

Evidence of Prey-caused Mortality in Three Wolves

ABSTRACT: Two alpha male wolves and a pup in separate incidents were killed by large prey, further indicating the degree of risk wolves face while hunting.

INTRODUCTION

Because wolves (*Canis lupus*) prey primarily on animals larger than themselves, they are potentially subject to injury or death from their prey. However, chances of discovery of wolves hurt or killed by prey are low, so few instances have been reported. Nevertheless, wolves are known to have been killed by moose (*Alces alces*) (MacFarlane, 1905; Stanwell-Fletcher and Stanwell-Fletcher, 1942:138; Ballard *et al.*, 1987:49), musk oxen (*Ovibos moschatus*) (Savile and Oliver, 1964; Pasitschniak-Arts *et al.*, 1988), and white-tailed deer (*Odocoileus virginianus*) (Frijlink, 1977; Nelson and Mech, 1985). In addition, many records of wolves being injured by prey have been inferred from broken or displaced skull bones from animals collected for other purposes (Rausch, 1967; Phillips, 1984).

The present note reports evidence of three wolves in northeastern Minnesota killed by prey. Wolves in the area feed primarily on white-tailed deer, moose and beaver (*Castor canadensis*).

RESULTS

Radio-tagged male wolf 6685 was at least 3 years old and probably much older and had been paired for at least 2 yr. During winter 1985-1986, 6685 was the alpha male in a pack of five wolves. Based on radio-tracking and ground examination of remains, wolf 6685 was killed by a blow to the head about 22 July 1986. A hole ca. 2.3 cm wide was found in the right side of the cranium above the superior frontal lobe. Bone fragments protruded about 1.6 cm into the cranial cavity. The size and shape of the hole best seems to fit the tip of an adult deer hoof. This wolf also had three healed broken ribs which indicated a previous injury, probably from prey. Pasitschniak-Arts *et al.* (1988) described a wolf apparently killed by a musk ox which also had healed broken ribs from a previous injury.

Radio-tagged alpha male 6895, aged at least 3-5 yr, had bred two females in 1987, but since April 1987 he had spent most of his time in the territory of one of them, and had produced at least two pups (Mech and Nelson, 1989). Based on telemetry and a ground check, it appears that wolf 6895 was killed by a moose ca. 10 August 1987. His carcass was found in an alder swamp amidst signs of a serious struggle. His stomach contained moose calf remains, a 10-cm-long abrasion was apparent on his left shoulder, his ribs were badly contused, and his lungs and thoracic cavity were blood-filled.

In August 1986, a report was received of a nonmarked pup wolf in 6895's territory dragging its hind quarters. The pup was later found dead with a broken spine, and the trails and broken branches in the surrounding vegetation indicated that a large animal, presumably a moose, had been at the site.

DISCUSSION

These records along with those in the literature confirm that wolves do risk death during encounters with large prey. However, the two radio-tagged wolves reported killed in this study were the only such two found out of a total of 375 wolves radio-monitored in this area over a 19-yr period. This suggests that wolf mortality by moose and deer in this study area is relatively infrequent. However, nonfatal injuries by prey may be much more frequent (Rausch, 1967; Phillips, 1984) and would rarely be detected by the methods of this study.

Although two of the three wolves in this report were alpha males, insufficient detail was given in previous records to determine whether other wolves killed by prey were predominantly alpha wolves or males. We have no explanation as to why the two radioed wolves killed by prey during 19 yr of similar research were both found recently, so we attribute it to chance.

Acknowledgments.—This investigation was funded by the USDI Fish and Wildlife Service and the USDA North Central Forest Experiment Station. We also thank several volunteers who assisted with the field work.

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