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A Late Blancan Local Fauna From Northern Idaho

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A Late Blancan Local Fauna From Northern Idaho

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Abstract

Mammal specimens from a new Pleistocene-age locality near Priest River, Idaho have been identified from at least nine different taxa including muskrat, beaver, porcupine, deer, horse, pronghorn antelope, canid, lynx and bear. A right mandible containing i1 and m1-m2 is of an *Ondatra sp.* of muskrat. The m1is significantly shorter, narrower and the L/W ratio smaller than that of extant and extinct *O. zebethicus*. Yet the m1 length and width are both larger than either *O. idahoensis* and *O. annectens.* The beaver is represented by an isolated incisor, two lower molars and one upper molar. All three molars share the S enamel occlusal pattern seen *Castor*, contrasting with the occlusal pattern of *Dipoides*. The one external striid and three internal striids on the lower molars that are unequal in length indicate *Castor californicus* rather than *C. canadensis*. A p4 and m1 of a species of *Erethizon* porcupine are significantly larger than the p4 and m1 of either *E. bathygnathum* or *E. dorsatum*. The deer specimens include a complete right M2 and a near complete m3. The M2 has four distinct main cusps, a prominent paracone, a paracone rib, a metastyle and a very small entostyle, suggesting that this is a species of *Bretzia*, albeit smaller than *B. pseudalces.* A P2, dP3 and dp3 of *Plessipus idahoensis* is also present. Finally, a m1 of *Capromeryx*, a buccal half of a right P3 assigned to *Lynx sp.*, the buccal half of a left p3 assigned to *Ursus sp.* and a right m1 of a non-extant *Canis sp*. are also present.

The Priest River local fauna cannot be older than 2.58 Ma or the beginning of Blancan V (= early Pleistocene) because of FAD for *Erethizon* from South America at GABI1. The Priest River l. f. cannot be younger than 1.72 Ma (end of Blancan V) as P*lesippus* has its LAD in Froman Ferry l. f. at the end of Blancan V. *Capromeryx tauntonensis* was previously restricted to Blancan IV and the Taunton l. f. from central Washington and *C. tauntonensis* would be a time range extension into the Blancan V NALMA sub-age, which argues against the Priest River l. f. being younger than Blancan V.

This is the first mammalian fauna known from northern Idaho as previously known Cenozoic faunas from the Inland Northwest region are the early to late Blancan faunas, from the Glenn's Ferry Fm. in southwest Idaho, some 570 miles south of the new site and the early to mid- Blancan faunas from the Ringold Fm. in south, central Washington, 225 miles southwest of the new site.

Introduction

The Northwestern United States is home to two known Blancan-aged (Early Pliocene to Early Pleistocene. 4.7 Ma to 1.4 Ma; Barnosky et al., 2014)) fossil sites where fossilized mammal remains have been found (Gustafson, 2015). A newly discovered site (JW) near Priest River, Idaho yields early Pleistocene-age fossil mammals. Numerous teeth and bone fragments have been recovered from an oxbow paleohabitat cropping out of sediments exposed along the Pend Oreille River.

Here, we propose a new Blancan fossil site and local fauna from Priest River Idaho where the fossilized remains of nine species of fossil mammals (muskrat, beaver, porcupine, deer, horse, pronghorn antelope, canid, lynx and bear) have been recovered and subsequently identified via their dentition.

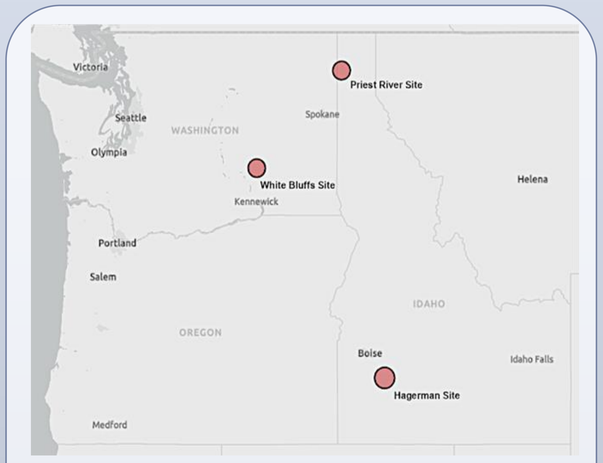
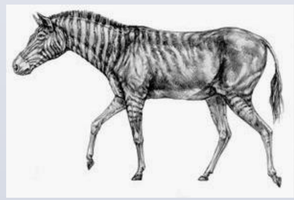


Fig.1 - Known Blancan sites in the Pacific Northwest region.

Fossil Descriptions

Plessipus idahoensis – This equid ((horse) species is represented by an adult right upper P2 and two deciduous premolars a dP3 and a dp3. The size, shape and occlusal pattern such as lack of plication on the internal enamel ridges of the upper premolar teeth are very similar to this species from the Early Pleistocene deposits in southwest Idaho.



