Cogstone Resource Management Inc.

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PALEONTOLOGICAL EVALUATION OF 2008 SUPPLEMENTAL CONTROL REQUIREMENTS FOR THE OWENS VALLEY PM10 PLANNING AREA DEMONSTRATION OF ATTAINMENT STATE IMPLEMENTATION PLAN, INYO COUNTY, CALIFORNIA

Prepared for:
Sapphos Environmental, Inc.
133 Martin Alley
Pasadena, CA 91103
Sapphos project 1064-013

Authors:
Sherri Gust and Kim Scott

Principal Investigator:
Sherri Gust
Qualified Principal Paleontologist

March 2007; revised July 2007

NATIONAL DATABASE (NDB) INFORMATION SHEET

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EXECUTIVE SUMMARY

Four measures proposed for dust control on the surface of historic Owens Lake in the Owens Valley, Inyo County, California are shallow flooding, establishing areas of salt-tolerant vegetation, covering portions of the ground surface with gravel and a new measure called moat and row. Supplemental control requirements for the Owens Valley PM10 Planning Area required evaluation for potential impacts on paleontological resources. This involves new areas in which shallow flooding and moat and row will be utilized for dust control. The Great Basin Unified Air Pollution Control District requested an assessment of the project's potential impacts on paleontological resources to meet its responsibilities as the Lead Agency under CEQA.

The historic lake bed has Younger Lake Deposits overlying Older Lake Deposits, Holocene and Pleistocene, including silts, sands and some gravel deposits near paleoshorelines. The sloped areas approaching the paleoshorelines on all sides are composed of late Pleistocene alluvial and debris-flow gravels. Holocene aeolian sand sheets cover many areas, particularly east and south of the lake bed.

Both Pleistocene and Holocene fossils have been recovered from the eastern surface of the Owens Lake playa (exposed lake bed) over the last 70 years, apparently revealed by severe wind erosion. Additional fossils have been recovered north and south of Owens Lake along the Owens River channel. The playa sediments have potential to reveal additional important fossils that can contribute to the history of life in Owens Lake.

Survey for the current area of potential effect was severely limited by lack of visibility due to dense salt crush and other factors. No vertebrate fossils were observed. Holocene invertebrate fossils were observed that duplicate previous work on the surface of the exposed lake beds.

Past and proposed dust control measures create no apparent negative impacts to paleontological resources, provided weight of any equipment utilized is controlled to prevent crushing. Plowing, trenching and other forms of grading and excavation may have negative impacts on significant paleontological resources in the playa areas. The mitigation plan recommends paleontological monitoring in association with any planned earth disturbances such as the moat and row dust control measure. Since the function of the monitor is to recognize and recover paleontological resources only, other types of monitors may be cross-trained for paleontology under the supervision of a qualified principal paleontologist.

INTRODUCTION

PURPOSE OF STUDY

Four measures proposed for dust control on the surface of historic Owens Lake in the Owens Valley, Inyo County, California (Figure 1) are shallow flooding, establishing areas of salt-tolerant vegetation, covering portions of the ground surface with gravel and a new measure called moat and row. Supplemental control requirements for the Owens Valley PM10 Planning Area required evaluation for potential impacts on paleontological resources. This involves new areas in which shallow flooding and moat and row will be utilized for dust control. The Great Basin Unified Air Pollution Control District has requested an assessment of the project's potential impacts on paleontological resources to meet its responsibilities as the Lead Agency under the California Environmental Quality Act (CEQA).

Figure 1. Regional Location Map.

PROJECT DESCRIPTION

Owens Lake (Figure 2) covers approximately 110 mi^2 (284 km^2) in Inyo County, CA. The historical lake bed is mapped on seven topographic quadrangles; Lone Pine, Bartlett, Olancha, Vermillion Canyon, Keeler, Dolomite, and Owens Lake over portions of Townships 16S-19S and Ranges 36E-38E. The lake is bounded on the west by highway 395, on the north to northeast by highway 136, and on the south to southeast by highway 190.

