



YELLOWSTONE

VOLUME 27, NUMBER 1 SPRING 2012

# DISCOVERY

A QUARTERLY PUBLICATION OF THE YELLOWSTONE ASSOCIATION



## SECRETS OF YELLOWSTONE'S MOOSE

The moose is a remarkable creature, with a fascinating natural and cultural history. Photo: Pam Cahill

By Beth Pratt  
Yellowstone Association

**T**he moose may be the most under-appreciated of Yellowstone's charismatic megafauna. Admittedly, the odd ungulate competes for attention with some rock-stars of the animal world—the wolf, bison, elk, and grizzly bear—and it's one of the more difficult large mammals to see in Yellowstone. But did Teddy Roosevelt name a political party after a wolf? Did an elk spur international debates that involved Thomas Jefferson and Ben Franklin? Can the bison claim to have been one of the dying words of a figure so illustrious as Henry David Thoreau? And who makes a better subject for a “Far Side” cartoon, a grizzly bear or a moose?

A leading expert on the moose, Dr. Professor Göran Ericsson, a chaired professor at the Swedish University (Sweden is the country with the most moose on the planet.) agrees that moose are too often overlooked in

Yellowstone. He hopes to convert some dedicated wolf watchers to moose fans. “Yellowstone moose are a well-kept secret. When people go wolf watching, I hope they'll consider that moose are by no means an easy catch for wolves. When wolves returned, moose had to adapt to them, get smarter and also tougher. This toughness has caused the wolves of Yellowstone to sometimes end up empty handed and with broken bones. So next time you see a moose in Yellowstone it might be a winner, with the runner-up wolves hiding in the back.”

The wolf-tussling moose, even sans his spats and rendition of “Embraceable You,” is a remarkable creature, with a fascinating natural

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- UPDATE ON BIGHORN SHEEP
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The peculiarities and odd visage of moose often arouse amusement. Photo: Karen Withrow

and cultural history that any respectable wild animal would envy. Thoreau referred to moose as “god’s own horses.” He is reputed to have uttered, “Moose... Indians...” on his deathbed. Theodore Roosevelt often referred to himself “as strong as a bull moose,” and used the animal as the mascot for his progressive political party. A publicity stunt for his party even included a doctored photo showing Roosevelt riding a large moose down a river. After an assassination attempt on the campaign trail, Roosevelt declared to his fans, “It takes more than that to kill a bull moose!”

Roosevelt’s esteem for the animal was well founded. The peculiarities and odd visage of moose often arouse amusement, when instead they should inspire a strong admiration. Forget the deer and the antelope playing, the moose represent the true pioneer spirit of America. Like us, they are relative newcomers to this continent (and to the Yellowstone region), losing millions of years of evolutionary advantage in North America to family members like the deer; yet against a host of odds moose have ultimately survived.

All North American moose—including the Yellowstone or Wyoming named subspecies (*Alces alces shirasi*)—descended from intrepid ancestors who crossed the Bering Land Bridge an estimated 250,000 years ago. As Samuel Merrill wrote in *The Moose Book* “Migrating from the same ancestral homeland—probably in eastern Siberia—thousands of years ago, the elk of Europe journeyed westward, while his brother, the moose, turning toward the rising sun, crossed over to the North American continent.” The modern moose evolved about 75,000 years ago, and began expanding across North America after the end of the last glacial period 10,000 before present.

When Europeans first arrived on the scene in the New World, moose were relatively rare, which may have caused the moose to be misnamed. There is no difference between the European elk and the American moose. The first English settlers hastily named the wapiti “elk” before encountering the moose, and had to choose another moniker for

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**YELLOWSTONE  
ASSOCIATION**

### THE MISSION OF THE YELLOWSTONE ASSOCIATION

The Yellowstone Association, in partnership with the National Park Service, connects people to Yellowstone National Park and our natural world through education.

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Monday - Friday • 8 a.m. - 4:30 p.m. Mountain Time



Printed on Forest Stewardship Council certified paper with soy-based ink.



the creature. In choosing a new name they committed yet another mistake by mispronouncing the Algonquin word for moose, “mong-soa,” which translates into “twig-eater” or “he who strips bark off trees.” In America the term for moose stuck, yet like the metric system disconnect between Europe and America (or the bison–buffalo debate), the elk–moose dichotomy continues to bewilder many in the reference books.

The naming of the creature wasn't the only debate between the old and the new world in colonial times. Benjamin Franklin weighed in on a dispute with Europe on whether the American moose was a living relative of the famed fossil remains of Giant Irish Elk (It wasn't.). The world's leading zoologist Comte de Buffon, sparked another international debate in the late 1700s—and incurred the ire of Thomas Jefferson when he declared life forms in colonial America inferior to those of Europe. Buffon claimed the New World moose was smaller than the old world version, and called North America a “land best suited for insects, reptiles, and feeble men.”

With the intellect of Jefferson as its advocate, the New World moose handily won this contest. The future president (at the time the U.S. Minister to France) sent Buffon the skin and skeleton of an American alces, which clearly demonstrated its heftier bulk. The French zoologist was dully chastised, and at least had the good sense to be gracious in his defeat: “I should have consulted you, sir, before publishing my natural history, and then I should have been sure of my facts.”

