

Animal of the Month



Moose

January 2013

PGA  **DESTINATIONS**

2/12/2013

Moose *Alces alces*

1. Conservation Status: Not endangered
2. Size: 4.6–6.9 ft (1.4–2.1 m) tall from shoulders to feet
 - Male
 - Weight: 840–1,500 lb (380–700 kg)
 - Antlers can spread up to 6 feet (1.8 meters) from end to end
 - Female
 - Weight: 440–790 lb (200–360 kg)
3. Social Structure:
 - Moose are solitary animals and do not form herds, unlike most other deer species. The strongest bonds are between mother and calf. Moose rarely gather in groups, but there may be several moose in close proximity during the mating season.
4. Reproduction:
 - Mating occurs in September and October, when groups of moose gather and males compete (and sometimes fight with their antlers) for access to the females. During this “rut,” the polygamous males produce loud grunting sounds which can be heard up to 1500 feet away. Females have an 8-month gestation period, bearing (usually) one calf in May or June. Twins are possible if food is plentiful; triplets are rare. Calves have reddish brown coats and begin to browse at 3 weeks of age, are weaned at 5 months and reach maturity at two years of age. Calves stay with their mother until the just before the next young are born.
5. Behavior
 - Nocturnal vs. Diurnal: diurnal
 - Shy vs. Curious: more curious than deer, but tend to be shy
 - Jumping Ability: up to 8’ high. Have been known to clear 6’-7’+ fences easily.
 - Land speed: 35 mph over short distances; 20 mph steady trot over longer distances
 - Water speed: 6 mph; Moose can stay under water for 30 seconds

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- Unique Behaviors:
 - Moose have very poor eyesight but good hearing and a good sense of smell
 - Their long legs and strong body help them move easily over any type of terrain, including over deadfall trees or through snow (up to 40”) that would stop a deer or wolf. Their large hooves can spread widely, serving as snowshoes or even paddles when swimming. They can move as silently as a cat through dense forest.
 - Before bedding down to sleep, a moose will typically travel upwind for several feet and then circle back, forcing predators following in its track to approach from the windward direction.

6. Captivity

- Frequency in captivity (rare, common, ubiquitous, never, etc): rare
 - There are roughly 38 moose in captivity in 11 zoos in North America
- Noteworthy exhibits:
 - Columbus Zoo – *North America*
 - Size: 1 acres (.4 ha), including the exhibit, barn and holding yard. The barn is 18 ft x 80 ft x 13 ft, with 4 stalls and a storage room.
 - Opening date: spring, 1990
 - Number of animals: 7 (as of August 2011, when 3 new calves were acquired)
 - Unique features: this is the southernmost facility in North America to exhibit moose. The exhibit has a deep, 40,000 gallon pond.
 - Minnesota Zoo – *The Northern Trail*
 - Unique features: the Minnesota Zoo has installed Dual Chamber Cow (DCC) Waterbeds in two of the Zoo’s five holding stalls for moose to help promote heat loss and improve thermoregulation. Zoo conservation biologist Dr. Nick McCann says the waterbeds conduct heat much better than the rubber mats topped with straw, which are typically used.

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- Milwaukee County Zoo
 - Unique features: one of the most successful zoos in the world in breeding and keeping moose
- The New Zoo, Green Bay, WI
 - Unique features: large area which includes ponds, forest and natural wetland habitat
- Studies completed on this animal in captivity? If so, attach any useful articles.
 - Kenai Moose Research Center, Kenai Peninsula, Alaska
 - Size: 4 sq miles
 - Opening date: 1960s
 - Number of Animals: 19 moose and 23 caribou
 - Not open to the public, but a leader in scientific research on moose
 - Moose husbandry at the Columbus Zoo: The Nutrition Aspect:
<<http://www.thefreelibrary.com/Moose+husbandry+at+the+Columbus+Zoo%3A+the+nutrition+aspect.-a092803190>>
- Other anecdotal information:
 - Moose have typically been difficult to care for in captivity for several reasons:
 - Manufactured feeds or the typical diet of alfalfa hay, grass and grain don't keep them alive for long, with captive moose often succumbing to chronic wasting disease or enteritis. However, a breakthrough at the Kenai Moose Research Center made big improvements on the formula of a moose diet, so some facilities are adding moose to their exhibits.
 - Moose are very sensitive to heat (even at temperatures as low as 57° F) with their low surface-area-to-volume ratio making thermoregulation very difficult

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7. Recommended or Required Husbandry Guidelines:

- AZA Min. Size Dry: 1800 sf / animal
 - Provisions to separate females from males should be considered.
 - According to AZA moose can be housed in small comfortable areas. Using small stalls with interconnected corridors can make working with and access to animals considerably easier. Even in cases when the animals are housed in large enclosures, they often spend large amounts of time in secluded areas.
- AZA Min. Holding: Indoor stalls at 150 sf per animal
- Min. Size Pool: Since moose use pools to cool off and escape insects, the pools should be deep enough to accommodate these behaviors.
- Barrier:
 - PGAV Recommendation: 8-10' vertical barrier or 8' deep x 15' wide dry moat
 - Often seen are steel posts with cable or heavy duty welded wire mesh. Soft barriers like the stretched cable can prevent self inflicted injuries to the animals.
- Water Temp: N/A
- Air Temp Range: Max temp 68 degrees F
 - Temperatures as low as 57 degrees F can begin to induce heat stress. At 68 degrees moose begin to ventilate by noticeably panting.
 - Temperature sensitivity is one of several difficult issues facing moose in captivity. Minnesota zoo installed Dual Chamber Cow waterbeds to help the animals dissipate heat.

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8. Enrichment Techniques:

- Zoo Approved:
 - Feeding techniques simulating natural feeding of scattering fruit among twigs and sticks
- Other Untested Ideas:
 - Items successfully used with similar species:
 - Tires, metal chains, plastic drums, rope, feeder bags, milk crates coconut shells, and bowling pins (items approved for elk)
 - Watermelon, hidden food, peanut butter, ice and a variety of spices for sensory stimulation.
 - Visitor feeding experience
 - New York State Zoo plans enrichment days in which visitors can come and feed the elk carrots, gourds and bread with peanut butter. This could be incorporated into a moose experience providing the barriers were designed accordingly



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