

Fossil Lizards from Rancho La Brea in the Collections of the University of California Museum of Paleontology

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INTRODUCTION

A recent perusal of the Rancho La Brea fossil collections housed at the University of California Museum of Paleontology (UCMP) resulted in the discovery of several fossil lizard specimens which have previously not been reported in the literature. Although Brattstrom (1953, 1954) mentions examining herpetofaunal remains from the UCMP Rancho La Brea collection, his reports on those remains are restricted to anurans and snakes. This paper provides a detailed account of the lizard fossils from Rancho La Brea in the UCMP collections, including specimen numbers and available information on their exact provenience. None of the specimens reported here represent new taxa for Rancho La Brea, however, due to the small number of lizard remains reported from this important site relative to other taxa (especially mammals and birds; Jefferson, 1991a, 1991b; Table 1), we feel it is important to document all known specimens.

Table 1. Lizard taxa reported from Rancho La Brea (Brattstrom, 1953; Jefferson, 1991a). *Hecht (1956) and Savage (1963) reassigned these specimens to Iguanidae.

Sceloporus magister
Sceloporus occidentalis
Uta stansburiana
Phrynosoma coronatum
Elgaria multicarinata
*Xantusia vigilis**
Cnemidophorus tigris
Eumeces skiltonianus

HISTORY OF INVESTIGATIONS

The fossil herpetofaunal community from Rancho La Brea is poorly understood and many important additions to the fauna have been made in the last decade. Camp (1917) published the first herpetofaunal records (all anurans) from Rancho La Brea and described the extinct toad *Bufo nestor*

from the asphalt deposits. Not until 36 years later was the first detailed description provided of the reptiles and amphibians from the site (Brattstrom, 1953). The following year Brattstrom (1954) elaborated on the rattlesnake remains and later provided additional records of snakes and a turtle (Brattstrom, 1958). In recent years a much more complete picture of the herpetofauna from La Brea has developed, with detailed descriptions of the snake fauna (LaDuke, 1983, 1991a) and the first reports of tortoise (Fay, 1991) and salamander (LaDuke, 1991b) remains from the site.

The specimens reported here were collected between 1906 and 1913 when field crews from the UCMP excavated at Rancho La Brea. The majority of the fossil material was recovered from UCMP locality 2051. This pit was the largest of the UCMP excavations and consisted of several pockets of fossil-bearing asphaltic matrix, most of which were excavated in 1912 and 1913 (Stoner, 1913). Most of the locality 2051 specimens reported here have associated grid-coordinate and depth information (section 20-N-1) and were collected by the Stoner-UCMP excavation party in 1911-1912. Stoner (1913) provides a detailed description of the locality and Marcus (1960) records its exact position within Hancock Park. There does not appear to be a stratification of dates within locality 2051. Nevertheless, the 2051 deposit apparently represents the middle time range of bone accumulation activity at Rancho La Brea, with radiocarbon dates spanning $13,950 \pm 1570$ to $26,410 \pm 2200$ yr. BP (radiocarbon years before 1950); the total radiocarbon dates at Rancho La Brea range from $>40,000$ yr. BP to 4500 ± 80 yr. BP (Marcus and Berger, 1984).

The remainder of the specimens reported here are from UCMP locality 3874, the Rancho La Brea "general" locality, established for specimens for which pit and grid data were not recorded. Although these specimens may have been recovered from any of the UCMP Rancho La Brea localities, they are most likely from locality 2051, since the bulk of the UCMP collection is derived from this site.

SYSTEMATIC PALEONTOLOGY

Class Reptilia Laurenti, 1768
 Order Squamata Oppel, 1811
 Suborder Sauria McCartney, 1802
 Family Phrynosomatidae Fitzinger, 1843
 Sceloporine, gen. and sp. indet.
 (*sensu* Etheridge and de Queiroz, 1988)

Referred Specimens:

from locality 2051 (section 20-N-1): 138640, 3 right maxillae; 138629, 1 right maxilla; 138630, 3 right maxilla fragments; 138641, 1 right maxilla fragment; 138650, 1 right maxilla fragment; 138631, 3 left maxillae; 138642, 2 left maxilla fragments; 138632, 10 right dentaries; 138651, 10 right dentaries; 138643, 8 right dentaries; 138633, 5 left dentaries; 138652, 5 left dentaries; 138644, 3 left dentaries; 138634, 2 left dentary fragments; 138653, 7 frontals; 138654, 1 right scapula.

