PALEONTOLOGIC RESOURCE INVENTORY/IMPACT ASSESSMENT
CANYON HILLS, VERDUGO MOUNTAINS, LOS ANGELES
LOS ANGELES COUNTY, CALIFORNIA

Submitted to

Christopher A. Joseph & Associates
11849 West Olympic Boulevard, Suite 101
Los Angeles, CA 90064

Submitted by

E. Bruce Lander, Ph.D.
Paleo Environmental Associates, Inc.
2248 New York Drive
Altadena, California 91001-3205
paleo@earthlink.net

April 2003

TABLE OF CONTENTS

SECTION 1

INTRODUCTION

This technical report presents the results of the paleontologic resource inventory and impact assessment conducted by Paleo Environmental Associates, Inc., personnel in support of the Draft Environmental Impact Report (DEIR) for the Canyon Hills project in the City of Los Angeles, Los Angeles County, California.

The Canyon Hills project includes the proposed development of 280 single-family homes to be clustered on approximately 194 acres (21.9 percent) of the 887-acre project site. Approximately 211 homes will be constructed on approximately 142 acres north of Interstate 210 (Foothill Freeway) (Development Area A). The remaining 69 homes will be constructed on approximately 52 acres south of Interstate 210 (Development Area B). Approximately 693 acres (78.1 percent) of the project site, including a large swath of land west of the two development areas, will be preserved as permanent open space. The project also will include an equestrian park on approximately 3 acres of land adjacent to La Tuna Canyon Road that will be available for public use. No grading below a depth of 5 feet should be necessary for the development of the equestrian park.

The project site lies in the northwestern portion of the Verdugo Mountains, north of La Tuna Canyon and on either side of the Foothill Freeway (Interstate 210) in Los Angeles (see Figure 1). The project site is situated in Township 2 North, Range 13 and 14 West. Topographic map coverage of the project site and vicinity is provided by the U.S. Geological Survey Burbank (1966, photorevised 1972, minor revision 1994) and Sunland (1995) Quadrangles, California, 7.5 Minute Series (Topographic).

The City of Los Angeles (City) has required that a paleontologic resource inventory and impact assessment be conducted in support of earth-moving activities associated with development of the project site because of the potential for scientifically important fossil remains and fossil sites being disturbed by these activities at the project site.

SECTION 2

METHODS

As part of this paleontologic resource inventory and impact assessment conducted in support of the DEIR, geologic and paleontologic reports and maps covering the Canyon Hills project site and vicinity were reviewed to determine the sedimentary or stratigraphic rock units exposed at the project site and to document the species represented by the fossil remains, if any, recovered from each rock unit at previously recorded fossil sites at and near the project site. The literature and map reviews were supplemented by an archival search conducted at the Natural History Museum of Los Angeles County Vertebrate Paleontology Department (LACMVP) for additional information regarding these and other previously recorded fossil sites and remains. A field survey of those portions of the project site underlain by sedimentary rock units with a potential for containing fossil remains was conducted to document the condition of any previously recorded fossil site, the presence of any previously unrecorded fossil site, and/or the occurrence of strata suitable for containing fossil remains. The results of the data searches then were used to develop a baseline paleontologic resource inventory of the project site by rock unit. Potential adverse construction-related environmental impacts that might result from grading of the project site and potentially affect paleontologic resources (fossil remains and fossil sites) were assessed. Finally, mitigation measures were developed to reduce any potentially significant impact to an insignificant level.

SECTION 3

STRATIGRAPHY

The Canyon Hills project site lies in the northwestern portion of the Verdugo Mountains in the southeastern portion of the western Transverse Ranges Province, in which major linear geologic structures (faults, folds) and the resulting geographic features (mountains, valleys) trend in an east-west direction (Jahns, 1954).

Recent surficial geologic mapping at a scale of 1:24,000 by Dibblee (1991a), as well as similar earlier mapping by Oakeshott (1958) at a scale of 1:62,500, indicates that the project site is underlain by a number of stratigraphically superposed rock units, including, in order of decreasing geologic age and increasing stratigraphic level: (1) undifferentiated, Precambrian to late Cretaceous metamorphic and plutonic igneous rocks units, which underlie virtually the entire project site; (2) an unnamed middle Miocene volcanic rock unit that underlies two areas in the northwestern portion of the project site; (3) the middle Miocene Upper Topanga Formation, which underlies two areas in the northwestern portion of the project site; (4) Holocene alluvium, which underlies La Tuna Canyon in two areas in the southern portion of the project site; and (5) historic artificial fill, which underlies portions of the project site bordering Interstate 210. The locations of these rock units are shown of the surficial geologic map of the project site in Figure 1, which is based on mapping by Dibblee (1991a).

