Vertebrate Paleontology and Geology of High Elevation Tertiary Deposits in the Gravelly Range, Southwestern Montana

TERTIARY STRATA EXPOSED IN FOUR HIGH ELEVATION AREAS IN THE SOUTH-CENTRAL GRAVELLY RANGE INCLUDE FLUVIAL, AEOLOUS, AND MANGROVE DEPOSITS. THE TERTIARY STRATA IN THIS PART OF THE GRAVELLY RANGE INCLUDE FLUVIAL, AEOLOUS, AND MANGROVE DEPOSITS.

The Tertiary strata in this part of the Gravelly Range include fluvial, aeolian, and tufa deposits that are most likely mainly associated with localised Oligocene volcanism. The Lion Mountain section is about 270 m in thickness, the lower half of which is largely aeolian, with fluvial units comprising much of the upper section. Based upon age data, the 140 meter Black Butte section correlates to the lower 50-70 meter of the Lion Mountain section. The basal 20 meters of the Black Butte section contain some fluvial features, but much of the remaining section is largely aeolian in origin. Paleosols and extensive burrowing also occur within the Black Butte section. Stratigraphic section thickness decreases rapidly away from the Black Butte-Lion Mountain area, with section thicknesses of about 20 meters for the largely aeolian Rapamys and Tepee Mountain sections. Tufa deposits are located along the west-central edge of the Gravelly Range where they are associated with previously mapped fresh tufa. Leaf imprint assemblages of Eocene-Miocene age are contained within these tufa. Strata previously mapped as Upper Cretaceous-Paleocene Beaverhead Formation are now variously reassigned to the lower Cretaceous Kootenai Formation, southwestern Montana Cenozoic Sequence 2, and diverse Quaternary units.

Although most Tertiary deposits are in southwestern Montana valleys, Tertiary strata are also found in the south-central Gravelly Range.

Vertebrate fossiliferous strata occur at low stratigraphic heights from lazyman hill tufa. A tapiroid - probably Cerovis - from Rapamys section, uppermost fossiliferous section and at Black Butte 14 section. This is also the Harvard Museum of Comparative Zoology collections. partially reported, is also the Harvard Museum of Comparative Zoology collections. Partially reported, is also the Harvard Museum of Comparative Zoology collections. Partially reported, is also the Harvard Museum of Comparative Zoology collections. Partially reported, is also the Harvard Museum of Comparative Zoology collections. Partially reported, is also the Harvard Museum of Comparative Zoology collections. Partially reported, is also the Harvard Museum of Comparative Zoology collections.

Stratigraphic sections were measured and described from several areas in the south-central Gravelly Range. Five sections have age control based upon contained vertebrate fossils, volcanoclastic rocks, or a combination of both. These stratigraphic sections are shown in this poster along with some of their contained vertebrate fossils and lithologies.

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