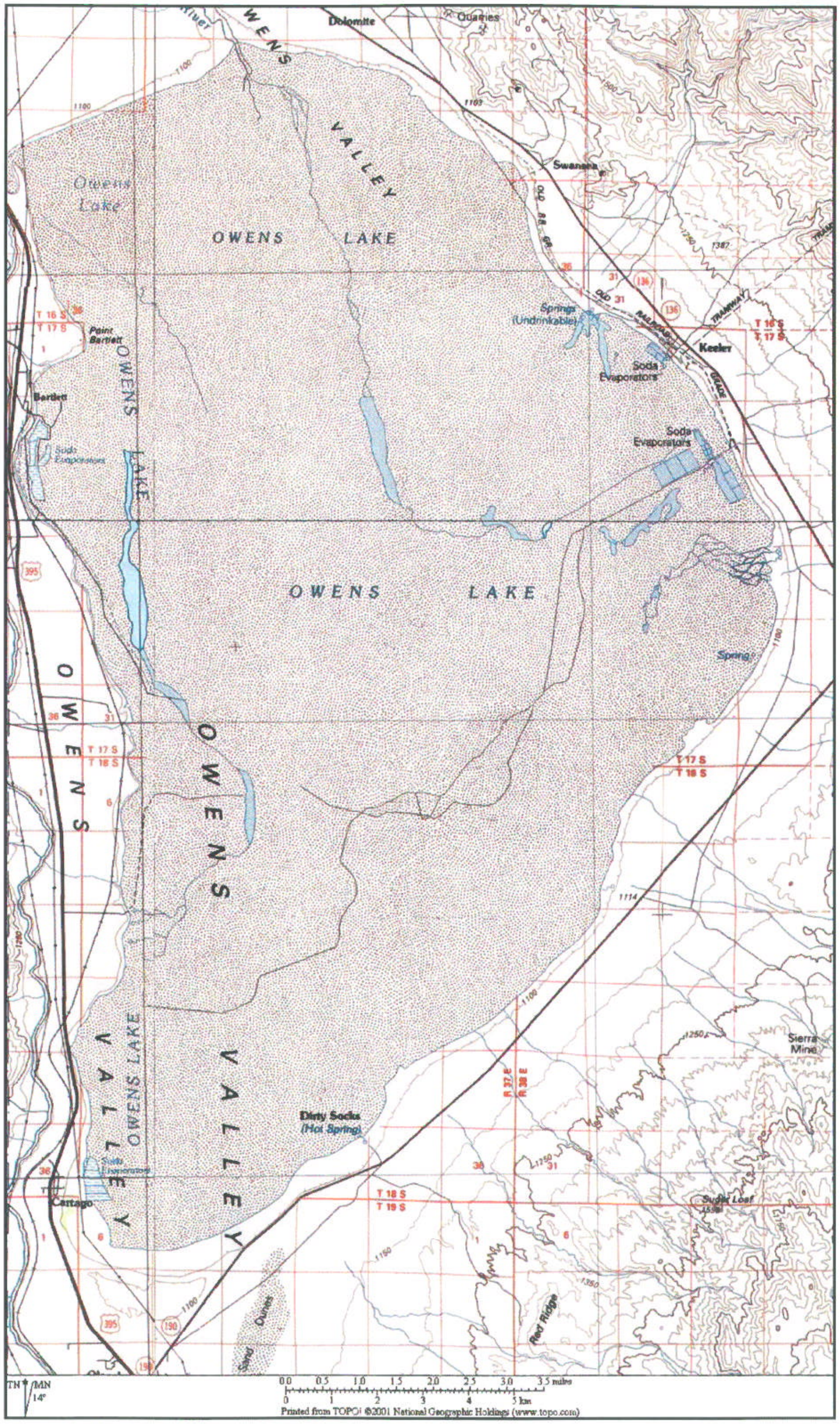


Figure 2. Map of the project area.

Dust control measures were implemented on 29.8 sq. miles of the Owens Lake bed by 2006. Air quality studies determined that additional areas of the lake bed would require dust control measures in order to meet the PM10 standards. These supplemental areas total 14.6 sq. miles (Figure 3).

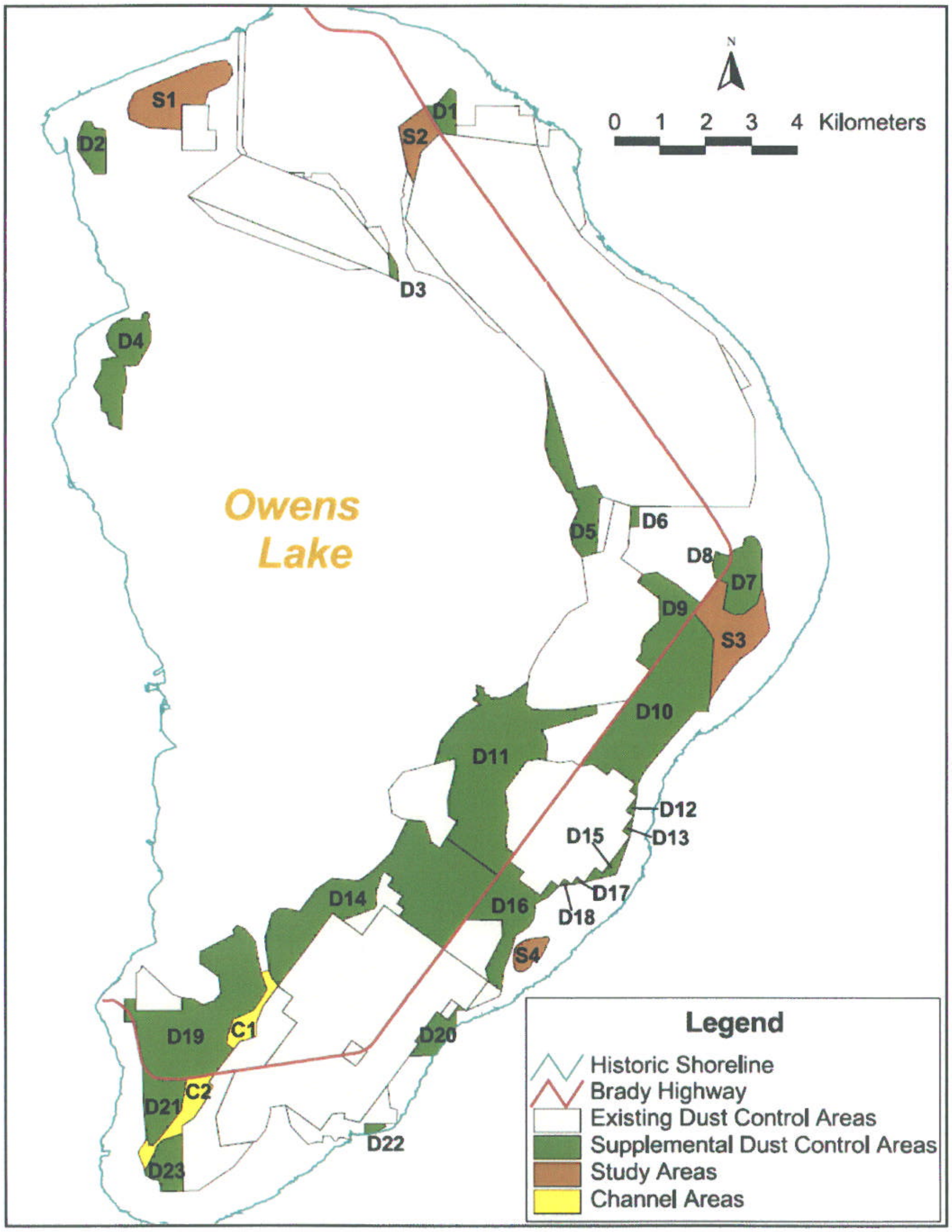


Figure 3. Proposed new areas for implementation of Owens Lake dust control measures.