The field survey conducted in support of this technical report documented the occurrence of unmapped volcanic strata in roadcut exposures immediately north of the project site along Verdugo Crestline Drive, where these strata are interbedded with sedimentary strata mapped, presumably incorrectly, as the Upper Topanga Formation by Dibblee (1991a; labeled on his map as Ttucg, but incorrectly labeled as Ttusg in map explanation). Presumably, the sedimentary strata along Verdugo Crestline Drive actually are assignable to the middle Miocene Middle Topanga Formation, which, in the Santa Monica Mountains and unlike the Upper Topanga Formation, is interbedded with volcanic strata.

SECTION 4

PALEONTOLOGIC RESOURCE INVENTORY AND ASSESSMENT OF SCIENTIFIC IMPORTANCE

The literature review, archival search, and field survey conducted in support of this paleontologic resource inventory and impact assessment did not document any previously recorded fossil site as occurring at the Canyon Hills project site. However, a number of previously recorded fossil sites were documented as occurring in the San Fernando Valley in some of the same rock units that are exposed at the project site. A topographic/surficial geologic map showing the potential paleontologic productivity of the project site by stratigraphic rock unit is presented as Figure 1.

4.1 UNDIFFERENTIATED METAMORPHIC AND PLUTONIC IGNEOUS ROCK UNITS

The undifferentiated, Precambrian to late Cretaceous metamorphic and plutonic igneous rock units, because of their origin from a molten state or their metamorphism under conditions of high temperature and pressure deep within the crust of the earth, are unfossiliferous (i.e., do not contain any fossil remains) wherever they occur.

4.2 UNNAMED VOLCANIC ROCK UNIT

The unnamed volcanic rock unit probably is a correlative of the middle Miocene Conejo Volcanics in the Santa Monica Mountains (Dibblee, 1991a). Because of its origin from a molten state deep within the crust of the earth, the volcanic rock unit probably is unfossiliferous (i.e., does not contain any fossil remains) everywhere it occurs.

4.3 UPPER TOPANGA FORMATION

No fossil remains or previously recorded fossil site is reported as occurring in the middle Miocene Upper Topanga Formation as mapped by Dibblee (1991a) at the project site. However, the fossilized shell impressions of extinct species of marine clams have been recovered at a previously recorded fossil site in the Upper Topanga Formation as mapped by Dibblee (1991b) in the Pacoima Hills (Oakeshott, 1958), approximately 4.5 miles west of the project site. The fossil remains from this site are scientifically important because they have allowed confirmation of the marine depositional paleoenvironment represented by the fossil-bearing strata.

4.4 ALLUVIUM

No fossil remains or previously recorded fossil site is reported as occurring in the Holocene alluvium at the project site. However, the fossilized bones and teeth of small continental vertebrate species (fresh-water fishes, frogs, lizards, snakes, birds, rabbits, rodents), the shells of fresh-water species of mollusks (snails, clams), and the fossilized wood and pollen of land plant species have been recovered at previously recorded fossil sites in the alluvium at the Metro Red Line Universal City and North Hollywood Stations at depths at least 16 feet below grade (Lander, 2000) and approximately 5.5 to 7.5 miles south-southwest of the project site. The fossil remains from these sites are scientifically important because they have allowed confirmation of the Holocene age and continental depositional paleoenvironment represented by the fossil-bearing strata. Identifiable remains recovered at the project site would be scientifically important if they represented a new or rare species, geologic (temporal) and/or geographic range extension, age-diagnostic or environmentally sensitive species, and/or a more complete specimen than those now available for their respective species. Continental vertebrate, fresh-water mollusk, and land plant remains, in particular, are scientifically important because such remains are comparatively rare in the fossil record and allow a determination of the geologic age of the fossil-bearing strata and reconstruction of the depositional paleoenvironments represented by the sediments constituting the strata. Moreover, such remains also would contribute to a more comprehensive documentation of the diversity of extinct plant and animal life that existed at and near the project site during the Holocene Epoch.

The fossil occurrences from the San Fernando Valley indicate that there might be a potential for previously unrecorded fossil sites and scientifically important fossil remains to exist beneath the surface of the two areas underlain by alluvium in the southern portion of the project site adjacent to La Tuna Canyon Road. However, any remains near the surface of those areas probably are not old enough to be considered fossilized.

