

## An ectopic antler in a male Woodland caribou (*Rangifer tarandus caribou*) in Québec

By D. VANDAL, CYRILLE BARRETTE and H. JOLICOEUR

*Département de biologie, Université Laval, Québec, Canada*

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Antlers grow at the distal end of pedicles, spongy bony projections on the frontal bones. It seems clear that it is the periosteum at the site of antler formation that first induces the growth of such pedicles, then the antlers "... derive from the periosteum which transforms the overlying scalp into velvet". (Goss 1983: 131). Antler development can be induced elsewhere on the skull, and even on an ear or leg, by grafting a piece of pedicle periosteum (Goss 1983; JACZEWSKI 1983). Antlers can also develop at the site of an injury to the skull periosteum if it occurs while the normal antlers are in velvet (JACZEWSKI 1983; BUBENIK et al. 1982; LINCOLN 1984).

Such head injuries probably explain the occurrence of ectopic antlers in nature (WISLOCKI 1952). Naturally occurring ectopic antlers have been reported from the side of the pedicles, the frontal, the nasal, and even the jugal bones in various species (FINN 1903; TILAK 1978; NELLIS 1965; WISLOCKI 1952; DIXON 1934).

This note describes an ectopic antler on a male woodland caribou (*Rangifer tarandus caribou*) living in the wild in Québec (47°30' N, 70°50' W). This is apparently the first recorded instance for the



Fig. 1. Male j-2 in the field on October 8, 1980. Note the ectopic antler, the broken left brow tine, and the radio collar

genus *Rangifer*. The animal was a member of an introduced population numbering about 90 caribou at the time of the study (VANDAL 1983). That male was captured and equipped with a radio-collar (number j-2) in January 1978 and observed regularly thereafter. It is only in his last year (7–8 years old) that j-2 developed a third antler (Fig. 1 and 2). The antler is 18.5 cm long and grows on a pedicle 1.2 cm high, 9.4 cm in circumference, and 3.0 cm from the nasals. The antler is tilted forward at a 48° angle with the frontals. A hairline crack 4.5 cm long at the junction of the pedicle with the frontals (possibly produced by the handling of the specimen) seems to indicate a rather weak connection to the skull. The circumference of the normal antlers taken 3 cm above the burr is 14.8 cm on the left side and 15.0 cm on the right side.

We do not know what caused the development of the ectopic antler, but it may be related to a wound of unknown origin that j-2 had had to his right shoulder for at least two years. In spite of repeated treatments the injury did not heal completely and the animal was regularly seen to limp. Some authors have reported such a relation between leg injuries and abnormal antlers (e.g. ROBINETTE et al. 1977; MARBURGER et al. 1972; DAVIS 1983).

Male j-2 was the only adult male in a group of 14 seen on October 8, 1980. He was still wounded and limping, but actively courting a few females. He was seen again on October 20, with the same group, but about 10 km from the first location. At that time however, a larger male was also present, and j-2 had a large ( $\approx 6$  cm) perforation to his right abdomen from which a spherical mass of intestine about 20 cm in diameter was emerging. He could



Fig. 2. j-2's skull. Note that the ectopic antler has an incipient tine, and no burr

hardly stand. He was probably injured in a fight with the other male, and he had to be killed. The autopsy revealed a perforated liver, a hole about 2 cm across through the intercostal muscles on his right side, and numerous superficial wounds on his right side and thigh. His old shoulder wound was about 1 cm in diameter, and lead, through a pus-filled canal about 10 cm long, to the dorsal edge of the scapula. A nearly semi-circular piece, 9.6 cm across, is missing from the dorsal edge of the scapula. The border of the semi-

circle is smooth, thus the shoulder injury was indeed old. In addition, the usual trace left by the suprascapular cartilage is absent on that 9.6 cm segment (out of the 18.5 cm of the dorsal edge). Thus male j-2 had lost half of the surface of origin of his right rhomboideus muscle. Other front leg bones on the right side seem normal. His old shoulder injury, and the resulting limp and weakness, presumably led to his injury in combat, and, through a still unknown mechanism, to the development of his ectopic antler.

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- Authors' addresses:* D. VANDAL and CYRILLE BARRETTE, Département de biologie, Université Laval, Québec, Canada, G1K 7P4 and H. JOLICOEUR, Ministère du Loisir de la Chasse et de la Pêche, 150 St-Cyrille est, Québec, G1R 4Y1

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Autor(en)/Author(s): Vandal D., Barrette Cyrille, Jolicoeur H

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