

A CLARENDONIAN OCCURRENCE OF THE FOSSIL INSECTIVORE, *PLESIOSOREX* (MAMMALIA), FROM WASHINGTON

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ABSTRACT

A specimen of *Plesiosorex* was recently discovered by Kevin Meeks from the Granger Clay Pit, Yakima County, Washington, from sediments of the Ellensburg Formation which were deposited during the Clarendonian North American Land Mammal Age (NALMA). This unusual insectivore had been found previously from Miocene rocks, but herein, is recorded its first known occurrence from Washington, based on a right lower jaw fragment with the first molar. The specimen is larger than the known Clarendonian species, *Plesiosorex latidens*, but smaller than the Barstovian species, *Plesiosorex donroosai*.

Keywords

Plesiosorex, Insectivore, Fossil, Clarendonian, Washington

INTRODUCTION

Plesiosorex was recently discussed (Martin, 2012), and three North American species from the Miocene were recognized: *P. coloradensis*, *P. donroosai*, and *P. latidens*. In North America, *Plesiosorex* appeared during the early Hemingfordian NALMA and persisted into the late Hemphillian NALMA (Martin 2012). Its distribution is widespread with the Hemingfordian species, *P. coloradensis*, having been found in Colorado (Wilson 1960), South Dakota (Martin 1976), Idaho (Tedrow and Martin 1988), Nebraska (Bailey 2004), and Delaware (Emry and Eshelman 1998). Occurrences of *Plesiosorex*, *P. donroosai*, have been described from Barstovian deposits in South Dakota (Green 1977; Martin 1987, 2012; Pagnac 2012), Nebraska (Voorhies 1990), and Oregon (Shotwell 1968; Martin 2012). The youngest recognized species, *P. latidens* (originally termed *Meterix latidens*), has been recovered from Clarendonian rocks in Nevada (Hall 1929; Green 1977), Nebraska (Voorhies 1969; Martin 2012), and Oregon (Shotwell 1968; Martin 2012). Hemphillian specimens from Nebraska (Voorhies 1990) have not yet been assigned to species. Based upon the new discovery of the specimen discussed in this contribution, the range of *Plesiosorex* is extended northwesterly into the state of Washington.

This specimen was derived from the Granger Clay Pit, a locality in the Ellensburg Formation of central Washington. The Ellensburg Formation at this locality occurs suprajacent to the Elephant Mountain Basalt, which has been dated at 10.5 Ma (See Madin 2009; Smith et al. 2013). The Ellensburg Formation at the Granger Clay Pit was dated as *ca.* 10.3 Ma by Smith (1988). These dates are consistent with correlative dates based on mammals from the Clarendonian NALMA (Martin and Mallory 2011).

Lipotyphla Haeckel, 1866

Plesiosoricidae Winge, 1917

Plesiosorex Pomel, 1848

Plesiosorex latidens (Hall 1929)

Plesiosorex sp. cf. *P. latidens*

Referred Specimen: University of Louisiana Geology Museum, Lafayette (ULGM) V3485, right dentary with m1 from ULGM locality V-19.

Description: ULGM V3485 (Fig. 1) consists of a right dentary, broken through the alveoli of p4 and just anterior to the coronoid process. The dentary is shallow (3.35 mm below the anterior root of m1) and slender (2.5 mm wide below the anterior root of m1). The posterior end of the symphyseal scar indicates the symphysis extended posteriorly to a point below the anterior portion of the m1 as is typical of *Plesiosorex*. A centrally positioned mental foramen lies below the posterior moiety of the m1. A robust anterior margin of the coronoid process remains, although the remainder of the ascending ramus is missing. The only tooth remaining in the dentary is the m1, which is large (length=4.75 mm; maximum width=2.75 mm) and unworn with very tall, slender, cusps. The trigonid is higher than the talonid, delicately constructed with pointed cusps connected by sharp crests. The paraconid and metaconid are conical, and a small parastylid-like cuspule lies at the anterior base of the paraconid that would interlock with the posterior edge of the p4. The paraconid-protoconid crest exhibits a distinct notch that extends down a third of the crown length. The crest from the protoconid to the metaconid is much higher, but also notched. The trigonid is deeply basined and widely open lingually to the same depth as the talonid valley between the metaconid and entoconid. A small cuspule occurs at the posterior base of the metaconid. The conical entoconid lies at the posterolingual tooth corner and is higher than the hypoconid. The posterior crest connecting to the hypoconid is also deeply notched. A minute hypoconulid lies medially on the crest. The hypoconid, like the protoconid, is V-shaped, and the cristid obliqua angles anteriorly to a point half the height of the protoconid. No cingulids occur on m1, and the labial enamel faces of the protoconid and hypoconid exhibit slight crenulations. Two alveoli each remain for the m2-m3, and the posterior alveolus of p4 is large, indicating that this tooth was likewise large and robust. The alveolar length of m1-m3 is 9.55 mm, intermediate between the measurements by Green (1977) of *P. coloradensis* (alveolar length = 8.5 mm) and *P. donroosai* (alveolar length = 11.8 mm); most measurements of *P. latidens* are also intermediate (See Green 1977).

