

NEW RECORDS OF LATE PLEISTOCENE (RANCHOLABREAN) MUSKOX (*ARTIODACTYLA: BOVIDAE: OVIBOS*) FROM ALASKA

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ABSTRACT

Four muskox crania, recently located in collections from Alaska, appear to be among the oldest isotopically dated specimens of *Ovibos* from North America. The radiometric dates for the specimens cluster around 38 ka and suggest these individuals lived during the medial Wisconsin. Few *Ovibos* specimens from Alaska have previously been described or reliably dated. One specimen may be referable to *O. pallantis*. If this assignment withstands further scrutiny, it will be the first record of this species in North America.

INTRODUCTION

This paper reports the isotopic ages of four muskox (*Ovibos*) crania collected from Pleistocene sediments in western and northern Alaska (Figure 1). The fossils, previously unreported in the literature, are from collections of the United States Geological Survey (USGS) and the Alaska State Department of Fish and Game (ADFG). The USGS specimens were collected with some

Figure 1. Generalized map of Alaska showing approximate fossil localities. The solid circles are the new finds reported here (1-4). 1, U.S.G.S. catalog number 79ANr5a, Titaluk River cranium. 2, Itkillik River cranium. 3, Buckland River cranium. 4, Norton River cranium. 5, U.S.N.M. number 5728, Yukon River (Gidley, 1908). 6, U.S.G.S. / P & S/Denver fossil vertebrate number D225, Nome, Alaska (Harrington, 1970a). 7, O. W. Geist collection area, Fairbanks, Alaska (Pewé, 1975).



stratigraphic information; the ADFG specimens have little available documentation.

All crania are from the tundra muskox, *Ovibos moschatus*, an animal now confined to the arctic reaches of North America, Europe, and Asia. The genus first appeared in North America during the Illinoian (Harrington, 1970a). During the Wisconsin, *Ovibos* occurred as far south as Nebraska and Ohio (Barbour, 1931; McDonald and Davis, 1989).

Ovibos yukonesis and *O. proximus* are considered conspecific with, and junior synonyms of *O. moschatus* (Harrington, 1970b). The taxonomic fate of *O. pallantis*, a Siberian species described by Hamilton-Smith in 1827 (Sher, 1974), is unknown. Specimens other than the types are unreported in the literature.

ADDITIONAL ALASKAN SPECIMENS

Although over 70 fossil specimens of *Ovibos* have been reported from Alaska (Kurtén and Anderson, 1980), few have been systematically described and/or isotopically dated. Gidley (1908) reported a specimen of *Ovibos* (United States National Museum Catalogue Number 5728) from Pleistocene sediments along the Yukon River, 56 km (40 miles) below Tanana, Alaska. No radiometric date for this specimen has been reported.

Harrington (1970a) noted a specimen of *Ovibos* from near Nome, Alaska (USGS D225). Stratigraphy of the enclosing sediments would indicate an Illinoian age. In the early 1930's, O. W. Geist collected many tons of vertebrate fossils in the Fairbanks area (Figure 1), a collection that includes specimens of *Ovibos* now housed at the American Museum of Natural History. However, detailed studies of Alaskan Quaternary stratigraphy did not begin until the late 1940's, and the stratigraphic context of most Pleistocene vertebrate material collected prior to this date is unknown. Although the vertebrate fossils are important in taxonomic studies, the stratigraphic relationships are somewhat ambiguous (Péwé, 1975).

Two of the specimens collected by O.W. Geist have isotopic dates; both dates were obtained on soft tissue taken from remains

found in frozen silt near Fairbanks, Alaska. Hair from a hind limb has been dated at 17.2 ± 0.5 ka, and muscle tissue from the scalp of another specimen has been dated at 24.1 ± 2.2 ka (Péwé, 1975).

METHODS

A small sample of each specimen, usually a portion of a tooth root, was sent to the Laboratory of Isotope Geochemistry-Environmental Isotope Research, at the Department of Geosciences, University of Arizona. Dating was completed by Tandem Accelerator Mass Spectrometry (TAMS).

SYSTEMATIC PALEONTOLOGY

Class MAMMALIA

Order ARTIODACTYLA

Family BOVIDAE

Genus OVIBUS De Blainville, 1816

OVIBOS MOSCHATUS (von Zimmermann, 1780)

Material.—United States Geological Survey (USGS) field number 79ANr5a, cranium, Titaluk River, North Slope; USGS, unnumbered specimen, cranium, Itkillik River, Stinking Hills; Alaska State Department of Fish and Game, unnumbered specimen, cranium, Buckland River; Alaska State Department of Fish and Game, unnumbered specimen, cranium, Norton Bay area.

