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The *Postilla* series, which ceased publication with Number 232 (2004), was incorporated into the journal *Bulletin of the Peabody Museum of Natural History*, available from BioOne Complete at <https://bioone.org/>.

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**A New Species of *Isectolophus*  
(Mammalia, Tapiroidea) from the  
Middle Eocene of Wyoming**

**Robert Milton Schoch**

(Received 12 October 1982)

**Abstract**

A partial right dentary bearing  $M_3$  from the middle Eocene (Bridger) of Wyoming represents a new species of *Isectolophus* here designated *I. radinskyi*. *I. radinskyi* differs from all other *Isectolophus* in its smaller size; it is intermediate in size between *Homogalax protapirinus* and its supposed descendant *Isectolophus latidens*.

**Key Words**

*Isectolophus*, Tapiroidea, Bridgerian, Eocene, fossil mammal.

**Introduction**

Among the previously uncatalogued middle Eocene fossil mammal remains from the Green River (Bridger) Basin, Wyoming, housed in the Yale Peabody Museum, New Haven (YPM), is a partial dentary bearing  $M_3$  of a tapiroid which represents a new species of *Isectolophus*.

**Systematic Paleontology**

**Class Mammalia Linnaeus, 1758**

**Order Perissodactyla Owen, 1848**

**Suborder Ceratomorpha Wood, 1937**

**Superfamily Tapiroidea Burnett, 1830  
(Gill, 1872)**

**Family Isectolophidae Peterson, 1919**

**Genus *Isectolophus* Scott and Osborn,  
1887**

*Isectolophus radinskyi* Schoch,  
new species  
(Fig. 1, Table 1)

**Holotype**

YPM 40262, partial right dentary with posterior root of  $P_3$ , roots of  $P_4$ - $M_2$  and complete  $M_3$ .

**Horizon and Locality of the Type**

Middle Eocene (Bridgerian) aged strata of the Bridger Formation, Green River (Bridger) Basin, Wyoming. Collected by L. LaMothe and J. W. Chew at Lone Springs, Wyoming, July 1874.

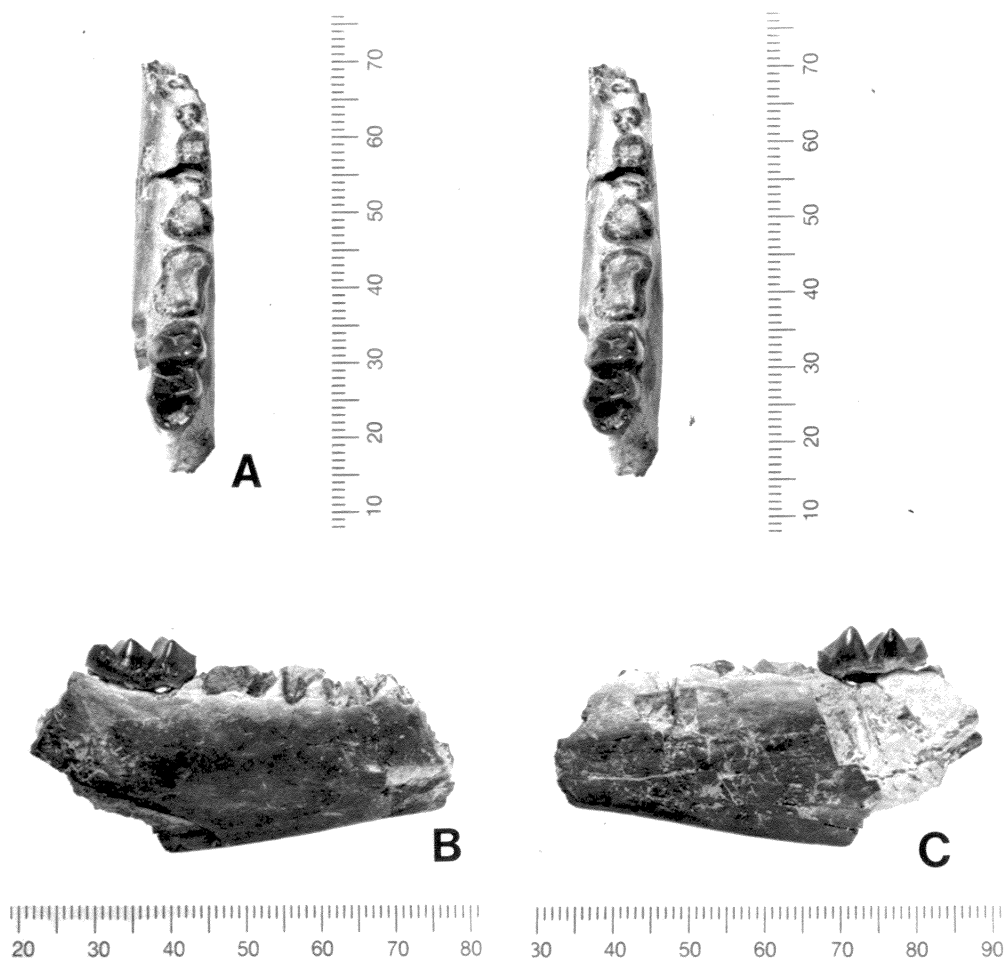
**Hypodigm**

Known only from the holotype.

