

4.10 PALEONTOLOGICAL RESOURCES

This section describes paleontological resources in the planning area, provides a summary of applicable regulations that pertain to paleontological resources, and provides an analysis of potential impacts to paleontological resources associated with implementation of the 2012 General Plan. Potential environmental impacts associated with implementation of the 2012 General Plan, and appropriate mitigation measures where applicable, are described. Information presented in the discussion and subsequent analysis was drawn from technical analyses performed by AECOM and is provided in Appendix E of this EIR.

4.10.1 Existing Environmental Setting

Paleontological resources represent a limited, nonrenewable, and impact-sensitive scientific and educational resource. As defined in this section, “paleontological resources” (i.e., fossils) are the remains and/or traces of prehistoric plant and animal life. Fossils such as bones, teeth, shells, and leaves are found in geologic deposits (rock formations) within which they were originally buried. Paleontological resources include not only fossils but also collecting localities and the geological formations containing those localities.

Regional Geography

La Mesa is located in areas underlain by very old paralic (deposits laid down on the landward side of a coast in shallow fresh water subject to marine invasions resulting in marine and nonmarine sediment interbedding) deposits of Pleistocene-age (approximately 0.5 to 1 million years old) and three middle Eocene-age formations: the Stadium Conglomerate (approximately 44 million years old), Mission Valley Formation (43 million years old), and Pomerado Conglomerate (37 million years old) (El Adli 2012; Kennedy and Tan 2005, 2008).

Paleontological Resource Assessment Criteria

The potential paleontological importance of the planning area can be assessed by identifying the paleontological importance of exposed rock units within the planning area. Because the distribution of a rock unit can be easily delineated on a topographic map, this method is conducive to delineating parts of the planning area that are of higher and lower sensitivity for paleontological resources, and to delineating parts of the planning area that may require monitoring during construction.

A paleontologically important rock unit is one that has a high potential paleontological productivity rating and is known to have produced unique, scientifically important fossils. The

potential paleontological productivity rating of a rock unit exposed in the planning area refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near the planning area. Exposures of a specific rock unit in the planning area are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the planning area.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society of Vertebrate Paleontology (SVP 1995) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly subsurface testing, a qualified paleontologist can determine whether the area should be categorized as having high or low sensitivity. In keeping with the significance criteria of the Society of Vertebrate Paleontology (SVP 1995), all vertebrate fossils are generally categorized as being of potentially significant scientific value.

A “unique paleontological resource or site” is one that is considered significant under the professional paleontological standards described below. An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- A type specimen (i.e., the individual from which a species or subspecies has been described).
- A member of a rare species.
- A species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn.
- A skeletal element different from, or a specimen more complete than, those now available for its species.
- A complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more

controlled conditions, such as for a research project. Marine invertebrates are generally common; the fossil record is well developed and well documented, and marine invertebrates would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

Paleontological Records Search Results

A paleontological records search was conducted by Joe El Adli, Fossil Preparation Lab Manager for the Department of Paleontological Services at the San Diego Natural History Museum, on June 29, 2012. The San Diego Natural History Museum records check indicated that 34 fossil localities exist within a 1-mile radius of the City. Of the 34, two localities occur within the boundaries of the City. There are 16 localities that occur within the marine deposits of the Pliocene-Pleistocene-age San Diego Formation, which is approximately 2 to 4 million years old. The San Diego Formation produced fossil remains of shells (e.g., sponges, clams, snails, crabs, and shrimp) and marine invertebrates (e.g., great white sharks, fish, baleen whales, sea lions, and walrus). The remaining 18 localities were discovered in the fluvial, lagoonal, estuarine, terrestrial, and shallow marine deposits of the Mission Valley Formation. This formation contained localities that produced shells, leaf impressions of plants, impressions of marine invertebrates, impressions of terrestrial invertebrates, mineralized bones of marine vertebrates, and mineralized bones of terrestrial vertebrates. Table 4.10-1 lists the 34 fossil localities within 1 mile of the City.

**Table 4.10-1
Previously Recorded Paleontological Localities within 1 Mile of the City of La Mesa**

Locality No.	Locality Name	Rock and Time Units	Date(s) of Collection
462	East San Diego, 58 th and University	San Diego Formation; Cenozoic Neogene late Pliocene Blancan; sdst-	09/01/76; 07/19/78; 01/13/95
3265	Central Avenue and Federal Avenue	San Diego Formation lower member; Cenozoic Neogene Pliocene Blancan; sdstm congl-	04/85; 07/29/87; 05/18/95
3383	Aqueduct Tower	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; slst	12/21/85; 01/16/88; 03/08/95
3428	Jackson Off-Ramp	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-fluvial	10/02/88; 10/24/96; 10/26/96
3539	Briarcrest Park	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-fluvial	02/18/91; 04/24/92; 05/28/93
3638	Witherspoon Way	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; sdst-fluvial	1962; 08/22/97

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Previously Recorded Paleontological Localities within 1 Mile of the City of La Mesa**

