

thick, and this "dermal shield" serves to mitigate serious damage in most cases. Occasionally, however, fatal injuries are inflicted. Outside of the breeding season, although adult males employ various threat behaviors, particularly lateral displays, to establish dominance among themselves, they often behave in a subordinate manner to females and even to juveniles. In other situations, however, males appear to dominate females, and this may relate to competition between the sexes for food resources. During the rut a dominant male will tend one or

more females for long periods of time, and mark vegetation with special horn glands. Males also dig rutting pits into which they urinate and then paw the soil onto their coats. Particularly before and during the rut, males wander widely; females tend to remain in a stable home range. Yearling goats may move particularly long distances after their mothers have borne a new kid and chased them away; they will then establish a stable home range elsewhere in the vicinity and associate with other individuals in the population. *R. S. Hoffmann*

Size

Total length: 1.245–1.787 (1.537) m (males);
1.346–1.549 (1.417) m (females)

Length of tail: 84–203 (102) mm (males);
89–140 (108) mm (females)

Weight: 46.2–136.0 (61.7) kg (males); 45.8–83.9
(57.2) kg (females)

Identification

The all-white pelage and short, black, recurved horns are diagnostic of this species. The only other montane ungulate that is all white in color is Dall's sheep, but its horns are pale amber and much longer: only in females and yearling males are they as short as those of the mountain goat.

Recent Synonyms

Oreamnos montanus

Other Common Names

Rocky Mountain goat

Status

Mountain goats primarily inhabit remote montane areas that are difficult for humans to reach. As a result, their populations have been less affected by human activities than those of any other large ruminant in North America.

Subspecies

Oreamnos americanus americanus, Coast and Cascade ranges from central British Colum-

bia to central Oregon

Oreamnos americanus columbiae, southern Yukon and southwestern Mackenzie south to central British Columbia

Oreamnos americanus kennedyi, south-central Alaska from Cook Inlet south to the Copper River

Oreamnos americanus missoulae, Rocky Mountains from southwestern Alberta and southeastern British Columbia south to central Idaho and Montana

References

Mammalian Species 63; Chadwick, 1983;
Von Elsner-Schack, 1986

Muskox | *Ovibos moschatus*

Muskoxen live in Arctic regions that have low precipitation, long, cold winters (8–10 months), and short, cool summers. Most muskoxen in North America live on the Arctic islands of northern Canada. Smaller populations occur primarily in tundra areas of the northern Canadian mainland, including the Ungava Peninsula of Quebec through an introduction. In northern and western Alaska populations were successfully re-established after being extirpated in the late 1800s. Muskoxen also occur in northeastern and northern Greenland and have been introduced to western Greenland and in Russia to the Taimyr Peninsula and Northern Sakar Wrangell Island. They feed primarily on sedges, grasses, and willows. Their distribution is probably limited by snow depth, which affects the availability of winter forage.

Muskoxen are social ungulates. Females and subadults live year-round in mixed-sex groups that are usually larger in winter than in summer. Many adult males are solitary in summer, but most live in bull groups or mixed-sex groups in winter. Energetically conservative and generally sedentary, mixed-sex

groups often move only short distances throughout the year. Adult males usually move more than adult females.

Muskoxen are polygynous, with a harem mating system in which one adult male breeds with several females. During the breeding season (rut) in August and September, a dominant male keeps other adult males away from his harem with aggressive displays, vocalizations, and scent marking. Efforts to establish dominance culminate in spectacular clashes in which two males, swinging their heads from side to side, back up for several meters, then gallop toward each other at speeds up to 50 km per hour and hit heads with tremendous force. Their bosses, massive helmets of horn, provide head protection during these dominance fights for females. Most calves are born in late April and May after a gestation of about 34 weeks. Calves are precocial and weigh 10–14 kg at birth. A single calf is produced; twins are extremely rare.

The principal predators of muskoxen are wolves (*Canis lupus*) and brown bears (*Ursus arctos*). Muskoxen use a unique group defense when threatened or disturbed. In response to the pres-



Ovibos moschatus

ence of a predator or other danger, they often run together into a tight circle or crescent-shaped formation, with their vulnerable rumps and flanks backed against one another and their formidable horns facing outward. Individuals in the group may dart forward to hook the approaching predator with their horns. When disturbed, muskoxen also sometimes stampede, galloping close together in a tight group.

In spite of adaptations to Arctic conditions, muskoxen can be affected by severe weather, particularly when deep or crusted snow or ground-fast ice (from freezing rain or temporary thaws) restricts forage availability. Such conditions have decreased calf production, survival rates, and local populations. Less is known about the effects of disease and parasites, although evidence of exposure to diseases such as contagious ecthyma and parainfluenza, and intestinal parasites and lungworms have been reported in wild muskoxen. Disease caused by *Yersinia pseudotuberculosis* bacteria has killed muskoxen in Canada.

The muskox vanished from Europe at the end of the Pleistocene and from northern Siberia more than 2,000 years ago. Vulnerable to over-exploitation by humans, it disappeared from Alaska and was on the edge of extinction in areas of Canada at the turn of the century. Protective legislation in Canada and the successful re-establishment of populations of muskox in Alaska reversed the downward trend. Increasing in numbers and expanding into areas of former habitation, the muskox persists as a unique component of the Arctic ecosystem. P. E. Reynolds, R. T. Bowyer, and D. R. Klein

Size

Males are larger than females.

Total Length: 2.086–2.645 m (males); 1.93–2.44 m (females)

Length of Tail: 70–120 mm (males); 60–120 mm (females)

Weight: 186–410 kg (650 kg in captivity) (males); 160–191 kg (235 kg in captivity) (females)

Identification

The muskox is a short, stocky ungulate (hoofed mammal) with a dark brown coat of long, coarse hair that hangs almost to the ground and, in winter, a thick layer of fine wool (quivir) beneath its heavy outer pelage. The muzzle, lower legs, and a patch in the middle of the back (saddle) are white. The thick coat and a prominent shoulder hump, similar to that of the American bison, give the

muskox a massive appearance, but the animal is relatively small, with a shoulder height of 1,217 to 1,521 mm. Both sexes have permanent horns, which begin as a rounded prominence (boss) on the forehead, curve down and outward along the side of the head, and turn upward to end in sharp tips.

Recent Synonyms

Bos moschatus

Other Common Names

Oomingmak

Status

Near extinction at the end of the 19th century because of human exploitation; now protected in Canada and populations re-established in Alaska

Subspecies

Ovibos moschatus moschatus, Arctic coastal Alaska eastward to Keewatin and the Hudson Bay coast of Manitoba

Ovibos moschatus niphoeus, northeastern Keewatin

Ovibos moschatus wardi, Greenland, Ellesmere Island, and Arctic Ocean islands of Northwest Territories

References

Mammalian Species 302