Description.—USGS Field number 79ANr5a (Figure 2) was found by Robert Nelson, a USGS field geologist, in the summer of 1979 as float along the Titaluk River (north slope) at approximately $69^{\circ}42'$ north latitude, $155^{\circ}13'$ west longitude (written commun. to C.A. Repenning, 24 September 1979). The specimen is a nearly complete cranium, although the anteriormost part of the maxilla, both jugular processes, and the nasals are missing. The dental battery is complete except for the left M¹ and M². The right horn core is complete, but the distal one-third of the left horn core is missing. This specimen was tentatively identified by an unknown party as *O. pallantis* (note printing on cranium in Figure 2), and if this identification proves to be correct it will be the first occurrence of this taxon in North America. However, until further measurements and comparisons can be made, this

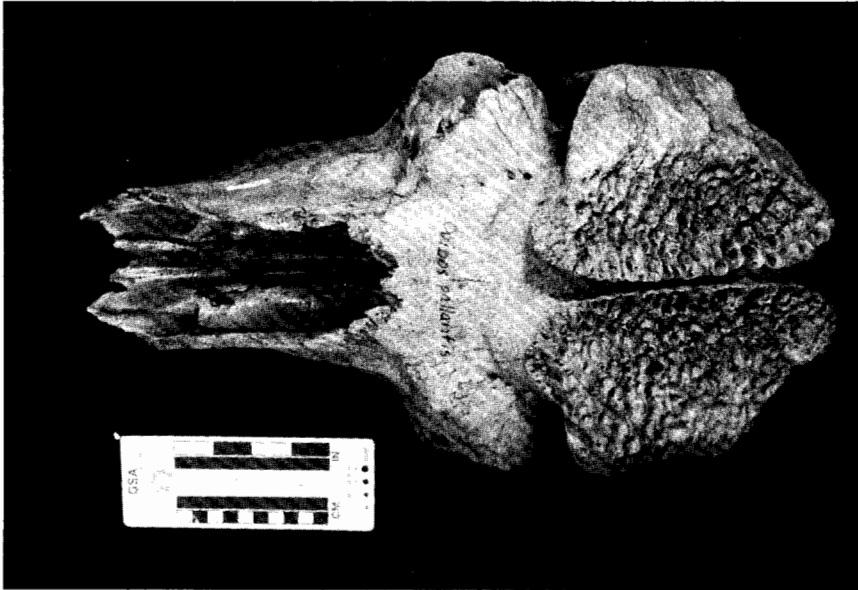


Figure 2. Titaluk River cranium (U.S.G.S. 79ANr5a), dorsal view.

specimen will be treated as an occurrence of *O. moschatus*. The fossil has an isotopic date of 38.2 ± 1.7 ka (AA-2513).

The Itkillik River cranium (Figure 3) was found by James Helmericks in the summer of 1979 as float along the Itkillik River in

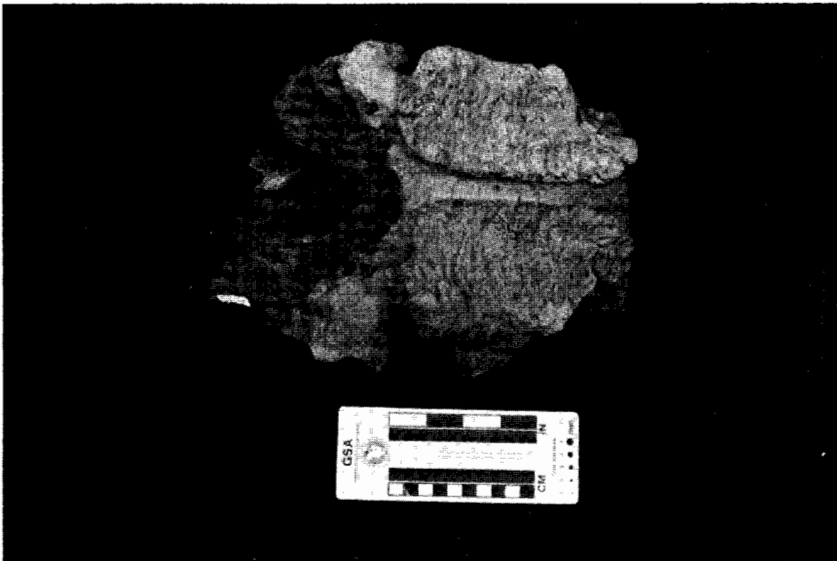


Figure 3. Itkillik River cranium, dorsal view.

the Stinking Hills area of Alaska. The specimen is missing an area from the frontal bones to the horn cores on the mediodorsal surface of the cranium. The dorsal surfaces of the orbits are present. The anterior edge of the palatine is missing, but the sphenoid is relatively complete. The left zygomatic arch is complete, but the right side is damaged. The jugular processes are missing. The exostoses at the base of the horn cores are worn because of weathering. A remnant of the right horn core is present, but the left horn core is missing. The specimen has an isotopic date of 37.27 ± 1.5 ka (AA-2510).

