

## Grizzly Bear, *Ursus arctos*, Usurps Wolf, *Canis lupus*, Kill

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A subadult female Grizzly Bear (*Ursus arctos*) took possession of a Moose (*Alces alces*) carcass from three or four Wolves (*Canis lupus*). Evidence indicates that the Wolves made the kill and fed without interruption for several days before the bear arrived. This observation demonstrates the potential for direct competition between bear and Wolf while emphasizing the bear's dominance and the opportunistic nature of its feeding habits.

Key Words: Grizzly Bear, *Ursus arctos*, Wolf, *Canis lupus*, contested kill.

During late summer 1983, while studying the movements and feeding habits of Grizzly Bears (*Ursus arctos*) in west-central Alberta (54°55'N, 119°08'W), we radio-tracked a grizzly to a Moose (*Alces alces*) kill. Evidence indicated that Wolves (*Canis lupus*) made the kill and that the grizzly arrived sometime later, presumably after scenting the decaying carcass. The following is an account of the events leading to this observation and our interpretation of the evidence.

At 1225 h on 27 August 1983, an instrumented 4-year-old female Grizzly Bear was approached on foot by the senior author and an assistant in an effort to locate feeding sign. The bear had been tracked to this location the previous day. Three days prior to the 26th, the bear was 9.5 km east of the kill site.

When 300 m from the bear we encountered Wolf sign; there were numerous trails through the vegetation, several bedding sites, and several meat scats. We were then met by a chorus of howls from Wolves which were less than 100 m from us. Based on the number of different vocalizations, three or four Wolves were present. As we continued our approach it became evident that the Grizzly Bear was reluctant to withdraw. At that juncture we detected the odor of a carcass. From the direction of the bear, her behavior, and the direction of the Wolves, it was obvious that the bear was in possession of the carcass while the wolves remained nearby. As we left the area, we found on one of the Wolf trails a 2 kg piece of meat from the carcass.

On 29 August the authors returned to the kill by helicopter. The bear was 700 m from the remains of the carcass and was moving away as we approached. No Wolves were observed as we circled the area. We immediately landed and inspected the kill. The bear had dug the site up, exposing mineral soil over an area roughly 9 by 6 m. The prey was a 15-month-old male Moose. Utilization of the carcass was complete; there was no meat remaining on any of the bones. The

skeleton was disarticulated and the bones were scattered. We estimated that the remains were one week old. The Moose had been killed on or about 22 August. Hair had not fallen from the hide and unexposed flesh was still red. This evidence discounts the possibility that the carcass had been lying for any length of time. This also indicates the Wolves were not scavenging.

Abundant Wolf sign and the condition of the skeleton combine to suggest that Wolves made the kill and fed extensively on the carcass before the bear arrived. Their meat scats were readily identified and Wolves characteristically scatter bones from the skeleton of ungulate kills (Mech 1970). The meat scrap some distance from the carcass is also typical of the feeding behavior of Wolves (Murie 1981). Our experience with bears indicates, on the other hand, that bears commonly leave an ungulate skeleton intact, the bones loosely attached with shredded ligaments and pieces of hide. As well, bones are not often broken, splintered or gnawed. These differences in skeletal remains are diagnostic and reflect differences in the dentition of the Wolf and bear. The Wolves' carnivore dentition permits a shearing force that cuts ligaments and breaks bones while the grizzly is unable to do this with teeth adapted for omnivory. In addition, we were unable to find any bear scats at the site, suggesting the bear had not consumed substantial quantities of meat.

Bear-Wolf encounters have not been widely documented, indicating the difficulty in making such observations. Little is known regarding mortality amongst participants when in direct competition at a carcass. Ballard (1982) speculated that the frequency of bear-wolf encounters is determined by prey density. He indicated that in his Alaska study area there was a disproportionate number of contested kills in an area of relatively low Moose density and hypothesized that there was an insufficient number of Moose for both bear and Wolf under those circumstances. Strong



evidence in support of that argument, however, is not presented.

It is our contention that prey availability is unlikely to have a bearing on the frequency of contested kills for several reasons. First, the Grizzly Bear does not rely on an animal prey base for its existence, as does the Wolf. The grizzly is primarily a vegetarian but will use any high quality or concentrated food source available, be it garbage, salmon, or berries. In addition, our telemetry studies of the grizzly indicate that daily movements involve a measure of randomness which suggests a high degree of opportunism, a strategy that maximizes chance encounter. Because an ungulate carcass is a large and concentrated food source it would be extremely maladaptive for any grizzly to ignore a carcass, regardless of who may be at the carcass or what other food items may be available. This strategy dictates that any subadult or adult bear that becomes aware of a carcass will investigate, regardless of how often carcasses may be encountered or what may be involved in attempting to claim the carcass. As Murie (1981) suggests, a hungry adult bear is not likely to be

denied by Wolves. The only possible source of denial may be the presence of man, and that may depend on the bear's experience.

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## Purple Reed-grass, *Calamagrostis purpurascens*, in Algonquin Park, Ontario

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A new Ontario station for the arctic/subarctic and cordilleran grass *Calamagrostis purpurascens* is reported from Greenleaf Lake, Algonquin Park, Nipissing District. This is the third locality for this rare species in Ontario and the southernmost for eastern North America. It is growing with other northern and western species and is believed to be an element of a relict floral and faunal association from the period of subarctic/arctic conditions which prevailed at the site ca. 11 000 years B.P. The other Ontario stations for *C. purpurascens* are also disjunct populations and are found near the north shore of Lake Superior ca. 925 km to the west-north-west.

Key Words: *Calamagrostis purpurascens*, Poaceae, Algonquin Park, Ontario, relict flora, Fossmill Outlet.

The Purple Reed-grass (*Calamagrostis purpurascens* R.Br.: Poaceae) is a common grass of cordilleran and arctic/subarctic areas in northwestern North America and is also found in a few widely disjunct stations in eastern North America (Calder and Taylor 1968; Scoggan 1978; Given and Soper 1981). It is considered rare in all eastern Canadian provinces in which it is known (Riley and Reznicek 1984;

Bouchard et al. 1983). Until now, it was known only from two locations in Ontario, both in the Thunder Bay District: on the Sibley Peninsula near Thunder Bay and at South Fowl Lake along the Minnesota border (Dore and McNeill 1980; Riley and Reznicek 1984).

On 9 September 1984 we collected specimens of *C. purpurascens* on a dry, north-facing granite ledge of a



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