ABSTRACT. Sixty Late Pleistocene vertebrate fossils have been recovered from an inferred in situ sedimentary section of a placer mine near Jack Wade, east-central Alaska. The fossil assemblage, called the Jack Wade fauna, is composed of the partial remains of 18 animals, of which 11 are Ovis sp. cf. O. dalli Nelson (Dall sheep), 3 Bison priscus (Bojanus) (Steppe Bison), 2 Rangifer tarandus (Linnaeus) (Caribou), 1 Equus (Asinus) lambei Hay (Yukon Wild Ass) and 1 Alces alces (Linnaeus) (Moose). The assemblage is noteworthy in two respects: it is one of few Late Pleistocene in situ assemblages known from Eastern Beringia and it is composed of large ungulates exclusively. Of these, a uniquely large proportion are mountain sheep.

Key words: Beringia, Pleistocene, fauna

INTRODUCTION

The partial remains of an unusual Late Pleistocene ungulate community have been recovered from the base of a 6 m placer section at Jack Wade, Alaska, a small community 320 km east of Fairbanks (64°09′00″N, 141°27′30″W; Fig. 1). Sixty fossil bones representing at least 11 Dall sheep (Ovis dalli Nelson) 3 large-horned bison (Bison priscus [Bojanus]), 2 caribou (Rangifer tarandus [Linnaeus]), 1 small Yukon horse (Equus [Asinus] lambei Hay) and 1 moose (Alces alces [Linnaeus]) were unearthed by George Robinson in frozen silt in the process of hydraulic gold mining. Radiocarbon analyses of hare coprolites (fecal pellets) at 5 m (QL 1213, 14 500 ± 3000 yr BP) and of bison horn core collagen at the 6 m base of the mine (QL 1178, 29 700 ± 240 yr BP) suggest the assemblage is a 30 000-year-old in situ faunal community (Fig. 2).

FIG. 1. Map of Alaska showing location of Jack Wade fossil site.

FIG. 2. Stratigraphic relationships at the Jack Wade fossil site. Sediment was sampled at 1 m intervals, indicated by numbers 0-6. Radiocarbon dates of 14 500 ± 3000 yr BP and 29 700 ± 240 yr BP have been obtained from samples 5 and 6 respectively.

The fossils were buried in permafrost and were concentrated in a small 6 m² pile. The 60 bones were recovered from schistose orange sandy gravels resting upon schist bedrock beneath >5 m of organic silt (Fig. 2, Table 1). Predepositional transportation of the fossils, after death and prior to burial, is thought to be slight, as indicated by the nearly perfect preservation of one Ovis skull (Fig. 3, USNM 262426). The fossil remains were found disarticulated but otherwise structurally intact with unabraded epiphyses, trochanters and fossae.

RADIOCARBON DATING OF BONE AND COPROLITES

One of the bison horn cores recovered from the 6 m base of the mine was taken for 14C collagen dating. The mine's cutbank exposure also revealed a pod of hare coprolites, frozen in gray
TABLE 1. Stratigraphic section of the Jack Wade Mine*

<table>
<thead>
<tr>
<th>Unit</th>
<th>Description</th>
<th>Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>black organic, micaceous fine silt to fine sand, filled with leaves and rootlets</td>
<td>0-1</td>
</tr>
<tr>
<td>2</td>
<td>reddish and black micaceous silty sand (95% muscovite; 5% biotite)</td>
<td>1-2</td>
</tr>
<tr>
<td>3</td>
<td>gray micaceous silt and fine-grained reddish sand</td>
<td>2-3.5</td>
</tr>
<tr>
<td>4</td>
<td>gray micaceous silty sand</td>
<td>3.5-3.8</td>
</tr>
<tr>
<td>5</td>
<td>orange schist gravels</td>
<td>5.8-6.0</td>
</tr>
<tr>
<td>6</td>
<td>schist bedrock</td>
<td>6+</td>
</tr>
</tbody>
</table>

*Measured in the N1/2 SE1/4 Sec. 8, T 27N, R20E, Eagle A-2 Alaska quadrangle.

SYSTEMATICS

Equidae:
- *Equus lambei* Hay 1917
  6 elements
  MNI = 1

Cervidae:
- *Rangifer tarandus* (Linnaeus) 1758
  7 elements
  MNI = 2

  *Alces alces* (Linnaeus) 1758
  1 element
  MNI = 1

Bovidae:
- *Ovis dalli* Nelson 1884
  19 elements
  MNI = 11

  *Bison priscus* (Bojanus) 1827
  26 elements
  MNI = 3

The Jack Wade fossil fauna is significant because it is an inferred *in situ* Alaskan Pleistocene fauna. The assemblage is composed entirely of big-game genera, and of these more than 60% are Dall sheep. The fossil elements recovered are largely restricted to the forelimbs and crania of ungulates: 9 sheep crania, 2 bison crania, 2 caribou crania, 5 bison humeri, 1 equid humerus, 1 equid atlas vertebra and 1 equid scapula. The hindquarters of each genus at the site are missing. Porter and Hopkins (1982) have argued elsewhere the case for human involvement with the Jack Wade fossil fauna.

POLLEN ANALYSIS

Fossil pollen associated with the vertebrate assemblage at Jack Wade Creek is shown in Figure 4. The pollen assemblage is representative of an open, sedge-dominated plant community with scattered spruce and birch and very few alders, for which there is no living analogue (Lichti-Federovich, 1973; Matthews, 1974, 1982). Some grass, although not necessarily abundant or nutritious, probably existed near the site almost 30 000 years

were Dall sheep, constituting more than 60% of the vertebrate fauna. Sheep usually compose less than 5% of the total Late Pleistocene mammalian taxa from northern sites (Guthrie, 1968; Harington, 1978). The large number of mountain sheep at Jack Wade probably is related to the site’s elevation (740 m) and to the availability of upslope terrain. The remaining 3 bison, 2 caribou, 1 horse and 1 moose reflect normal distributions of taxa for Alaskan Pleistocene faunas.

Eleven of the 18 animals recovered from Jack Wade Creek
ago, as suggested by the strong preference for grass in the diets of modern sheep, bison and horses (Martin, 1982).

SUMMARY AND CONCLUSIONS

Sixty fossil bones representing 18 Beringian mammals have been recovered near Jack Wade, Alaska, from an inferred in situ Late Pleistocene deposit. The inferred biocenose is composed of 11 Ovis dalli Nelson (Dall sheep), 3 Bison priscus [Bojanus] (Steppe Bison), 2 Rangifer tarandus [Linnaeus] (caribou), 1 Equus (Asinus) lambei Hay (Yukon Wild Ass) and 1 Alces alces Linnaeus (moose) (see Systematics). Radiocarbon analysis of bison horn core collagen (QL 1178, 29 700 ± 240 yr BP) suggests that the assemblage is approximately 30 000 years old.

The Jack Wade fossil fauna is one of a small and significant number of stratigraphically controlled Beringian localities.

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Several specialists contributed outright to this work: R.E. Nelson identified the fossil pollen from hare coprolites, feces and matrices; L.C. Cywnar identified the fossil pollen from Sample 4; W.A. Watts identified plant macrofossils; and A.V. Morgan identified the insect macrofossils. Minze Stuiver contributed the radiocarbon analyses. Jerry McCollum photographed the specimens and Patricia Broyles prepared the manuscript.

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REFERENCES