The dust controls measures proposed for the supplemental areas are shallow flooding and moat and row. Shallow flooding is proposed mostly for the eastern side of the lake bed while moat and row is proposed mostly for the western side of the lake bed, both north and south (Figure 4).

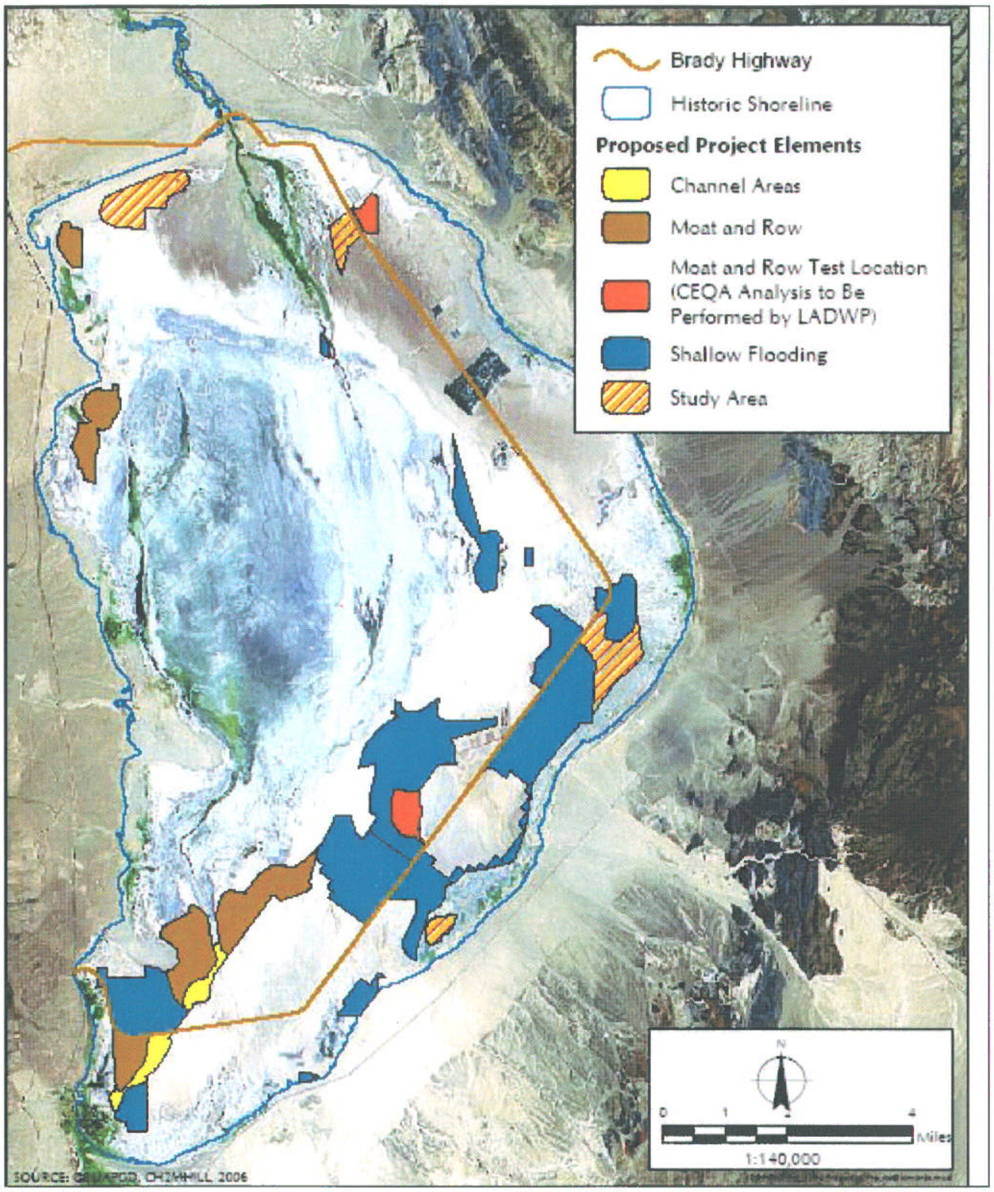


Figure 4. Location of Owens Dust Control Measures.

Shallow flooding consists of releasing water along the upper edge of the Owens Lake bed and allowing it to spread and flow down-gradient toward the center of the lake. To attain the required

PM10 control efficiency, at least 75 percent of each square mile of the control area must be wetted to produce standing water or surface-saturated soil, between October 1 and June 30 of each year.

The general form of the moat and row dust control measure is an array of earthen berms (rows) about 5 feet high with sloping sides, flanked on either side by ditches (moats) about 4 feet deep. Moats serve to capture moving soil particles, and rows physically shelter the downwind lake bed from the wind. The individual moat and row elements are constructed in a serpentine layout across the lake bed surface, generally parallel to one another, and spaced at variable intervals, so as to minimize the fetch between rows along the predominant wind directions. The serpentine layout of the moat and row array is intended to control emissions under the full range of principal wind directions. The PM10 control effectiveness of moat and row may be enhanced by combining it with other dust control methods such as vegetation, water, gravel, sand fences, or the addition of other features that enhance sand capture and sheltering or directly protect the lake bed surface from wind erosion. The effectiveness of the array may also be increased by adding moats and rows to the array by decreasing the distance between moats and rows within the array.