from locality 2051: 138635, 1 right dentary; 138636, 1 right dentary; 138645, 1 right dentary; 138646, 1 right dentary; 138655, 1 frontal.

from locality 3874: 138656, 1 right maxilla fragment; 138637, 4 left maxillae; 138647, 4 left maxillae; 138657, 1 left maxilla; 138638, 8 right dentaries; 138648, 5 right dentaries; 138658, 8 right dentaries; 138639, 3 left dentaries; 138649, 6 left dentaries; 138659, 8 left dentaries.

Description: Extant Phrynosomatids (*sensu* Frost and Etheridge, 1989) can be separated into 4 generic groups: A *Petrosaurus* group, a *Sceloporus* group (including *Sator*, *Sceloporus*, *Urosaurus*, and *Uta*), a sand lizard group (including *Callisaurus*, *Cophosaurus*, *Holbrookia*, and *Uma*), and a *Phrynosoma* group (Etheridge and de Queiroz, 1988). The difficulties in determining diagnostic characters which can consistently be used to discriminate isolated skeletal elements of the Sceloporine genera have been discussed by Etheridge (1964), Larsen and Tanner (1974), Wellstead (1982) and Norell (1989). General dental characters for each group are presented by Norell (1989). These specimens are most similar in general morphology to the *Sceloporus* group, but generic identifications are not possible. All of the specimens are within the size range of *Urosaurus*, *Uta*, and the smaller species of *Sceloporus* (including *S. graciosus*, *S. occidentalis*, *S. undulatus*, *S. virgatus* and *S. scalaris*). Of these, *S. occidentalis*, *S. graciosus*, and *Uta* are known from the general

vicinity of Rancho La Brea today, and species of *Urosaurus* occur to the south and east (Stebbins, 1985).

Family Teiidae Gray, 1827
 Genus *Cnemidophorus* Wagler, 1830
 cf. *Cnemidophorus* sp.

Referred Specimens:

from locality 3874: 138660, 1 left maxilla.

Description: The fossil is readily identifiable as a teiid based on the following characters: 1) the dorsal portion of the maxilla forms an anteroposteriorly broad-based triangle with no distinctive dorsal ramus and 2) the teeth are asymmetrically bicusate, the smaller cusp oriented toward the anterior of the maxilla. Presch (1974) found no significant osteological differences between *Cnemidophorus* and *Ameiva*, and only the shape of the frontal-parietal roof distinguishes a third genus, *Kentropyx*. Although this specimen could potentially represent any of these genera, referral to *Cnemidophorus* is based upon biogeographical distribution. *Ameiva* and *Kentropyx* are generally Central and South American forms. There are presently two species of *Cnemidophorus* living in California: the western whiptail, *C. tigris*, and the orange-throated whiptail, *C. hyperythrus* (Stebbins, 1985).

Family Scincidae Gray, 1825
 Genus *Eumeces* Wiegmann, 1834
Eumeces sp.

Referred Specimens:

from locality 2051 (section 20-N-1): 138661, 1 left dentary.

from locality 3874: 138662, 1 right maxilla; 138663, 1 left maxilla; 138664, 1 left maxilla fragment; 138665, 2 left dentaries.

Description: These fossil specimens are identified as *Eumeces* based on the following characteristics: the dorsal portion of the maxilla forms an anteroposteriorly broad-based triangle, the anterior half of which is medially inflected for its entire height above the tooth row. The anterior and posterior edges of the maxilla are emarginated; the posterior emargination leaves two posteriorly oriented processes: one at the dorsal tip of the maxilla and one in a mid-dorsal position. The anteriormost point of the palatal

portion of the maxilla is medially inflected. Posteriorly, the Meckelian groove of the dentary is broadly open and directed lingually. The groove narrows and becomes ventrally directed as it approaches the symphysis. The teeth are of a generally uniform height and width and are unicusate. Isolated skeletal elements of the species of *Eumeces* are extremely difficult to identify to the species level (Estes, 1963; Nash and Tanner, 1970; Norell, 1989). No characters have been found which can consistently be used to distinguish the two California species, *E. gilberti* and *E. skiltonianus*.

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