The Buckland River cranium (Figure 4) was found near the Buckland River in west-central Alaska by Roland Quinby in the summer of 1983. The specimen is a braincase broken anterior to the horn core bases, and only the proximal ends of the horn cores remain. This specimen is ontogenetically a subadult as evidenced by the temporoparietal and occipitoparietal sutures that remain unhealed. Both jugular processes are missing. The specimen has an isotopic date of greater than 39 ka (AA-2511).

The Norton Bay cranium (Figure 5) was found 9.7 km north of the mouth of the Ungalik River, Norton Bay Alaska, at the township line between 10S and 9S by Den-

nis Adam, and consists of the posterior part of a cranium. The specimen has been broken across the frontals immediately anterior to the orbits. The left orbit is partially enclosed as the left lacrimal and zygomatic bones are incomplete. The right orbit is completely enclosed, but the right zygomatic is broken anterior to the orbit. The zygomatic arch is complete on both sides. Both horn cores are present. The specimen has an isotopic date of 36.76 ± 1.4 ka (AA-2512).

SUMMARY

Although generally lacking stratigraphic context, these four new records of *Ovibos* are associated with isotopic dates that place them in the medial Wisconsin, and are the oldest Alaskan *Ovibos* specimens to be radiometrically dated. The contemporaneity of these four specimens was unexpected, but perhaps not unusual. In the late Pleistocene, large areas of Alaska were unglaciated and supported a rich biome (steppe-tundra) (Thorson et al., 1981). The similarity of USGS-79ANr5a to *O. pallantis* is interesting and should be further pursued. An affirmation of the preliminary identification would be significant in discussions of the Trans-Bering migrations.

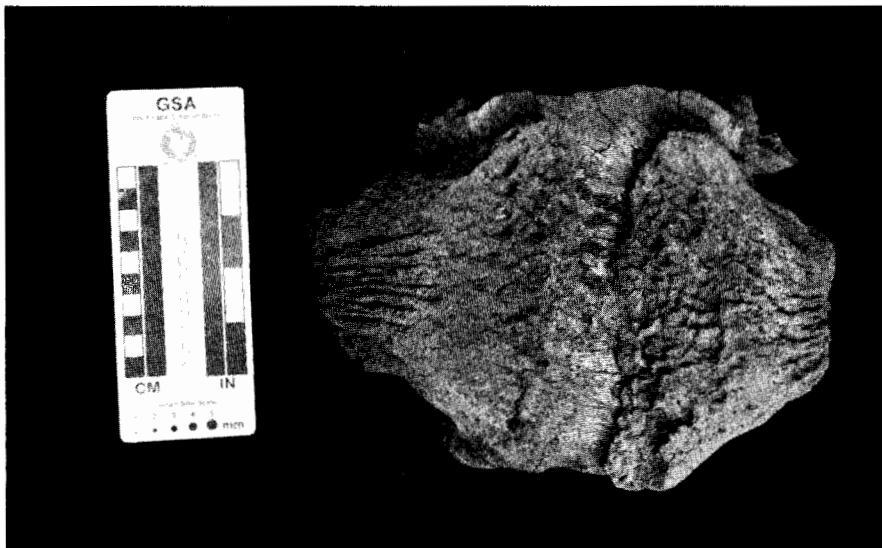


Figure 4. Buckland River cranium, dorsal view.

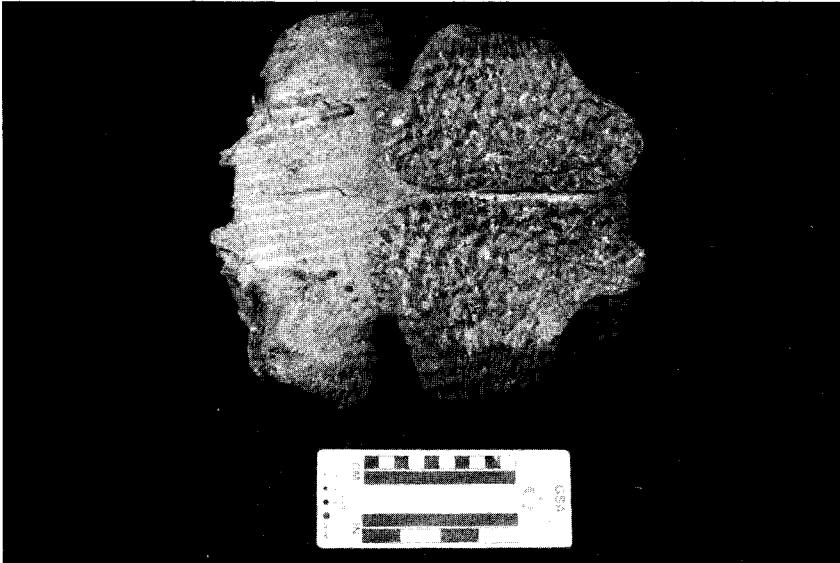


Figure 5. Norton Bay cranium, dorsal view.

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