

A NEW GENUS OF MUSTELID FROM THE ELLENSBURG FORMATION, WASHINGTON

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ABSTRACT: *Beckia grangerensis*, n. gen. and sp., is the second reported genus of mellivorine mustelids from the Pliocene of North America. Probably representative of an Asian emigrant, the type specimen was found in association with remains of other late Clarendonian animals, including horse and camel. The jaw is that of an animal about the size of a modern wolverine, showing similarities to both *Mellivora* and *Eomellivora*.

INTRODUCTION

American mellivorine mustelids have previously been known only from one specimen found in Pliocene deposits. A fragmentary palate of *Eomellivora* cf. *wimani* was recorded by Stock and Hall (1933) from the Hemphillian Kern River beds in Southern California. *Beckia grangerensis*, n. gen. and sp., described in this paper, is the second reported specimen of an American mellivorine. Presumably, both *Eomellivora* and *Beckia* were emigrants from Asia, where mellivorines are well known, which may have crossed the Bering land bridge and moved south down the Pacific coast.

The specimen described below was collected in Yakima County, Washington, and donated to the Los Angeles County Museum of Natural History by Mr. George F. Beck of Yakima in 1963, as part of a larger collection from the Ellensburg Formation.

The names of institutions to which specimens referred to in this paper belong, are abbreviated as follows: GSI, Geological Survey of India; LACM, Los Angeles County Museum of Natural History; SAMD, Science and Art Museum, Dublin, Ireland. Specimens belonging to the Geological Survey of India and to the Science and Art Museum, Dublin, have previously been reported and figured. Their descriptions and measurements are taken from the original citations.

ACKNOWLEDGMENTS

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MUSTELIDAE Swainson, 1835

MELLIVORINAE Gill, 1872

Beckia, new genus

Genotypic Species: *Beckia grangerensis*, new species

Geologic Range: ? Clarendonian

Diagnosis: Jaw shallow, symphysis gently sloped. M_1 with protoconid one-third taller than paraconid; bladelike hypoconid, separated from protoconid by deep, narrow, open notch. Suggestion of metaconid on posterior blade of protoconid. Premolars elongate oblongs. P_3 lacking accessory cusps. Mental foramina below anterior and posterior roots of P_3 . Tooth row straight.

Beckia grangerensis, new species

Figs. 1, 2

Type: LACM 10642, a right ramus with P_3 - M_1 , roots of canine and P_2 .

Type Locality: LACM 6431, Granger Clay Pit, Yakima County, Washington.

Horizon: Ellensburg Formation, ? Clarendonian.

Diagnosis: As for the genus.

Description: M_1 with hypoconid only remaining cusp of the talonid; suggestion of metaconid on posterior blade of protoconid; slight cingulum around hypoconid. M_1 and P_4 overlap. P_4 trenchant, with slight cingulum; posterior accessory cusp small, forming part of posterior blade of principal cusp; anterior cusp very small, lying at base of principal cusp; minute anterior circular cusp. P_3 crowded against P_4 ; trenchant, without anterior or posterior accessory cusps; faint anterior circular cusp. Both premolars oblong in outline, tapered at the anterior end. P_2 represented by roots and fragment of base; crowded against lingual side of P_3 .

Comparison with Other Species of Mellivorinae: Mellivorines are represented in the Pliocene of Asia and North America by five species in two genera; *Mellivora punjabiensis* Lydekker, *M. sivalensis* (Falconer), *Eomellivora necrophila* Pilgrim, and *E. tenebrarum* Pilgrim, all from the Siwalik Hills of India, and *E. wimani* Zdansky from Shansi and Honan provinces, China. The only previously reported mellivorine from North America is a fragmentary palate and isolated teeth from the Hemphillian Kern River beds in California which has been identified (Stock and Hall, 1933, p. 63) as *Eomellivora* cf. *wimani*. Unfortunately, *E. necrophila* and *E. tenebrarum* are known only from fragmentary specimens, and their status is questionable.

The jaw of *Beckia grangerensis* is shallower than in *Eomellivora*, the angle of the symphysis is less steep, and the premolars are more elongate than triangular. The M_1 is as compressed as in *E. wimani*. The premolars are taller and more trenchant. The strong cingula seen in *E. wimani* are lacking in *Beckia grangerensis*.