Locality No.	Locality Name	Rock and Time Units	Date(s) of Collection
3746	Alvarado Water Filtration Plant	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-marine	03/03/99; 03/04/00; 03/07/00
4020	SR-125 North (Unit I) Grossmont Summit Drive	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-fluvial	07/15/97; 10/11/99
4036	SR-125 North (Unit III) Fletcher Parkway	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; slst-nonmarine	04/16/99; 10/11/99
4038	SR-125 (Unit I) Grossmont Summit	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; sdst-fluvial	12/17/96; 10/15/99
4604	SR-125 South Stage 3, Lower Red Sdst Bed	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; sdst-fluvial-estuarine	07/21/00; 11/27/01
4605	SR-125 South Stage 3, Potamides Bed	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; sdst shallow marine estuary	05/22/00; 01/10/02
4606	SR-125 South Stage 3, Protoreodon Quarry	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; sdst-shallow marine estuary	07/12/00; 11/20/01; 12/31/00
4607	SR-125 South Stage 3, Lower Green Mudstone	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mudst-shallow marine estuary	05/02/00; 02/05/04; 05/02/00
4718	SR-125 South (Stages 4 and 5) Broadway Site 1	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-floodplain/estuarine?	11/03/99; 08/05/02; 11/03/99
4719	SR-125 South (Stages 4 and 5) Broadway Site 2	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-floodplain/estuarine?	12/22/99; 12/22/99
4974	SR-125 South Stage 3 Mid. Green Mds[t]	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-estuarine	05/16/00; 02/05/04; 05/16/00
4988	SR-125 South Stage 3, Red Mudstone	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-fluvial-lagoonal	05/22/00; 02/05/04
5070	Olympic Street	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine	1964; 04/02/02; 06/2001
5071	Olympic Street	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine	1964; 04/02/02; 06/2001
5072	Olympic Street	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine	1964; 04/02/02; 06/2001
5073	Olympic Street	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine	1964; 04/02/02; 06/2001
5502	San Diego State University Sorority Row	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine, shallow inner sublittoral	05/25/05; 11/30/05; 12/15/05; 12/02/05
5523	Alvarado Water Treatment Plant	Poway Group Mission Valley Formation; Cenozoic Paleogene middle Eocene late Uintan; mdst-shallow marine, estuarine	07/19/04; 01/20/05; 01/21/05; 07/19/04

**Table 4.10-1
Previously Recorded Paleontological Localities within 1 Mile of the City of La Mesa**

Locality No.	Locality Name	Rock and Time Units	Date(s) of Collection
5621	College Grove Drive -- Bed A	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine shelf	02/24/99; 06/02/05; 06/03/05
5622	College Grove Drive -- Bed B	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine shelf	02/17/05; 06/02/05; 06/03/05
5623	College Grove Drive -- Bed C	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine shelf	01/13/99; 06/02/05; 06/03/05
5892	SDG&E Chollas Substation	San Diego Formation; Cenozoic Neogene Pliocene; sdst-marine sand bottom	06/07/06; 09/11/06; 09/19/06; 06/07/06
6037	Serenata Town Homes -- Upper Concreted Bed	San Diego Formation; Cenozoic Neogene Pliocene; sdst -- marine shelf	05/10/07; 07/26/07; 08/29/07; 05/10/07
6038	Serenata Town Homes -- Friable Sandstone Bed	San Diego Formation; Cenozoic Neogene Pliocene; sdst -- marine	05/18/07; 07/26/07; 08/29/07; 05/18/07
6039	Serenata Town Homes -- Crystallized Concreted [Bed]	San Diego Formation; Cenozoic Neogene Pliocene; sdst -- marine	04/30/07; 07/26/07; 08/29/07; 04/30/07
6040	Serenata Town Homes -- Lower Concreted Bed	San Diego Formation; Cenozoic Neogene Pliocene; sdst -- marine	06/05/07; 07/26/07; 08/29/07; 06/05/07
6058	SDG&E Chollas Substation	Poway Group Mission Valley Formation; Cenozoic Paleogene Middle Eocene; sdst -- marine	09/20/06; 10/29/07
6187	Sewer & Water Group 796 (College Avenue)	San Diego Formation; Cenozoic Neogene Pliocene; sdst -- marine continental shelf	12/09/08; 08/20/09; 08/26/09; 12/09/08

Previously Recorded Paleontological Localities

The paleontological records search identified 34 fossil localities. Of the 34 resources, three localities (3428, 3539, and 4036) fall within the northern portion of the City. The fossil localities 3428 (Briarcrest Park) and 3539 (Jackson off-Ramp) both produced fossil impressions from the Mission Valley Formation. The fossil impressions found in the Mission Valley Formation consist of shells, leaf impressions of plants (e.g., vascular plants), impressions of marine invertebrates (e.g., clams, oysters, snails, segmented worms, and crabs), impressions of terrestrial invertebrates (e.g., insects), mineralized bones of marine vertebrates (e.g., fish, turtle, and crocodiles), and mineralized bones of terrestrial vertebrates (e.g., amphibians, lizards, snakes, boas, opossums, rodents, and ancestral carnivorans).

