
1978 *Principle of Paleontology*. W.H. Freeman and Company, San Francisco.

Scott, Eric, and Kathleen Springer
2003 CEQA and Fossil Preservation in California. *Environmental Monitor* Fall:4-10. Association of Environmental Professionals, Sacramento, California.

Society of Vertebrate Paleontology
2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_ Mitigation_Guidelines.pdf.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PROJECT PALEONTOLOGIST
Charly O'Keefe Shelton, B.A.

Education

2017	B.A., Anthropology, California State University, Los Angeles.
2016	Archaeological Field School, Department of Anthropology, California State University, Los Angeles.
2012	Geology and Anthropology Studies, Pasadena City College, Pasadena.

Professional Experience

2019-	Project Archaeologist/Paleontologist, CRM TECH, Colton, California.
2014	Paleontological Consultant, Los Angeles County Sherriff 's Department, Montrose Search and Rescue Team.
2012-	Filmmaker, Cinematic Choice/Fulcrum, La Crescenta, California
2009-	Reporter/Editor/Tech Officer, *Crescenta Valley Weekly*, La Crescenta, California.
2005-2008	Field Excavation Crew Member, Department of Paleontology, Natural History Museum, Los Angeles.
2005	Lecturer, various venues in the Los Angeles area. • Paleontology/geology lectures for all ages, specializing in interactive teaching displays for elementary school children.
2003-2009	Reporter, *Crescenta Valley Sun* (*Los Angeles Times* insert), La Cañada.

Publications

2009-present	Weekly publication in Travel and Leisure Section, *Crescenta Valley Weekly*.

Memberships

The Archaeological Conservancy; American Association for the Advancement of Science; Crescenta Valley Town Council (former member).

PRINCIPAL INVESTIGATOR
Michael Hogan, Ph.D., RPA (Registered Professional Archaeologist)

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside, California.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands, California.
1992-1998	Assistant Research Anthropologist, University of California, Riverside.
1992-1995	Project Director, Archaeological Research Unit, U.C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U.C. Riverside.
1984-1998	Project Director, Field Director, Crew Chief, and Archaeological Technician for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Principal investigator for, author or co-author of, and contributor to numerous cultural resources management study reports since 1986.

PALEONTOLOGICAL SURVEYOR
Hunter C. O'Donnell, B.A.

Education

2016-	M.A. Program, Applied Archaeology, California State University, San Bernardino.
2015	B.A. (*cum laude*), Anthropology, California State University, San Bernardino.
2012	A.A., Social and Behavioral Sciences, Mt. San Antonio College, Walnut, California.
2011	A.A., Natural Sciences and Mathematics, Mt. San Antonio College, Walnut, California.

Professional Experience

2017-	Project Archaeologist, CRM TECH, Colton, California.
2016-2018	Graduate Research Assistant, Applied Archaeology, California State University, San Bernardino.
2016-2017	Cultural Intern, Cultural Department, Pechanga Band of Luiseño Indians, Temecula, California.
2015	Archaeological Intern, U.S. Bureau of Land Management, Barstow, California.
2015	Peer Research Consultant: African Archaeology, California State University, San Bernardino.

APPENDIX 2

RECORDS SEARCH RESULTS

2024 Orange Tree Lane, Redlands, California 92374 | Phone: 909.798.8608
www.SBCounty.gov

SAN BERNARDINO COUNTY

Museum
Division of Earth Science

Scott Kottkamp
Curator of Earth Science

January 12th, 2023

CRM Tech
Attn: Nina Gallardo
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

PALEONTOLOGY RECORDS REVIEW for proposed site of Proposed Yurt Campground project, Desert Heights, San Bernardino County, California

Dear Ms. Gallardo,

The Division of Earth Science of the San Bernardino County Museum (SBCM) has completed a record search for the above-named project in San Bernardino County, California. The proposed project site (Yurt Campground) is in the unincorporated community of Desert Heights, California as shown on the United States Geological Survey (USGS) 7.5-minute Sunfair, California quadrangle.

Geologic mapping of that region done by Dibblee and Minch (2008) indicates most of the project site is situated atop Holocene age alluvial deposits, comprised of medium to coarse-grained sand and gravel. The exact composition of Qa is variable, with fine sand, silt, and clay present in smaller proportions and sometimes being the primary grain size in individual layers. Qa locally settles into the center of valleys between hills, mountains and other highlands, flanked by older alluvium and the resistant bedrock of the surrounding terrain. Qa deposits are unlikely to be fossiliferous themselves, but directly overlie older Pleistocene alluvial deposits that are (Qoa).

There is a surface deposit of Qoa located on the northwest corner of the project site. This deposit is a terminal arm of a much bigger fan of Qoa extending down from the north. Local Qoa mostly consists of older fan deposits sourced from the Pinto Mountains, probably deposited

between ~2.5 million to ~11,000 years ago. Though variable in its precise lithology, Qoa near the project site commonly occurs as poorly bedded to nonbedded granitic cobble-pebble gravel and sand. Terrestrial macro- and microfossils are commonly found in Pleistocene age alluvium throughout the southwest of North America, including much of the Mojave Desert (Harris 2014). The hills immediately to the west of the project site exclusively consist of non-fossiliferous granite and gneiss of Cretaceous or older age, which may be the source rock of the local alluvium (Dibblee and Minch 2008).

For this review, I conducted a search of the Regional Paleontological Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no paleontological resources have been discovered within the proposed project sites. The nearest locality, SBCM 1.85.2, is approximately 3.7 miles southwest of the proposed project site. No fossils are recorded from SBCM 1.85.2; the locality seems to only pertain to sediment samples. However, a black permineralized fragment of a rodent humerus was found at adjacent locality SBCM 1.85.1, within a lightly west-dipping bed of sandy silt.

This records search covers only the paleontological records of the San Bernardino County Museum. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Please do not hesitate to contact us with any further questions that you may have.

Sincerely,

Scott Kottkamp

Scott Kottkamp, Curator of Earth Science
Division of Earth Science
San Bernardino County Museum

Literature Cited

Dibblee, T.W., and Minch, J.A. 2008. Geologic map of the Joshua Tree & Twentynine Palms 15 minute quadrangles, Riverside & San Bernardino Counties, California. Dibblee Geological Foundation. Dibblee Foundation Map DF-390. Scale 1:62,500.
Available at: https://ngmdb.usgs.gov/Prodesc/proddesc_85245.htm (accessed 12 October 2022).

Harris, A. 2014. Pleistocene Vertebrates of Southwestern USA and Northwestern Mexico. TEP Biodiversity Collections, Department of Biological Sciences, and Centennial Museum, University of Texas at El Paso. El Paso, TX. 10.13140/2.1.3490.7527.
Available at: www.utep.edu/leb/pleistnm/ (accessed 12 October, 2022).