PROJECT PERSONNEL

Cogstone Resource Management, Inc. conducted the survey and prepared this report. Sherri Gust served as the Principal Investigator for the project and supervised all work. She wrote the introductory, paleontology, potential resources and mitigation plan sections of this report plus portion of the stratigraphy section. Ms. Gust is a Registered Professional Archaeologist and a Qualified Principal Paleontologist. She has an M.S. in Anatomy (Evolutionary Morphology) from the University of Southern California, a B.S. in Anthropology from the University of California at Davis and over twenty-five years of experience in California.

Kim Scott served as the paleontological field director, performed the survey and wrote the project description, regional geological setting and survey portions of the report plus portions of the stratigraphy section. Ms. Scott holds a B.S. in Geology with an emphasis in Paleontology from the University of California, Los Angeles. Leann Moore, B.A. Anthropology, California State University at Fullerton and a qualified paleontological monitor, assisted Scott with the survey.

LAWS AND REGULATIONS

This project is subject to state and local regulations regarding paleontological resources.

STATE LAWS AND REGULATIONS

California Environmental Quality Act of 1970 (CEQA) (PRC § Section 21000 et seq.)

CEQA declares that it is state policy to "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

If paleontological resources are identified as being within the proposed project area, the sponsoring agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource. [Caltrans 2003]

Public Resources Code Section 5097.5

Section 50987.5 of the California Public Code Section states:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, lead agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others (Caltrans 2003).

LOCAL REGULATIONS

Inyo County Ordinance Title 9:: Public Peace, Morals and Safety; Chapter 9.52 Disturbance of Archaeological, Paleontological and Historical Features, Sub-Chapter 9.52.030 Titled: Project or action-Commission approval-Requirements

No publicly or private sponsored project or action shall be expressly permitted by the county planning commission, hereinafter, “the commission,” or any other county agency where the commission finds that any archaeological, paleontological, and historical features, or Native California Indian burial sites may be disturbed in any way by the project or action; provided, the commission many conditionally expressly permit the project or action if the project or action sponsor takes responsibility for preservation, protection, or relocation of the features or sites in accordance with a specific plan for preservation, protection, or relocation that shall be reviewed and approved by the commission after a public hearing. The public hearing shall be held, in the instance of Native California Indian burial sites, following the review and comment required by Section 9.52.020. [http://www.qcode.us/codes/inyocounty/]

DEFINITION OF SIGNIFICANCE FOR PALEONTOLOGICAL RESOURCES

Determination of the scientific significance of paleontological resources can only be made by qualified, trained paleontologists, preferably those expert with the fossils under consideration. Fossils are considered to be significant (unique under CEQA) if one or more of the following criteria apply (Scott and Springer 2003):

1. The fossils provide information on the evolutionary relationships and developmental trends 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 interaction between plant and animal communities.
4. The fossils demonstrate unusual or spectacular circumstances in the history of life.
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.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important. Paleontological remains are recognized as nonrenewable resources significant to the history of life.

BACKGROUND

REGIONAL GEOLOGIC SETTING

The Owens Valley exists as a portion of the North American Plate within the California Geomorphic Province known as the Basin and Range. The Basin and Range Province is the westernmost part of the Great Basin (Figure 5). The province is characterized by interior drainage with lakes and playas, as well as subparallel, fault-bounded ranges separated by down dropped basins. Death Valley, the lowest area in the United States (280 feet below sea level at Badwater), is one of these basins. Owens Valley is another of these basins that lies between the bold eastern fault scarp of the Sierra Nevada and Inyo Mountains (Wagner 2002).