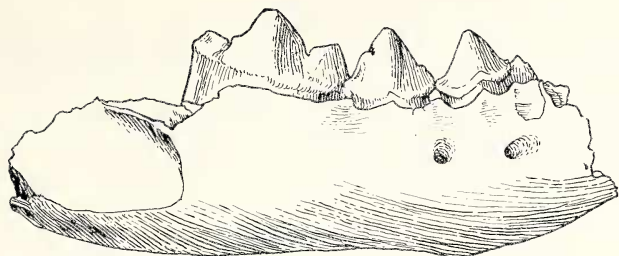


Figure 1. *Beckia grangerensis*, n. gen. and sp., LACM 10642. Right ramus with P_2 to M_1 ; labial view. (x 1)

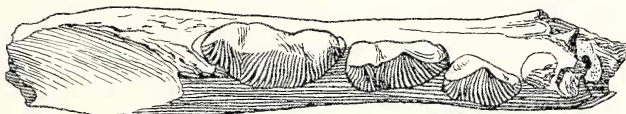


Figure 2. *Beckia grangerensis*, n. gen. and sp., LACM 10642. Right ramus with P_2 to M_1 ; occlusal view. (x 1)

The tooth row forms a straight line, as in *Eomellivora*; in *Mellivora sivalensis*, the tooth row is convex outward. The P_2 apparently was set at an angle to the other teeth, the anterior end pointing outward and the posterior end overlapping the antero-lingual corner of P_3 . This condition is also present, and more pronounced, in *Eomellivora wimani* and *Mellivora sivalensis*.

Geology and Associated Fauna of the Locality: The Granger Clay Pit is presently a source of clay used in making brick. In late Clarendonian times, it may have been a pond bottom or lake area where animals were trapped in the mud or died of natural causes. The clay lens is contained in the upper or Naches Member of the Ellensburg Formation (Russell, 1900), above the Wenas Basalt (Beck, pers. comm.; Macdonald, field notes, 1965). Associated with *Beckia grangerensis* are a large tortoise, a gomphothere, *Hipparion ?anthonyi*, *?Plianchenia* sp., a medium and a large sized camel, and an antilocaprid.

It is difficult to determine the age of the clay pit deposit. Smiley, in his study of the flora of the Ellensburg Formation (1963, p. 206), states that "Vertebrate evidence indicates an Upper Miocene (Barstovian) to Lower Pliocene (Clarendonian) age for the entire formation." From the study of the large collection made by Mr. Beck, it appears that the vertebrates indicate an age ranging from Clarendonian to Hemphillian. None seems to indicate a

Barstovian age. Even localities near the base of the formation yield assemblages including such Pliocene genera as *Hipparion* and *Nannippus*. Several *Pliohippus* teeth found near the top of the formation indicate a Hemphillian or younger age (Shotwell, 1961, p. 207).

This genus is named for Mr. George F. Beck of Yakima, Washington, who donated the specimen to the museum.

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TABLE 1
COMPARISON OF SELECTED CHARACTERS
OF MELLIVORINES*

	<i>Beckia grangerensis</i>	<i>Eomellivora wimani</i>	<i>Eomellivora necrophila</i>	<i>Mellivora punjabensis</i>	<i>Mellivora sivalensis</i>
Depth of jaw	shallow	deep	deep	shallow	not known
Angle of symphysis	low	steep	steep	low	not known
Mental foramina	below roots of P ₃	below post. of P ₂ , ant. of P ₄	not known	below ant. ends of P ₃ and P ₄	not known
Shape of tooth row	straight	straight	straight	nearly straight	convex outward
Shape of premolars	elongate oblong	broad triangle	elongate oblong	P ₄ oblong, P ₃ elongate	broad oblong
Relative size of P ₃ to P ₄	smaller	much smaller	slightly smaller	smaller	slightly smaller
Position of P ₂	anterior end labiad	anterior end labiad	straight; P ₃ has anterior end lingual	straight	anterior end labiad
Accessory cusps	not prominent	prominent	prominent	not prominent	not known
Relative height of protoconid	1/3 taller than paraconid	1/4 taller than paraconid	1/2 taller than paraconid	not known	not known
Width: length of M ₁	1:2.5	1:2.6	1:3	not known	ca. 1:2
Cingula of M ₁	slight	strong	strong	strong	slight

*So little material of *Eomellivora tenebrarum* is known that it is impossible to include it in this table.

TABLE 2
Measurements (in millimeters) of the jaw and lower teeth
of *Beckia grangerensis* and related genera

P ₃ antero-posterior diameter	<i>B. grangerensis</i> LACM 10642 Type	10.1	11.8	13.3	<i>ΔE. necrophila</i> * GSI D254	<i>ΔE. necrophila</i> * GSI D243 Type	+ <i>M. punjabiensis</i> GSI D20 Type	+ <i>M. sivalensis</i> SAMD 45 Type	8.1	9.65	13.4	17.0
	transverse diameter	6.0	8.3									
P ₄ antero-posterior diameter		12.9	15.4	15.5	<i>ΔE. necrophila</i> * GSI D255b							
		transverse diameter	6.34									
M ₁ antero-posterior diameter		19.4	24.5	24.5								
		transverse diameter	8.3									
depth of jaw below M ₁		19.65	37.3*									

*Measurements taken from the figure

**After Zdansky, 1924

ΔAfter Pilgrim, 1932, pl. 3, figs. 4-7

+After Lydekker, 1884