4.5 ARTIFICIAL FILL

Artificial fill consists of historic sediment and debris substantially disturbed by human activity. Any fossil remains encountered in artificial fill lack data regarding their original geologic and geographic contexts. For this reason, there is no potential for any scientifically important fossil remains being encountered in the portion of the project site underlain by artificial fill.

SECTION 5

PROJECT IMPACTS

Pursuant to Appendix G of the State CEQA Guidelines, a project would have a significant impact on the environment if it would directly or indirectly destroy a unique paleontologic resource or site. To evaluate project impacts on paleontologic resources, the surficial geologic map of the Canyon Hills project site was overlaid on the map of the proposed project in Figure 2. Project impacts are discussed below by rock unit.

5.1 UNDIFFERENTIATED METAMORPHIC AND PLUTONIC IGNEOUS ROCK UNITS

The development of the proposed project would have no impact on paleontologic resources as a result of earth-moving activities in areas of the project site underlain by undifferentiated metamorphic and plutonic igneous rock units because these rock units are unfossiliferous.

5.2 UNNAMED VOLCANIC ROCK UNIT

The unnamed volcanic rock unit is exposed only in two areas of the northwestern portion of the project site that lie outside of the development areas and will be preserved as open space. Therefore, this rock unit will not be encountered by any earth-moving activity and, as a result, there would be no impact on any paleontologic resource potentially located in the rock unit.

5.3 UPPER TOPANGA FORMATION

The Upper Topanga Formation is exposed only in two small areas of the northwestern portion of the project site that lie outside of the development areas and will be preserved as open space. Therefore, this rock unit will not be encountered by any earth-moving activity and, as a result, there would be no impact on any paleontologic resource potentially located in this rock unit.

5.4 ALLUVIUM

No grading below a depth of 5 feet will be necessary for the development of the equestrian park adjacent to La Tuna Canyon Road. Therefore, there would be no impact on any paleontologic resource potentially located in the potion of the rock unit located in that area because any remains encountered by grading would be too young to be considered fossilized.

The other portion of the rock unit also lies along La Tuna Canyon Road. Access to Development Area B will be by two bridges that extend northward from La Tuna Canyon Road and cross over the wash at the bottom of La Tuna Canyon. However, the bridge will be founded in the undifferentiated metamorphic and plutonic rock units. Therefore, the alluvium in this portion of the project site will not be encountered by any earth-moving activity associated with bridge construction and, as a result, there would be no impact on any paleontologic resource potentially located in the rock unit.

5.5 ARTIFICIAL FILL

The development of the proposed project would have no impact on paleontologic resources as a result of earth-moving activities in areas of the project site near Interstate 210 underlain by artificial fill because any fossil remains in this rock unit would lack data regarding their original geologic and geographic contexts.

SECTION 6

RECOMMENDED MITIGATION MEASURES

This paleontologic resource inventory and impact assessment did not identify any area of the Canyon Hills project site where grading would impact a paleontologic resource potentially located at the project site. For this reason, no mitigation measure is necessary. However, in the unlikely event that fossil remains are encountered by grading at the project site, further impacts on the fossil site should be stopped and a vertebrate paleontologist approved by the City and the LACMVP should be retained by the developer to evaluate and, if warranted, recover the remains and to implement appropriate mitigation measures, if necessary.