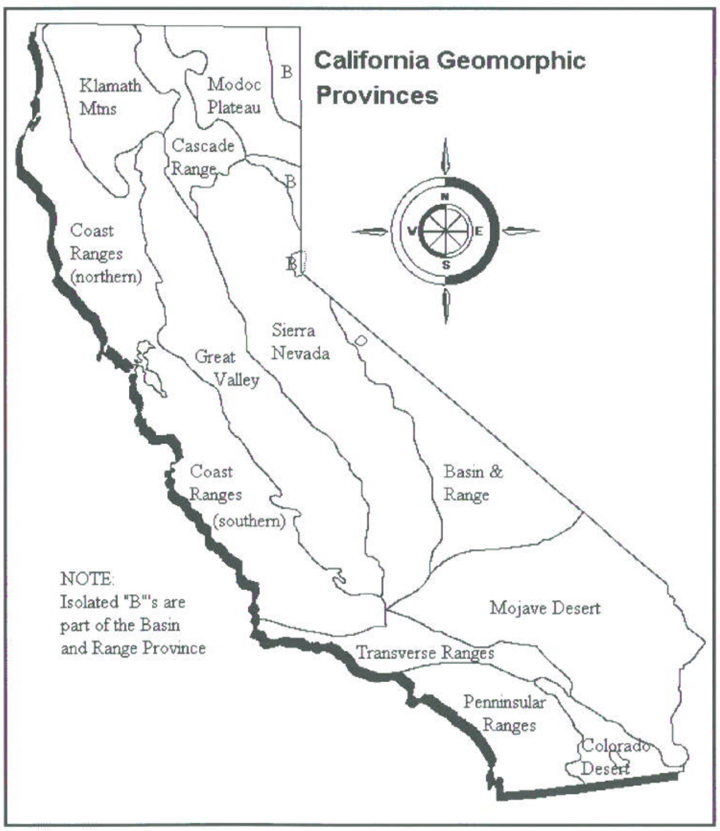
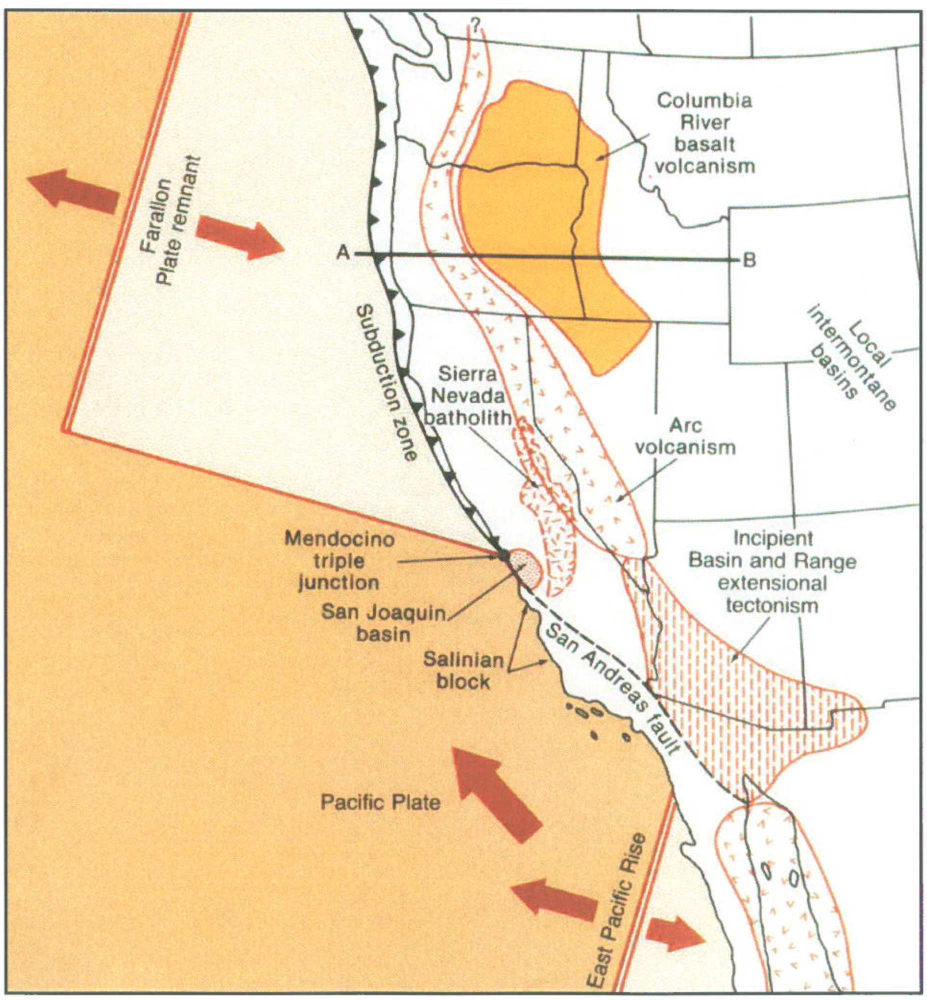


Figure 5. Basin and Range province.

Starting in the Permian and continuing through the Cretaceous (~260 - ~70 million years ago), volcanism created the Sierra Nevada Range. Although the volcanoes of the Sierra Nevada have been active for millions of years, it was only in the past ~40 million years that regional tectonics and erosion have exposed the core of the southern Sierra Nevada (mostly south of Bishop). The volcanic sediments from the range were eroded away and dumped into adjacent valleys (Dott & Prothero 1994).

More recent tectonics (20 million years ago - present) associated with the San Andreas Fault Zone have created the Basin and Range. The northwesterly pull of the Pacific Plate now joined to western North America, has widened the interior of the southwestern United States and northwestern Mexico and created the Basin and Range province (Figure 6; Dott & Prothero 1994).

Figure 6. The San Andreas Fault Zone during the middle Miocene.



Owens Valley and the rest of the Basin and Range is a result of the pulling of the Pacific Plate against the North American Plate. The Owens Lake formed because it was in a low area between the Sierra Nevada and the mountains to the east. Prior to the draining of the lake (1913-1930), Owens Lake was a shallow water lake surrounded by alluvial fans. The alluvial deposits consist mostly of sands, silts, and gravels from the Sierra Nevada to the west, from the Inyo Mountains to the east, and from the Coso Range to the southeast. The Sierra Nevada's have contributed the bulk of the alluvial sediments in the basin, particularly those on the western side.

STRATIGRAPHY

Owens Lake is mapped as Quaternary lake and sand deposits, edged by Quaternary alluvium (Mathews and Burnett 1965, Streitz and Stinson 1974). As water sources moved sediment into the lake, gravels and coarse sands deposited in fans and near the paleoshorelines, while finer sands and silts settled out into the lake itself. At the center of the lake a large, clay-silt deposit is known to be as much as 2500 meters thick (Stone el al 2000). This deposit represents ancient deep-water lake environments while the upper and peripheral sediments represent shallow-water lake and lakeshore environments.

Many areas, particularly east and south of the Lake have Older Lake Deposits and late Pleistocene alluvium covered by Holocene Aeolian Sand sheets. The underlying deposits are exposed in some local areas where sand has been removed by deflation. Deflation (erosion by wind) has been estimated by one scientist to lower the dry Owens Lake Playa each year (Reheis 1997) although the exact amount has not been by adequately measured (Holder 2003).

Quaternary Lake Beds

Although these lake beds are Holocene (<10,000 years old) at the surface, at depth these beds are much older and range from 10 thousand years to at least 1.8 million years old (Pleistocene Epoch). Lakes, rivers, oceans and other areas that trap water are much more likely to preserve fossils. Also, the slower the water is moving during the deposition of the fossil, the more likely it is to be in good condition.