Unique Geological Features

A unique feature may be the best example of its kind locally or regionally, it may illustrate a geologic principle, it may provide a key piece of geologic information, it may be the “type locality” of a fossil or formation, or it may have high aesthetic appeal. Unique geologic features may be exposed or created from natural weathering and erosion processes, or from human excavations. These unique geological features provide aesthetic, scientific, educational, or recreational value.

Unique geological features in the San Diego region were documented in the 1975 San Diego County General Plan (amended April 2002). No unique geological features are listed in the location of the City of La Mesa.

4.10.2 Regulatory Setting

Federal

Native American Consultation

Government Code Section 65352.3 (SB 18) requires local governments to consult with California Native American tribes identified by the California NAHC prior to the adoption or amendment of a General Plan or Specific Plan. The purpose of this consultation is to preserve or mitigate impacts to cultural places.

State

Public Resources Code 5097.5

Section 5097.5 of the California PRC prohibits excavation or removal of any “vertebrate paleontological site or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.” Section 30244 requires reasonable mitigation of adverse impacts to paleontological resources from development on public land. Penal Code Section 623 spells out regulations for the protection of caves, including their natural, cultural, and paleontological contents. It specifies that no “material” (including all or any part of any paleontological item) be removed from any natural geologically formed cavity or cave.

Local

City of La Mesa Municipal Code

Under Section 25.03.010 of the City of La Mesa Municipal Code, a cultural resource may be recommended for designation as a landmark or historic district if it is an archeological or paleontological site that has the potential of yielding information of scientific value. If designated as a landmark, any alteration or relocation of the resource is prohibited without a Certificate of Appropriateness issued by the City’s Historic Preservation Commission or City Council.

4.10.3 Thresholds for Determining Significance

Based on Appendix G of the CEQA Guidelines, a significant impact related to paleontology would occur if implementation of the 2012 General Plan would:

- Directly or indirectly destroy a unique paleontological resource, site, or unique geological feature.

4.10.4 Analysis of Environmental Impacts

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and/or educational value, and are afforded protection under state and local laws and regulations, as described in Section 4.10.2 of this EIR. The loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant environmental impact. Direct impacts on paleontological resources primarily concern the potential destruction of non-renewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information.

The Mission Valley Formation and San Diego Formation in San Diego County are of high paleontological sensitivity. It is possible that any ground disturbance that extends to undisturbed deposits of the Mission Valley Formation and/or the San Diego Formation (which was not determined to occur within the City, but does occur in the vicinity) has the potential to cause significant and adverse impacts to the paleontological resources preserved within these deposits. Additionally, the City is underlain with deposits of Pomerado Conglomerate and the Stadium Conglomerate, which are high in paleontological sensitivity. Any ground disturbance that extends deep enough to encounter these previously undisturbed deposits has a high potential to cause impacts to paleontological resources preserved in these deposits. Therefore, development associated with the 2012 General Plan may cause a **significant impact** to paleontological resources, and Mitigation Measure PALEO-1 is required.

4.10.5 Mitigation Measures

Implementation of the 2012 General Plan would result in significant impacts to paleontological resources. Implementation of Mitigation Measure PALEO-1 would reduce impacts to a less-than-significant level.

PALEO-1 If it is determined during the environmental review process that development projects implementing the 2012 General Plan would be located within an area of high or moderate paleontological resource sensitivity, the City of La Mesa shall require a qualified researcher to be stationed on-site to observe during grading operations and recover scientifically valuable specimens or enforce avoidance of the paleontological feature. A certified palcontologist or qualified researcher shall be retained (or required to be retained) by the project-implementing agency prior to construction to establish procedures for surveillance and the preconstruction salvage of exposed resources if fossil-bearing rocks have the potential to be impacted. The monitor shall provide preconstruction coordination with contractors, oversee original cutting in previously undisturbed areas of sensitive geologic formations, halt or redirect construction activities as appropriate to allow recovery of newly discovered fossil remains, and oversee fossil salvage operations and reporting. This measure shall be placed as a condition on all grading plans where grading is proposed in geologic units defined as having a moderate or high potential for containing fossils.

4.10.6 Significance after Mitigation

Implementation of Mitigation Measure PALEO-1 would require assessment of potential impacts to paleontological resources prior to construction of individual projects associated with the 2012 General Plan. If a project is determined to be located within an area of high or moderate paleontological resource sensitivity, implementation of Mitigation Measure PALEO-1 would require a qualified monitor to be stationed on-site of any future development to monitor construction and identify valuable paleontological specimens. The on-site monitor would recover and report on any significant resources found at the site. Implementation of this mitigation measure would reduce impacts by overseeing construction and related project activities to ensure the recovery of discovered paleontological resources.

Mitigation Measure PALEO-1 would be included in project-level planning, design, and CEQA reviews. Implementation of Mitigation Measure PALEO-1 would require comprehensive, proven procedures to assess the magnitude of impact anticipated on a project level to avoid or substantially reduce the potential for paleontological resources to be directly or indirectly destroyed. The City would be responsible for ensuring adherence to the mitigation measure prior to construction. Therefore, with implementation of this mitigation measure, impacts to paleontological resources would be **less than significant** because implementation of the 2012 General Plan would not directly or indirectly destroy these resources.