SECTION 7

LITERATURE CITED

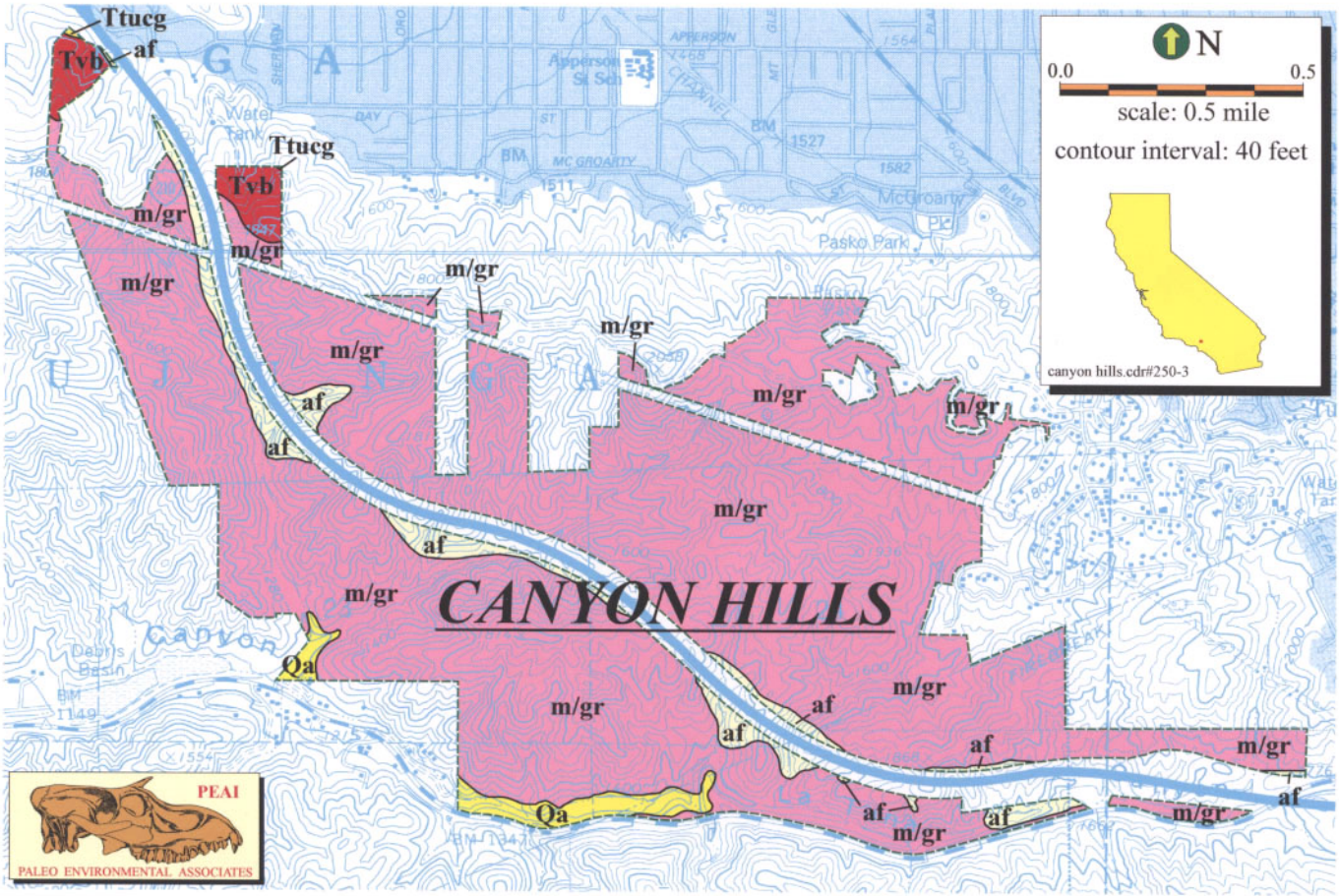
Dibblee, T.W., Jr. 1991a. Geologic map of the Sunland and Burbank (north ½) Quadrangles, Los Angeles County, California. Dibblee Geological Foundation map DF-32.

Dibblee, T.W., Jr. 1991b. Geologic map of the San Fernando and Van Nuys (north ½) Quadrangles, Los Angeles County, California. Dibblee Geological Foundation map DF-33.

Jahns, R.H. 1954. Geology of the Peninsular Range Province, southern California and Baja California. *In* Jahns, R.H., editor. Geology of southern California. California Division of Mines and Geology Bulletin 170(2:3):29-52.

Lander, E.B. 2000. Los Angeles Metro Red Line Project Segments 2 and 3 paleontologic resource impact mitigation program final technical report of findings. Los Angeles County Metropolitan Transportation Authority.