The lake bed's most superficial sediments are the Younger Lake Deposits consisting of gravel, sand, silt, clay and cemented ooliths plus 1-2 meters of salts deposited since diversion of the Owens River waters in 1913 (Stone et al 2000; Holder 1997).

Below the surface are Older Lake Deposits, both Holocene and Pleistocene, that include silts, sands and some gravel deposits near paleoshorelines. These Older Lake deposits are estimated to be as much as 2500 meters thick in the structural depression between the Owens Valley Fault Zone and the Inyo-White Mountains Fault Zone (Stone et al 2000).

Quaternary Alluvium

The surfaces of theses alluvial fans are Holocene, but become Pleistocene at depth. Although these alluvial fans appear dry now, during storms they channel water from mountain canyons to the valley floors. During the Pleistocene, the increased amount of rain may have helped to preserve fossils in these beds.

The late Pleistocene alluvial and debris-flow gravels are characterized by substantive weathering, decomposition and iron-oxide staining of clasts. These late Pleistocene sediments are cut by Holocene streams, which then deposit Holocene alluvium in the stream beds

Quaternary Sand Deposits

Even though these sand dunes are mapped as Quaternary (< 2 million years old) it is unlikely that any of them extend to the Pleistocene (10,000 to 2 million years old).

PALEONTOLOGY

Evaluation of the Owens Lake area by a qualified paleontologist was a recent occurrence (Gust 2003). This section is taken from that report.

Analysis of geochemical and isotopic information from USGS Core OL-92 and other studies provides a paleotimeline for Owens Lake. Owens Lake transitioned from overflowing to closed basin conditions between 16,000-12,000 years before present (YBP) (Stewart and Capo 2001). At least one author interprets his results to stat that Owens Lake completely desiccated ~14,000 YBP (Benson 1999). The lake continued in a relatively dry state with a brief 200 year wet oscillation centered at 10,300 YBP and a second wet oscillation around 10,000-8,000 YBP (Benson et al 2002). The second wet period may coincide with the Penultimate Event, an earthquake that occurred between 10,210 and 8,790 and is estimated at 9,300 YBP (Bacon et al 2002). This quake event may have opened deep springs that fed water to the lake. From 8,000-6,500 YBP a shallow lake was present followed by desiccation from 6,500-3,800 YBP (Benson et al 2002). One Holocene high stand occurred after ~8,000 YBP and reached an elevation of 1135 meters (Bacon et al 2002). At Owens Lake, the Little Ice Age consisted of a cold, wet period from 470-350 YBP followed by desiccation to a playa from 350-230 YBP (Li et al 2000). In the nineteenth and early twentieth centuries, Owens Lake was known to have a maximum depth of 50 feet (Holder 2003).

Pleistocene (1.8 million to 10 thousand years old) fossil localities are known from the Owens River, the Owens Lake Playa, and the drainage south of Owens Lake. Vertebrates recovered have been mammoth, horse, camel, bison, puma, rodent and pocket gopher. Holocene (10,000 years to present) fossil localities are known from the Owens Lake Playa. Both vertebrate and invertebrate fossils have been recovered.

The most northerly locality known is the Owens River in Lone Pine. A specimen of mammoth (*Mammuthus columbi*) was reported from this location (Hay 1927). About 1 mile northeast of Owens Lake along the Owens River, the San Bernardino County Museum has records of fossil specimens of horse (*Equus sp.*), bison (*Bison sp.*), and camel (*Camelops sp.*). A local resident collected specimens of mammoth now in the Eastern California Museum in Independence.

East of the current delta of the Owens River, on the Owens Lake Playa parallel to Highway 136 and in the general vicinity of Swansea, nine fossil localities are known. Pleistocene localities include mammoth bone collected by local resident Frank Parcher, specimens of mammoth, camel, horse and fossil puma (*Felis concolor*) collected by David Whistler, Natural History Museum of Los Angeles County, and three localities yielding rodent, possible artiodactyl, and pocket gopher (*Thomomys bottae*) collected by Kim Scott of Cogstone.

Four Holocene localities yielding lesser scaup [duck] (*Aythya affinis*), western meadowlark (*Sturnella neglecta*), pocket gopher (*Thomomys bottae*), ram's horn snail (*Helisoma (Cariniflex) newberryi*), California floater (*Anodonta californiensis*), and physa (*Physella sp*. cf. *P. bourcardi*) were collected by Kim Scott of Cogstone.

South of Owens Lake along its drainage path southeast of Olancha, another mammoth fossil is recorded near the current dam for the North Haiwee Reservior. It was collected by William Mulholland during construction of the Los Angeles Aqueduct.

In addition to these Pleistocene localities, there are numerous Pliocene (5.2 – 1.8 million years old) localities from the Coso Formation in the hills bordering the southeast portion of Owens Lake. The Los Angeles County Museum of Natural History has specimens from some 25 localities in the Coso Formation. They have yielded type specimens of an early mastodon, primitive dog, and extinct vole in addition to chub, birds, zebra, peccary and llama. Weathered Coso Formation sediments are found in the alluvial fan at the very south end of the lake bed near Dirty Socks Hot Springs (Bacon et. al 1979; Schultz 1936, 1937; Stinson 1964; Whitmarsh 1997a, 1997b).

SURVEY

METHODS

Survey was conducted from February 21 to 23, 2007 by Cogstone's Paleontology Field Director, Kim Scott and crew member, Leann Moore. Survey was opportunistic based on visibility of ground surface in the areas of potential effect. Generally, survey was concentrated in areas of the lake margin where there had been recent excavation, erosion, or soil deflation, and areas downstream of known localities in the current study areas. Localities were recorded onto topographic maps and location data taken using handheld GPS units. Areas of potential effect are referred to by the abbreviations used on the project map (Figure 3).