Ondatra sp. - This right mandible containing i1 and m1-m2 is of an of muskrat. The m1is significantly shorter, narrower and the L/W ratio smaller than that of extant and extinct *O. zebethicus*. Yet the m1 length and width are both larger than either *O. idahoensis* from late Blancan (2.5 Ma – 1.4 Ma) faunas or *O. annectens* from early Irvingtonian faunas (1.4 Ma – 0.6 Ma).

Fig. 2 - *Ondatra sp*. from the Priest River local fauna

Castor californicus – Is represented by isolated teeth a lower incisor (i1), two lower molars (mx) and one upper molar (Mx), appear to that of an exticnct beaver, *Castor. californicus*. The three molars all share the common S enamel occlusal pattern of *Castor* (Fig. 3). Another genus of castoroid beaver, *Dipoides,* is also frequently found among *Castor* fossils and also shares the S enamel occlusal pattern. The S pattern in *Dipoides* is more elongated and apparent than the *Castor* enamel occlusal pattern (Shotwell, 1970). Characteristic of *C. californicus*, is the one external striid and three internal striids on the lower molars that are unequal in length (Samuels and Zancanella, 2011) (Fig. 4). Although there is more wear on the upper molar, the inward curvature is indicative of upper molars in *Castor* species (Shotwell, 1970). *C. californicus* first occurs in North America in the late Hemphillian extending to the Blancan and beyond.

Fig.3 - modern beaver *Castor*

Fig.4 – lower molar of *Castor californicus* from Priest River show S-shaped enamel pattern (center) and the internal striids (right).

Bretzia sp.- Numerous cervid (deer) teeth found at the Priest River site are incomplete due to freeze/thaw of the local environment, the neck and crown are mostly intact with but enough complete molars to identify the partial teeth. An upper right 2nd molar (RM2) is selenodont and brachyodont, common to most Cervidae (Gustafson, 2015) and smaller in size than - *Bretzia pseudalces* from early Blancan faunas with a occlusal crown measurement of 14.18 mm (mesial-distal) and 9.24 mm (buccal-lingual) and a crown height of 8.84 mm which are are smaller in dimension than for (Fig.5). Tooth has four distinct main cusps and prominent paracone, paracone rib, and metostyle. An entostyle is present on lingual side of tooth (see won LM2).

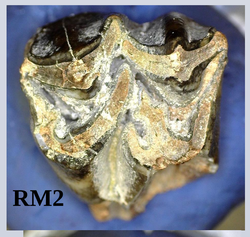


Fig. 5 – *Bretzia sp.* RM2 and a worn LM2, occlusal views

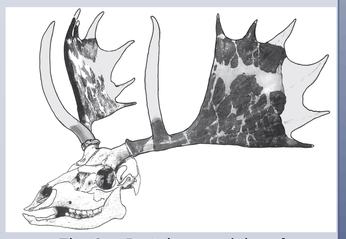


Fig. 6 - *Bretzia pseudalces* from Gustafson, 2015

Erethizon sp. A p4 and m1 of a species of *Erethizon* porcupine are significantly larger than the p4 and m1 of either the extinct *E. bathygnathum* or extant *E. dorsatum* and thus represents a new species.

Fig. 7 - ***Erethizon sp.*** right p4 occlusal view

Conclusion

The Priest River local fauna cannot be older than 2.58 Ma or the beginning of Blancan V (= early Pleistocene) because of First Appearnce Datum (FAD) for *Erethizon* from South America at Great Ameican Biotic Interchange 1 at 2.58 Ma. The Priest River l. f. cannot be younger than 1.60 Ma (age of Froman Ferry l. f.) as P*lesippus* has its LAD in Froman Ferry l. f. at the end of Blancan V. *Capromeryx tauntonensis* was previously restricted to Blancan IV and the Taunton l. f. from central Washington and *C. tauntonensis* would be a time range extension into the Blancan V NALMA sub-age, which argues against the Priest River l. f. being younger than Blancan V. The Priest River l. f. would seem to fit in the time frame between between Grand View l. f. (2.56 Ma – 2.0Ma) early Blancan V and the Froman Ferry l. f (1.6 Ma – 1.4 Ma) end of Blancan V, both from Southwest Idaho.

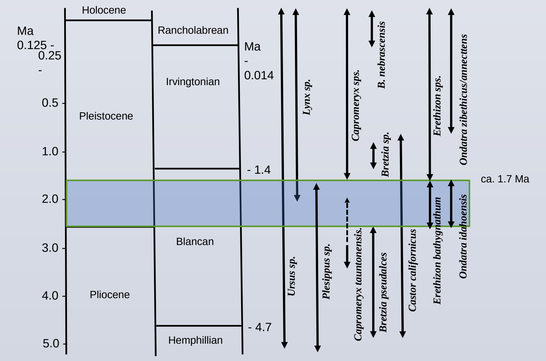


Fig.8 - Taxon lineage assembly zone of the Priest River local fauna with the blue band indicating the time frame of this new fauna.

Literature cited

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