**Etymology**

Named for Leonard B. Radinsky in honor of his many contributions toward a better understanding of tapiroid evolution.

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**Fig. 1**

*Isectolophus radinskyi* Schoch, new species, YPM 40262 (holotype), right dentary with M<sub>3</sub>: A, occlusal view, stereo pair; B, labial view; C, lingual view. Scales are in mm.

**Diagnosis**

Smallest known species of *Isectolophus*: length of  $M_{1-3}$  approximately 35.2 mm; dentary slightly shallower than that of *Isectolophus latidens*.

**Description**

YPM 40262 consists of a partial right dentary which bears a fragment of the posterior root of  $P_3$ , the roots of  $P_4-M_2$  and the complete  $M_3$ .  $P_3-M_3$  are all double-rooted and increase in size posteriorly. The preserved portion of the dentary is comparable in morphology to that of *Isectolophus latidens*, although somewhat shallower and more gracile (depth of ramus under  $M_{1-2} = 21.0$  mm).

$M_3$  of *Isectolophus radinskyi* is virtually identical in morphology to the  $M_3$  of other species of *Isectolophus*, although much smaller in size. The transverse protolephid and hypolephid are parallel to one another, and very slightly notched in their centers (such that the protoconid and metaconid, hypoconid and entoconid remain relatively distinct) and trend slightly anterolabially. The protolephid is very slightly higher than

the hypolephid. The metaconid is very slightly higher than the protoconid; there is no metastylid. The paralephid is represented by a low anterolabial and anterior ridge. The metalephid is low and extends from the apex of the hypoconid to the posterolingual base of the protoconid. The trigonid and talonid (excluding the hypoconulid lobe) are subequal in length and width. The hypoconulid forms a large, broad, posterior heel bounded labially and posteriorly by a ridge which is highest labially (about half the height of that of the hypoconid) and decreases in height posterolingually. This ridge is minutely cuspidate and bears a shallow, posterior notch positioned slightly lingual to the anteroposterior midline of the tooth.  $M_3$  bears a low, minutely cuspidate cingulid on its anterior and labial sides.

**Discussion**

Radinsky (1963) rediagnosed, revised and described *Isectolophus*, recognizing two species, the smaller and earlier *I. latidens* (middle Eocene, mean length  $M_{1-3} = 40.4$  mm) and the somewhat larger and later *I. annectens* (late Eocene, mean length  $M_{1-3} = 46.8$  mm). In preserved parts YPM 40262

**Table 1**

Measurements (in mm) of  $M_3$ s of *Isectolophus latidens* and *Isectolophus radinskyi*, new species.

	Length	Width
<i>Isectolophus latidens</i>		
YPM 12563	17.9	9.0
YPM 15297	18.7	9.1
YPM 15298	18.0 ±	—
YPM 16337	17.5	8.5+
<i>Isectolophus radinskyi</i>		
YPM 40262	15.2	7.8

is identical to *I. latidens*, except for its smaller size (Table 1). YPM 40262 is within the size range of the early Eocene isectolophid *Homogalax protapirinus*. However, it differs from *Homogalax* in lacking a metastylid on  $M_3$ . Metastylids are always present on the  $M_{1-3}$  of *Homogalax* (Radinsky 1963). Among other known Eocene North American tapiroids, YPM 40262 is within the size range of the early Eocene helaletid *Heptodon calciculus* and the middle Eocene *Helaletes nanus*. However, YPM 40262 differs from these species, and all Helaletidae, in bearing a relatively unreduced metalophid and a long and broad (large) hypoconulid on  $M_3$ . In helaletids the  $M_{1-3}$  metalophids are greatly reduced and the  $M_3$  hypoconulid is short and narrow or lost (Radinsky 1963). Thus, based on the morphology of  $M_3$ , YPM 40262 is referable only to the Isectolophidae, and of the two genera composing this family it is closest morphologically to other species of *Isectolophus*. Based on the lengths of  $M_{1-3}$  in the known species of *Isectolophus* (Radinsky 1963), *I. latidens* is approximately 14 percent smaller than *I. annectens* and YPM 40262 is approximately 13 percent smaller than *I. latidens*. On this basis I coin the name *Isectolophus radinskyi*, new species, for YPM 40262, the smallest known species of *Isectolophus*.

Radinsky (1963, p. 74) postulated that *Homogalax protapirinus* gave rise to *Isectolophus latidens*. The discovery of *Isectolophus radinskyi* supports this hypothesis. *Isectolophus radinskyi* is intermediate between these two forms; it is within the size range of *Homogalax protapirinus*, but in nonmetric morphology is identical to *Isectolophus latidens*.

### Acknowledgments

I thank Professor John H. Ostrom (YPM) for allowing me to study specimens in his care. I thank Mary Ann Turner (YPM) for help in locating specimens and locality information. The photographs were taken by William K. Sacco (YPM). Part of the costs of publication were supported by the O. C. Marsh Publication Fund, Yale Peabody Museum.

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