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UNUSUAL TOOTH WEAR IN ELK AT GLACIER NATIONAL PARK, MONTANA

Keith Shaw¹

ABSTRACT.— An unusual wear pattern in the cheek teeth of elk-wapiti, in which the third premolars and first molars of the upper jaw wear excessively into corresponding teeth in the lower jaw, was found in a Glacier National Park, Montana, elk skull. This unusual wear pattern was previously reported from elk of the Yellowstone-Jackson, Wyoming, herd.

Sometime during the winter of 1975-76 a cow elk or wapiti (*Cervus canadensis* = *C. elaphus*) died on the Two Dog Flats winter range of northeastern Glacier National Park, Montana. The carcass was cleaned up by coyotes, ravens, and other small scavengers and the bones scattered. Glacier Park Ranger Lloyd Kortge and I found the nearly intact skull and lower jaw and were immediately impressed by the seemingly unusual pattern of cheek teeth wear. Olaus Murie (1951) has diagrammed a similar wear pattern for elk of the Yellowstone-Jackson, Wyoming, herds with the note that: "... The profile of the lower row [of teeth] is concave; that of the upper row is convex. This relationship sometimes becomes greatly accentuated in old age. There is a tendency for an angle to form in the upper jaw, the projecting point being formed by the first molar, sometimes in combination with the adjacent premolar; and this angle wears a depression near the middle of the lower row. Sometimes the second molar forms the point of the protruding angle. Because of this feature, the first lower molar may be worn out and have only the roots remaining or may be missing even while in the same jaw the anterior premolar is still sound and only moderately worn. . . ."

The Two Dog Flats elk skull has complete dentition and adjacent parts of the third premolar and first molar form the triangular point, projecting 7 mm beyond the level of adjacent teeth in the right upper jaw (Fig. 1), and 7 mm beyond that level in the left upper jaw (Fig. 2). Corresponding depressions were worn to a 14 mm depth on the right side into

the first molar of the lower jaw (Fig. 1), and to a 12 mm depth in the first molar on the left-side lower jaw (Fig. 2). The increased wear depth on the right has completely separated the first molar into posterior and anterior halves. Lower jaw maximum wear down probably reached to the gum level, but with 4 mm on the lower right first molar and 3 mm on the lower left first molar still projecting above the jaw bone. The second molars in the lower jaw have each worn a corresponding deep groove into the posterior half of each of the upper jaw first molars.

There is apparent necrosis of the bone along the inside of the left third molar of the upper jaw, but no evidence of necrotic erosion in the lower jaw bone. Articulation of the mandibular joints appears normal with food grinding capability at the time of death. The paunch of the dead elk was packed with forage of apparent adequate quality. The Two Dog Flats herd has not suffered any appreciable winter mortality in recent years traceable to range depletion. The exact cause of death of this cow elk was never determined and cannot with certainty be attributed to this unusual tooth wear.

Less than 300 m from the cow elk death site a mature bull elk also died of undetermined causes during the same winter. Teeth in the upper jaw of this elk showed no similarity to the wear pattern found in the cow elk skull.

As pointed out by Murie (1951), after its fourth year the age of an elk cannot be told with precision by the teeth. It can only be assumed then that both these Two Dog Flats

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elk were mature, that is, between the ages of 5 and 10, because none of the incisors showed the wear and tooth loss found in elk more than 10 years old.

LITERATURE CITED

MURIE, O. J. 1951. The elk of North America. Wildlife Management Institute, Washington, D.C.



Fig. 1. Right side view of Glacier National Park cow elk skull showing unusual cheek teeth wear.



Fig. 2. Left side view of same cow elk skull.