A DIVERSE ASSEMBLAGE OF PALEOCENE NONMARINE MOLLUSKS AND MAMMALS FROM THE SENTINEL BUTTE FORMATION OF NORTH DAKOTA

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Diverse nonmarine mollusk assemblages are uncommon in strata of Paleocene age. A local fauna with more than eight taxa (the average is about four) is usually due to the admixture of freshwater and terrestrial taxa. This communication is the first report of an unusually diverse assemblage of at least 26 taxa of both freshwater and terrestrial mollusks from a Paleocene locality in North Dakota. This assemblage, known as the Riverdale Locality, is in the Sentinel Butte Formation and is middle late Paleocene age. Land mammal age abbreviations used herein are La = Lancing (latest Cretaceous), To and Ti = Torrejonian and Tiffanian (middle and late Paleocene), and Wa = Wasatchian (Early Eocene).

The Riverdale Locality (L1) was discovered on the shores of Lake Sakakawea near Riverdale, McLean County, in the early 1960s by the Vinje family of Hazen (1). Although known primarily for its mammalian fossils (2), a few interesting terrestrial mollusks were part of the original collections (3). The Riverdale Locality of the Vinjes was destroyed by the then rising waters of the reservoir, but lowering lake levels of the late ‘80s exhumed a comparable lithology in the same (specific) location. From available data (2, 4), the Riverdale sites discovered over the last few years (e.g., L5907 and L6200) are stratigraphically, at the least, from 5.8 to 7.9 m above the Vinje’s Riverdale Locality, respectively.

The Riverdale molluscan assemblage consists notably of a diverse assemblage of snails (see table; * = land snails). Many, if not most, of the taxa are undescribed. The named taxa, Viviparidae, *ructorius, Grangerella meleodensis* (see 5), and New Genus T planonconvexa indicate a late Paleocene age. In addition, the terrestrial assemblage is remarkable in that it shares no taxon in common with the T13-age Judson local fauna (L6-L8, L25) from near the Slope-Bullion Creek formational contact in Morton County. The record of *G. meleodensis*, known previously from Paleocene formations of Alberta, is its first report in the United States. The record of the New Genus T planonconvexa is its first report in North Dakota since it was first described in 1857 from the Sentinel Butte Formation near Fort Berthold on the Missouri River (L4279) (6). The mollusks indicate a moist tropical or subtropical forest near a shallow lacustrine environment associated with a major fluvial system.

The Riverdale Locality (L1) was previously reported as belonging to mammalian biochron T42 (early late Tiffanian) (1). A reassessment of the mammalian local fauna identifies the following taxa: Order (O.) Multituberculata — *Ptilodus kummae* (T13-T14), O. Proteotheria — Propalaestina sp. (T03-T15), O. Condylarthra — Phenacodus magna (T14-T15), an indeterminate arctoctyoid (La-Wa), and O. Panto- donta — Titanoides primaevus* (T13-T57). Although a T14 biochron is indicated by this fauna, the identification of *P. magna* at certain localities does not rule out the possibility of a T13 age for the Riverdale Locality. Note that this small local fauna does not share any species in common with the T13-age Judson and Brisbane (L5385, Slope Formation in Grant County) Localities. This research has been supported by the National Science Foundation, the U.S. Department of Energy, and the U.S. Bureau of Mines.


RIVERDALE MOLLUSKS

Class Bivalvia
Subclass Heteroconchia
Order Unionoida
Family Unionidae
Gen. & sp. undet.
Order Veneridae
Family Piatidiidae
Gen. & sp. undet.
Class Gastropoda
Subclass Prosobranchia
Order Diotocardia
Family Grangerellidae
Gen. & sp. undet.
Order Mesogastropoda
Family Viviparidae
Viviparidae
Vivipara relictus
Family Hydrobiidae
Hydrobia spp.
Family Pleuroceridae
Lilioplacodes nebrascensis
Lilioplacodes sp. B
Order & Family incertae sedis
New Gen. A. Limneformis
Subclass Pulmonata
Order Archaeopulmonata
Family Ellibiidae
Pleurolitinae teniicosta
Order Basommatophora
Family Acroloxidae
Gen. & sp. undet.
Family Physidae
Physa cf. P. canadensis
Family Planorbiidae
Gen. & sp. undet.
Order Stylommatophora
Family untet.
New Gen. T planonconvexa
Family Discidae
Discif. cf. D. sandwichi
Discif. cf. D. marmorensis
Family Obolellaceidae
Radiocentrum sp. A
Gen. undet. sp. A
Gen. undet. sp. B
Family Zonitidae
cf. Mesomphix sp. A
cf. Virea sp. B
Stylommatophora incertae sedis
*Big tree snail* (Cyldypetra)*
*Carinate helicoid**
*Conic helicoid**
*Bulbous helicoid**
*The Ribmeister**
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