RESULTS

The sediments nearer to the lake center were either salt encrusted, covered with salt grass, or flooded (Figure 7, Table 1) removing them from the survey due to lack of visibility. Some of the lake margins, particularly portions of S1, D20, and D22, contained large areas of surface sediments that were not salt encrusted. With the exception of the small channel cut in D23/C2, no areas of recent excavation were present for examination of subsurface sediments.

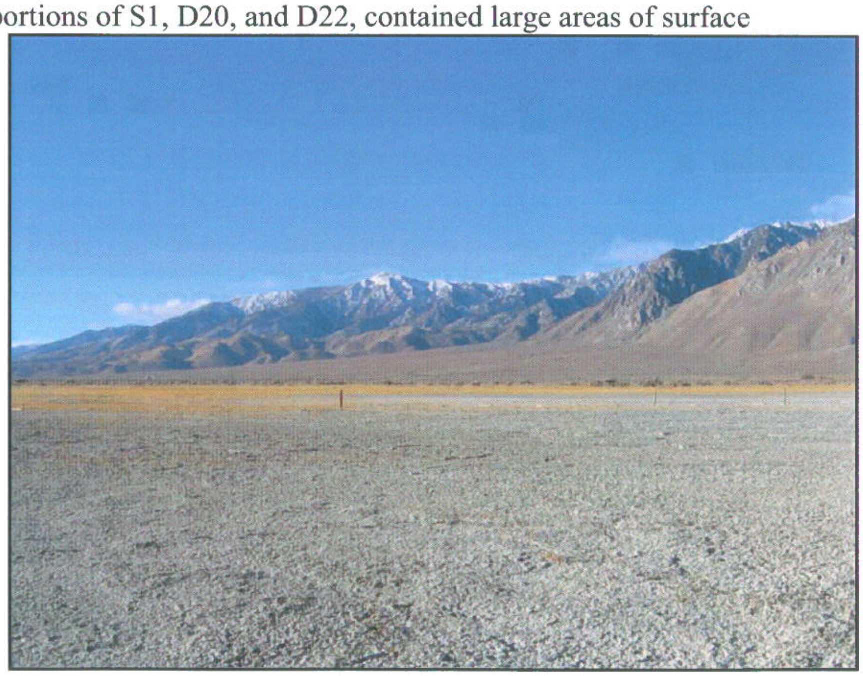


Figure 7. Area D19 showing extensive salt crust.

Table 1. Summary of Areas Surveyed.

Location	Survey Type	Results
Lake interior: C1 D3; D5; D6; D8; D9; D11; D14 S2	drive by assessment	No survey possible; all surfaces were too salt encrusted to provide visibility of sediments.
Lake margins: C2 D1; D2; D4; D7; D10; D12; D13; D15; D16; D17; D18; D19; D20; D21; D22; D23 S1; S3; S4	drive by assessment; walking survey where feasible	Survey possible in some areas; some sediments viewable primarily near the lake margin.

The most encouraging surficial sediments were located in D20 along the southern lake margin (Figure 8), and S1 along the northern lake margin. Wind and water erosion had bared a good portion of the lake-edge portion of each area. In D20 however, the wind had also created silt-rich dunes with fluvially deposited gravels in the foreground (Figure 9).

Figure 8. Wind and water eroded sediments of D20.

Figure 9. Recent dunes and gravels of D20.

No vertebrate fossils are observed or recovered in the survey. The only fossils noted during the survey were Holocene shells located in portions of S1, D2, D20, and D22. These shells consisted of Great Basin ram's horn snail (*Helisoma (Cariniflex) newberryi*) and the clam (*Anodonta spp.*). These duplicate finds previously reported (Gust 2003).

POTENTIAL PALEONTOLOGICAL RESOURCES

Pleistocene fossils have been recovered from the surface of the Owens Lake playa over the last 70 years. Currently the Lake consists only of a small permanent brine pool in the lowest portion of the basin. It is surrounded by former lake beds (playa) bounded by a former shoreline at about 3,600 feet of elevation. During the present survey, only Holocene mollusks were recovered. In most locations, Holocene sediments overlie the Pleistocene sediments.

Both Holocene and Pleistocene sediments have potential to reveal important fossils that can contribute to the history of life in Owens Lake. Specifically, the fossils could be dated making them useful in determining the age of the sedimentary strata and helping to determine the depositional history of the lake and the timing of geologic events. The fossils could provide information on the evolutionary relationships with modern species in the area and the differences between present and paleo communities.

MITIGATION PLAN

No apparent negative impacts to paleontological resources are created by covering portions of the Owens Lake playa with water, gravel or plants, provided weight of any equipment utilized is limited to a reasonable degree to prevent crushing of any potential fossils. Plowing, trenching and other forms of grading and excavation may have negative impacts on significant paleontological resources in the playa areas.

The following mitigation measures have been developed to reduce the adverse impacts of project construction on paleontological resources to an acceptable level and have been customized for this project. The measures meet requirements of the County of Inyo and CEQA. These general mitigation measures have been used throughout California and have been demonstrated to be successful in protecting paleontological resources while allowing timely completion of construction.

1. A qualified paleontologist (principal investigator) will be retained to provide professional paleontological services. The principal paleontologist will be responsible to implement the mitigation plan and maintain professional standards of work.

2. Shallow flooding without any excavation does not require mitigation. However, planned grading, trenching and excavation activities associated with moat and row locations (or flooding areas) should be monitored. In conjunction with the subsurface work the monitor will inspect exposed sediments, including microscopic examination of matrix, to determine if fossils are present. In addition, the qualified paleontologist will be available on call to respond to unanticipated discoveries.

