Moose

The moose, or elk, is a member of the New World deer subfamily and is the largest and heaviest extant species in the deer family.

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Anatomy

Antlers

Moose are distinguished by the broad, *palmate* or open-hand shaped antlers of the males; other members of the deer family have antlers with a *dendritic* or "twig-like" configuration.

Like other members of the deer family, bull moose have antlers. Cows select mates based on antler size. Bull moose use dominant displays of antlers to discourage competition and will spar or fight rivals. The size and growth rate of antlers is determined by diet and age; symmetry reflects health.

The male's antlers grow as cylindrical beams projecting on each side of the head at right angles to the midline of the skull, and then fork. The lower prong of this fork may be either simple, or divided into two or three tines, with some flattening.

Moose antlers are broad and palmate (flat) with tines (points) along the outer edge. The antlers of mature Alaskan adult bull

moose (5 to 12 years old) have a normal maximum spread greater than 200 centimeters (79 in).

By the age of 13, moose antlers decline in size and symmetry. The widest spread recorded was 210 centimeters (83 in) across. (An Alaskan moose also holds the record for the heaviest weight at 36 kilograms (79 lb)).

Hooves

As with all members of the order *Artiodactyla*, moose feet have two large keratinized hooves corresponding to the third and fourth toe, with two small *posterolateral dewlaps*, corresponding to the second and fifth toe. The hoof of the fourth digit is broader than that of the third digit, while the inner hoof of the third digit is longer than that of the fourth digit.

The body weight per footprint surface area of the moose foot is intermediate between that of the pronghorn foot, (which have stiff feet lacking dewlaps—optimized for high-speed running) and the caribou foot (which are more rounded with large dewclaws, optimized for walking in deep snow). The moose's body weight per surface area of footprint is about twice that of the caribou's.

The moose hoof splays under load, increasing surface area, which limits sinking of the moose foot into soft ground or snow, and which increases efficiency when swimming.

Habitat

Moose typically inhabit boreal forests and temperate broadleaf and mixed forests of the Northern Hemisphere in temperate to subarctic climates.

Moose require habitat with adequate edible plants (e.g., pond grasses,

Moose require access to both young forest for browsing and mature forest for shelter and cover. Forest disturbed by fire and logging promotes the growth of fodder for moose. Moose also require access to mineral licks, safe places for calving and aquatic feeding sites.

young trees and shrubs), cover from predators, and protection from extremely hot or cold weather. Moose travel among different habitats with the seasons to address these requirements.

Moose are cold-adapted mammals with thickened skin, dense, heat-retaining coat, and a low surface:volume ratio, which provides excellent cold tolerance but poor heat tolerance.

Moose survive hot weather by accessing shade or cooling wind, or by immersion in cool water. In hot weather, moose are often found wading or swimming in lakes or ponds. When heat-stressed, moose may fail to adequately forage in summer and may not gain adequate body fat to survive the winter. Also, moose cows may not calve without adequate summer weight gain.

Moose avoid areas with little or no snow as this increases the risk of predation by wolves. They also avoid areas with deep snow, as this impairs mobility. Thus, moose select habitat on the basis of trade-offs between risk of predation, food availability, and snow depth.

With reintroduction of bison into boreal forest, there was some concern that bison would compete with moose for winter habitat, and thereby worsen the population decline of moose. However, this does not appear to be a problem. Moose prefer sub-alpine shrublands in early winter, while bison prefer wet sedge valley meadowlands in early-winter. In late-winter, moose prefer river valleys with deciduous forest cover or alpine terrain above the tree line, while bison preferred wet sedge meadowlands or sunny southern grassy slopes.

Population

Hunting and other human activities have caused a reduction in the size of the moose's range over time. Moose have been reintroduced to some of their former habitats. Currently, most moose are found in Canada, Alaska, New England, Fennoscandia, the Baltic states, and Russia.

Estimated populations:

- Canada 500,000 to 1,000,000
- Russia 600,000
- Sweden 300,000–400,000
- United States 300,000,
    - Alaska 200,000
    - New York and New England 50,000
    - Wyoming 7,692
    - Michigan 433
    - Wisconsin 20–40
    - Minnesota 5600 - 5700
- Norway 120,000
- Finland 115,000
- Latvia 21,000
- Estonia 13,260
- Poland 2,800
- Czech Republic 50.

Diet

Moose diet consists of both terrestrial and aquatic vegetation.

In winter, moose are often drawn to roadways, to lick salt that is used as a snow and ice melter.

The moose is a herbivore and is capable of consuming many types of plant or fruit. The average adult moose needs to consume 9,770 kcal (40.9 MJ) per day to maintain its body weight. A typical moose, weighing 360 kg (794 lb), can eat up to 32 kg (71 lb) of food per day.

Much of a moose's energy is derived from terrestrial vegetation, mainly consisting of forbs and other non-grasses, and fresh shoots from trees such as willow and birch. These plants are rather low in sodium, and moose generally need to consume a

good quantity of aquatic plants. While much lower in energy, aquatic plants provide the moose with its sodium requirements, and as much as half of their diet usually consists of aquatic plant life.

Predation

The most common moose predators are the gray wolf along with bears and humans.

A full-grown moose has few enemies except Siberian tigers (Panthera tigris altaica) which regularly prey on adult moose, but a pack of gray wolves (Canis lupus) can still pose a threat, especially to females with calves.

Brown bears (Ursus arctos) are also known to prey on moose of various sizes, including many pregnant adult cows in some parts of Alaska and Scandinavia and even the rare bull moose, and are the only predator besides the wolf to attack moose both in Eurasia and North America. However, brown bears are more likely to take over a wolf kill or to take young moose than to hunt adult moose on their own.

American black bears (Ursus americanus) and cougars (Puma concolor) can be significant predators of moose calves in May and June and can, in rare instances, prey on adults (mainly cows rather than the larger bulls).

Wolverine (Gulo gulo) are most likely to eat moose as carrion but have killed moose, including adults, when the large ungulates are weakened by harsh winter conditions.

Killer whales (Orcinus orca) are the moose's only known marine predator as they have been known to prey on moose swimming between islands out of North America's Northwest Coast, however, there is at least one recorded instance of a moose preyed upon by a Greenland shark.

Moose Safety

Although generally slow-moving and sedentary, moose can become aggressive and move quickly if angered or startled. Their mating season in the autumn features energetic fights between males competing for a female.

Moose are not usually aggressive towards humans, but can be provoked or frightened to behave with aggression. In terms of raw numbers, they attack more people than bears and wolves combined, but usually with only minor consequences. In the Americas, moose injure more people than any other wild mammal, and worldwide, only hippopotamuses injure more.

When harassed or startled by people or in the presence of a dog, moose may charge. Also, as with bears or any wild animal, moose that have become used to being fed by people may act aggressively when denied food.

During the fall mating season, bull moose may be aggressive toward humans because of the high hormone levels they experience. Cows with young calves are very protective and will attack humans who come too close, especially if they come between mother and calf.

Unlike other dangerous animals, moose are not territorial, and do not view humans as food, and will therefore usually not pursue humans if they simply run away.