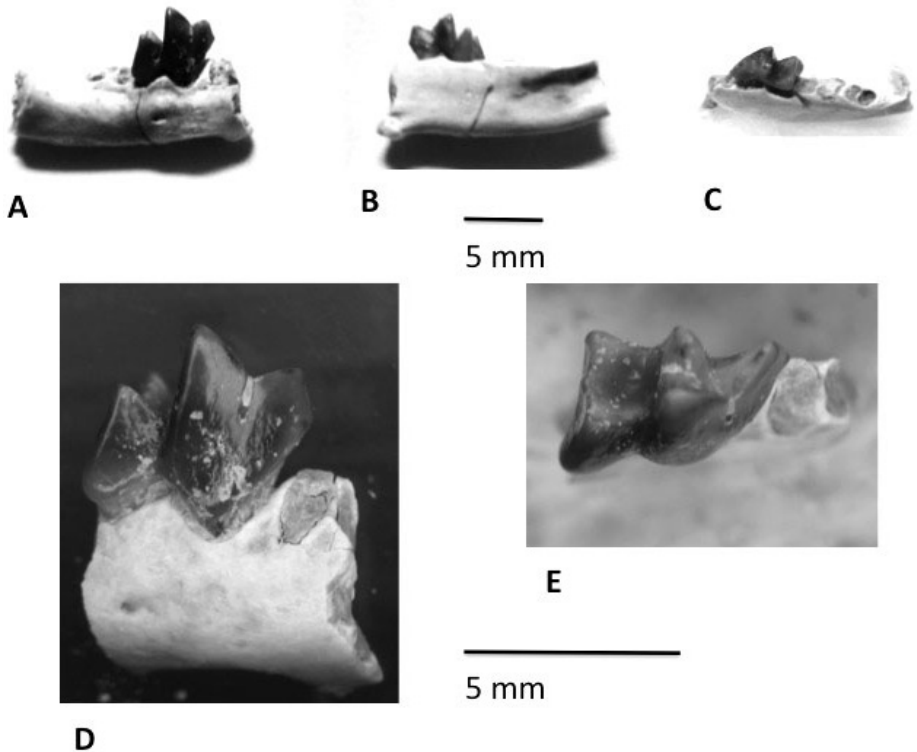


Figure 1. *Plesiosorex* sp. cf. *P. latidens*, ULGM 3485 A) right dentary, buccal view; B) lingual view; C) occlusal view; D) m1, buccal view; E) occlusal view.

DISCUSSION

ULGM 3485 is slightly larger than most specimens of *Plesiosorex latidens* but distinctly smaller than *Plesiosorex donroosai*. Based on a single specimen, the insectivore from the Granger Clay Pit is provisionally referred to *P. latidens*.

ULGM 3485 represents the first known occurrence of the enigmatic insectivore, *Plesiosorex*, from the state of Washington. The specimen was recovered from the Granger Clay Pit, from sediments deposited during the Clarendonian NALMA (Martin and Mallory 2011; Smith et al. 2013). The occurrence in Washington extends the known paleogeographic range of *Plesiosorex* and represents its most northerly known occurrence in North America.

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