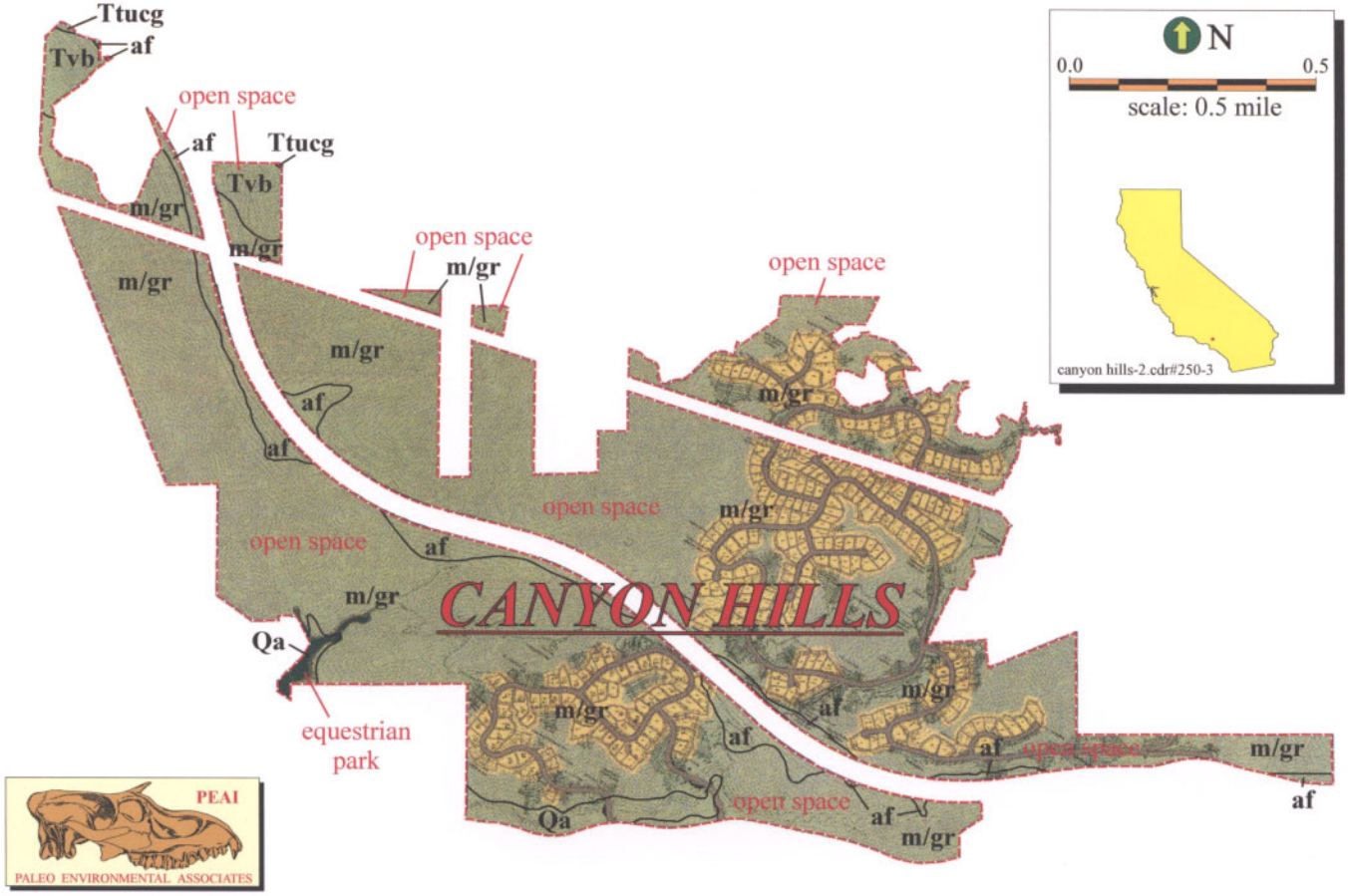
Oakeshott, G.B. 1958. Geology and mineral deposits of San Fernando Quadrangle, Los Angeles County, California. California Division of Mines Bulletin 172:1-147.



EXPLANATION

af	artificial fill (no impact)
Qa	alluvium (no at and near surface)
Ttucg	Upper Topanga Formation (no impact)
Tvb	unnamed volcanic rock unit (no impact)
m/gr	undifferentiated metamorphic and plutonic igneous rock units (no impact)
———	geologic contact

Figure 1.–Surficial geologic map showing significance of project impacts on paleontologic resources by stratigraphic rock unit, Canyon Hills project site, Verdugo Mountains, Los Angeles, Los Angeles County, California. Base maps: U.S. Geological Survey Burbank (1966, photorevised 1972, minor revision 1994) and Sunland (1995) Quadrangles, California, 7.5 Minute Series (Topographic). Surficial geologic mapping after Dibblee (1991).



EXPLANATION

af	artificial fill (no impact)
Qa	alluvium (no at and near surface)
Ttucg	Upper Topanga Formation (no impact)
Tvb	unnamed volcanic rock unit (no impact)
m/gr	undifferentiated metamorphic and plutonic igneous rock units (no impact)
———	geologic contact

Figure 2.–Surficial geologic map overlaid on site plan and showing potential project impacts on paleontologic resources by stratigraphic rock unit, Canyon Hills project site, Verdugo Mountains, Los Angeles, Los Angeles County, California. Surficial geologic mapping after Dibblee (1991).