

1957

## A Report on Fossil Bison From a Peat Bog in St. Paul, Minnesota

Philip S. Taylor

Follow this and additional works at: <https://digitalcommons.morris.umn.edu/jmas>



Part of the [Biology Commons](#)

---

### Recommended Citation

Taylor, P. S. (1957). A Report on Fossil Bison From a Peat Bog in St. Paul, Minnesota. *Journal of the Minnesota Academy of Science*, Vol. 25 No. 1, 200-203.

Retrieved from <https://digitalcommons.morris.umn.edu/jmas/vol25/iss1/24>

This Article is brought to you for free and open access by the Journals at University of Minnesota Morris Digital Well. It has been accepted for inclusion in Journal of the Minnesota Academy of Science by an authorized editor of University of Minnesota Morris Digital Well. For more information, please contact [skulann@morris.umn.edu](mailto:skulann@morris.umn.edu).

## ZOOLOGY

A Report on Fossil Bison  
From a Peat Bog in St. Paul, Minnesota

This is a report on a new find of prehistoric bison in Minnesota. Several parts of *Bison occidentalis* Lucas which were in an excellent state of preservation were found in a peat deposit within the city limits of St. Paul. They were uncovered by the Wolff Construction Company while installing the Trout Brook extension sewer at Mississippi Street and Maryland Avenue, in 1955. The area in which the bones were found was once an ancient glacial river channel of the Mississippi which at some time in the past was blocked and became filled in with peat deposits. The depth of the peat deposits is very great. In some areas the piling on which the sewer was laid had to be driven to 85 feet before making contact with a solid surface. It was over one of these deeper sections of the bog that the fossil bison were found. Three skulls and one scapula were uncovered by a drag line at about a 14 foot level. There was a thin marl layer at the 14 foot level and the bones were resting on the marl.

There were dense deposits of the bones of the modern bison scattered throughout the peat above the 14 foot level. In the close vicinity of Mississippi Street and Maryland Avenue there are many other peat deposits. Several of these other peat bogs were investigated and were found to contain quantities of modern bison bones. In some areas the bone deposits were so concentrated that it would have been difficult to measure off a square foot of surface soil that did not contain a bone fragment.

How the bison were trapped and killed in such large numbers is a matter of speculation. There were no indications of butchering in either the modern or prehistoric forms and there were no finds of man-made artifacts in the area to indicate that man was involved,

such as would be the case if it were a buffalo drive area. Human activity cannot be ruled out until a more thorough search can be made of the area but because of the antiquity of the site as indicated by the great depths of the deposits there could be many additional factors involved.

Brief mention may be made about the occurrence of bison in Minnesota. To date only two species have been identified from within the present boundaries of the state and recorded in the literature. These two species are *Bison bison* (Linnaeus), the modern plains bison, and *Bison occidentalis* Lucas, considered to be a very late Pleistocene to sub-recent form. *Bison occidentalis* very closely resembles our modern plains bison and is held to be an ancestor of our modern form (Skinner and Kaisen, 1947: 155).

From distribution records it appears that although never reported in collections, two other species of bison might be found within the borders of the southern part of Minnesota. One of these would be *Bison antiquus* Leidy and the other *Bison latifrons* (Harlan), the largest of all the North American bison. According to Skinner and Kaisen, there were two major bison migrations to the new world. Both *Bison antiquus* and *Bison latifrons* are presumed to have developed from the first migration into the new world. These probably became established in Alaska and northern Canada during an interglacial epoch in the latter part of the early Pleistocene. Changing climatic patterns then isolated them from Siberia and forced a southward movement. *Bison occidentalis* and the modern plains bison developed from a second later migration of bison from the Old World. The second group reached North America during a later interglacial epoch after the first migration had been forced to the south.

Much confusion exists in the classification of the bison. Much of the material has been found in such a fragmentary state that it has been difficult to make accurate determinations and there is also a great deal of individual variation within a single species. One of the more recent taxonomic treatments of the bison of North America divides them into 1 living and 4 extinct subgenera which embrace 1 living species and one subspecies, and 9 extinct species and 1 subspecies (Skinner and Kaisen, 1947).

Up to the present time almost all of the taxonomic works have been based on the shapes of the adult male horn cores and skulls. A reason for this is that the horn cores are more frequently found than other parts. Horn cores alone are not always completely reliable, however, and in some instances accurate identification involves a much more intensive measurement and consideration of other bones of the skull. But the size and shape of the horn cores do seem to offer valid characteristics for separating the two species recorded as occurring within Minnesota as well as the other 2 species that might possibly be found here.

In the modern bison, *Bison bison*, the horn cores tend to be short and stubby. The length along the upper or dorsal curve from the burr to the tip seldom exceeds the basal circumference. The horn cores extend from the skull in a posterior direction in regard to the longitudinal axis of the skull and the distal tips are posteriorly directed and pointed. The tips of the horn cores of the modern bison are more posteriorly directed than those of any other bison and they seldom rise above the plane of the frontals. In the case of *Bison occidentalis* the horn cores are longer. The length along the upper curve is frequently greater than the basal circumference. These horn cores are less posteriorly directed in respect to the longitudinal axis of the skull and although the distal tips are posteriorly twisted and pointed the curve is more gradual than in the modern bison. The cores rise well above the plane of the frontals in a regularized backward upsweep.

*Bison antiquus* has not yet been identified from Minnesota but it is separated from *Bison bison* and *Bison occidentalis* by the fact that the horn cores extend out at nearly right angles to the skull. The horn cores are usually depressed before swinging up and the tips tend to swing straight up with little or no posterior twist. The distal tips seldom extend above the plane of the frontals and seldom extend posterior to the occipital plane of the skull. The possibility of finding *Bison latifrons* in Minnesota is quite remote. Although according to Skinner and Kaisen its range did extend through this area, it was an earlier form than *Bison antiquus* and would probably occur in the middle Pleistocene deposits. This species, if found in an intact condition, would not be difficult to recognize because of the

tremendous length of the horn cores. In some specimens the spread between the tips of the horn cores exceeds 6 feet.

In the case of the newly-found specimens of *Bison occidentalis* not only did the size and shape of the horn cores separate them from *Bison bison* but detailed skull measurements as outlined in Skinner and Kaisen's monograph gave additional evidence in support of the identification.

**LITERATURE CITED**

SKINNER, MORRIS F. and OVE C. KAISEN. 1947. The fossil bison of Alaska and preliminary revision of the genus. *Bulletin of the American Museum of Natural History*. Volume 89: Article 3.