3. The monitor may be a qualified paleontological monitor or a cross-trained archaeologist, biologist or geologist working under the supervision of a qualified principal paleontologist. The function of the monitor is to identify potential resources and recover them with appropriate scientific data.

4. Paleontological Resources Sensitivity Training is required for all project personnel if the monitor will not be present full-time. This 15 minute field training reviews what fossils are, what fossils might potentially be found and the appropriate procedures to follow if fossils are found.

5. Discovery of fossil producing localities will require that stratigraphic columns be measured and that geologic samples be taken for analysis.

6. All fossils recovered will be prepared, identified, and cataloged before donation to the accredited repository designated by the lead agency.

7. The qualified principal paleontologist will prepare a final report to be filed with the client and the lead agency. The report will include a list of specimens recovered, documentation of each locality, interpretation of fossils recovered and will include all specialist's reports as appendices.

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2002 California Geomorphic Provinces. *California Geologic Survey Not*e 36. Website: http://www.consrv.ca.gov/cgs/information/publications/cgs_notes/note_36/note_36.pdf

Whitmarsh, R. S.
1997a Geologic map of the Centennial Canyon 7.5' quadrangle, Inyo County, California. Webref: http:*//geomaps.geo.ukans.edu/maps/coso/graphics/cencan.pdf*

1997b Geologic map of the Vermillion Canyon 7.5' quadrangle, Inyo County, California. Webref: h*ttp://geomaps.geo.ukans.edu/maps/coso/graphics/vercan.pdf*

APPENDIX A: QUALIFICATIONS

SHERRI GUST
Qualified Paleontologist and Registered Professional Archaeologist

EDUCATION

1994 M. S., Anatomy and Cell Biology (Evolutionary Morphology), University of Southern California, Los Angeles
1979 B. S., Anthropology (Physical), University of California, Davis

SELECTED PROJECTS

Research, survey and report on cultural resources from a property with a prehistoric site and historic ranching in San Juan Capistrano.

Literature review, survey and report on paleontological resources from a housing development project in Arroyo Grande.

Research, testing and report on the Zanja Madre, the original water sources of Los Angeles for MTA.

SELECTED REPORTS AND PUBLICATIONS

2005 Gust, S. and A. Van Wyke. Updated Cultural Resource Assessment and Mitigation Plan for the Fair Oaks Mixed use Project, City of Arroyo Grande, California. On file, Cogstone Resource Management Inc. and Central Coastal Information Center.

2005 Gust, S. Paleontological Evaluation Report for the Shandon Community Plan Update Constraints Analysis Project, San Luis Obispo County, California. On file, Cogstone Resource Management Inc.

2005 Scott, K. and S. Gust. Archaeological and Paleontological Resource Assessment Report for the Rich Haven Project, Ontario, California. On file, Cogstone Resource Management Inc.. Eastern Information Center and San Bernardino Archaeological Information Center.

2005 Scott, K. and S. Gust. Paleontological Survey and Evaluation of Camp Roberts and Camp San Luis Obispo, California Army National Guard Facilities, Central California. On file, Cogstone Resource Management Inc. and California Army National Guard Environmental Division.

PROFESSIONAL AFFILIATION & RECOGNITION

Member, Register of Professional Archaeologists
Member, Society for California Archaeology
Member, Society for Historical Archaeology
Member, Pacific Coast Archaeological Society
Member, Society for Archaeological Science
Associate, Vertebrate Paleontology LA County Museum of Natural History
Qualified Paleontologist, Bureau of Land Management
Qualified/Certified Paleontologist, Counties of Orange, LA, SLO, Ventura, Riverside, Santa Barbara

KIM SCOTT
Paleontologist and Field Director

EDUCATION

in progress Masters of Science in Biology with paleontology emphasis, California State University San Bernardino.

2000 Bachelors of Science in Geology with paleontology emphasis, University of California at Los Angeles.

SELECTED PROJECTS

Domenigoni Valley Project. Monitored, recovered, mapped, and prepared fossil specimens for the San Bernardino County Museum.

Owens Lake Project. Conducted field survey, fossil recovery and preparation, and assisted with report on paleontological resources of Owens Lake Valley for Cogstone Resource Management Inc.

Creation of Orange County Paleontology Collections database and reference manual.

Eastside Reservoir Project, Hemet California. Worked on field monitoring, fossil recovery, site mapping, stratigraphy, preparation, and curation.

SELECTED REPORTS (ADDITIONAL PROJECT EXPERIENCE)

2005 Scott, K. and S. Gust. Paleontological Survey and Evaluation of Camp Roberts and Camp San Luis Obispo, California Army National Guard Facilities, Central California. On file, Cogstone Resource Management Inc. and California Army National Guard Environmental Division.

2005 Van Wyke, A., K. Scott and S. Gust. Archaeological and Paleontological Resource Assessment and Monitoring Report for the Fox Digital Lot B Project, City of Los Angeles, California. On file, Cogstone Resource Management Inc. and South Central Coastal Information Center.

2005 Scott, K. and S. Gust. Archaeological and Paleontological Resource Assessment Report for the Rich Haven Project, Ontario, California. On file, Cogstone Resource Management Inc.. Eastern Information Center and San Bernardino Archaeological Information Center.

2005 Scott, K. and S. Gust. Paleontological Resources Assessment Report for the First Street Trunk Line Project, City of Los Angeles, California. On file, Cogstone Resource Management Inc.

2005 Glenn, B., Scott., K. and S. Gust. Cultural resources monitoring report for the Lake at Santa Ysabel Ranch, San Luis Obispo County, California.

PROFESSIONAL AFFILIATIONS

1997- pres. Member, Society of Vertebrate Paleontology
2004- pres. Member, Geological Society of America