In retrospect, the debate seems a bit superfluous as moose—European, American, or otherwise—are enormous animals. *Alces alces* are the largest member of the deer family, and an adult bull can weigh more than 1,500 pounds and stand 7.5 feet at the shoulder. The animal's magnificent antlers alone weigh on average 40 pounds and can reach a spread of more than 60 inches.

### Yellowstone Subspecies

The moose in Yellowstone—the smallest of the North American moose yet still imposing creatures—were given

## The moose has stumped literary and public figures throughout the ages who have struggled to capture its unusual appearance in prose. A collection of some of the more memorable descriptions:

*“Moose are huge! They are the size of a draft horse and heavier than a Volkswagen. As a matter of fact, they look kind of like a Volkswagen on stilts.”* Government of Northwest Territories

*“The moose is not a beautiful animal, but he has strength, character, individuality and he stands out among our native mammals somewhat as Abraham Lincoln stands out among leaders of men.”* Vernon Bailey, *Nature*, 1940

*“The moose looks disproportioned and ungainly, a ragtag mix of a lot of things, none of them fully realized, the head is an early attempt at something equine; the slope of the back from butt up to shoulder hump suggesting a start on a giraffe, abandoned early, before the designer had the courage to take the design all the way.”* Trudy Dittmar

*“Perhaps their antisocial attitude stems from a deep-seated feeling of inferiority, for the elongate legs and muzzle make me suspect moose evolved from a smaller relative with acromegaly. Only when standing in a foot of snow with his head poked in a clump of willow does a moose look proportionately sound.”* Duane Muchmore, *Mr. Big: The Shiras Moose*

*“The moose takes only what he needs, nothing more...yet for his great size and strength he lives in peace with other creatures. The moose uses his size and power not to dominate but to protect, not to spoil but to preserve. He is a fierce protector, a loyal companion, and a generous provider who brings comfort and security to those within his defending circle.”* International Order of the Moose

*“Once you see a moose, you will never forget it. They look as if they were put together...with spare parts from other animals.”* Bill Silliker and Walter Griggs, *Moose-cellania*

*“They made me think of great frightened rabbits, with their long ears and half-inquisitive, half frightened looks; the true denizens of the forest.”* Henry David Thoreau

their own subspecies, *Alces shirasi*, and their range extends into Wyoming, Idaho, Utah, Colorado, Washington, Oregon, and Montana. *Alces shirasi* was named in 1914 for George Shiras III, a politician, conservationist, and wildlife

photographer who published numerous articles in *National Geographic Magazine* and other publications. He is widely credited with introducing the animal at large to the American people through his work. He was the first photographer

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Today the park is home to an estimated 200 moose. Photo: Bridget Lyons

to take a night flash portrait of a moose, which appeared in the 1906 edition of *National Geographic*. Perhaps not surprisingly, when taking the photograph he startled the animal, and it almost capsized his canoe, causing the camera to fall into the water. Luckily, the negative was recovered.

Shiras visited Yellowstone in search of the park's moose and correctly assessed their elusiveness in the area in his article for *Forest and Stream* in 1910. "Before leaving Mammoth Hot Springs I had a talk with Major Benson, successor to General Young as superintendent, and promised, in case we were unable to ascend the river into Wyoming that photographs should be taken of the moose. For we both agreed that these particular animals, however numerous they might become in remote portions of the park, were beyond the range of the tourist's Kodak."

If Shiras had visited 50 years earlier he might not have witnessed any

moose in the park. If moose are relative newcomers to North America, they arrived very late to the party in Yellowstone. The animal probably migrated into the park in the 1870s from Grand Teton and other areas, and didn't arrive on the northern range until 1913. As protection from overhunting increased, while predators decreased because of control programs, the moose populations began an upswing. Yet the single most important factor in the positive trend involved the policy of forest fire suppression. By the 1970s a lack of fires had caused prime moose habitat to flourish and the moose along with it—about 1000 individuals lived in Yellowstone during that time.

The animal suffered a steep decline after the 1988 fires when thousands of acres of the same ideal habitat burned in Yellowstone, and today the park is home to an estimated 200 animals. The steady erosion of the moose in the park from the 1970s has been attributed to other factors as well, including the reversal

of predator control policies, loss of old growth forest outside the park, and hunting beyond park borders.

## Cold-Loving Swimmers

Throughout history, moose populations have fluctuated significantly in the United States, influenced by a host of factors that have alternatively caused them to thrive or decline. But the latest threat the moose in Yellowstone—and the rest of the world—has to face is climate change. Dr. Ericsson was a keynote speaker at the 10th Biennial Scientific Conference on the Greater Yellowstone Ecosystem in 2010. He discussed the future of moose in the era of global warming and how they serve as a model species for the impacts of climate change as they could be both "a winner and loser." "I don't think moose are democrats," he observed humorously, "I think they must be conservatives as they change slowly." He predicts that climate change might not drive the moose extinct, but cause them to move north and also become smaller in size.

Warming temperatures are not good news for the cold-loving moose. They are very sensitive to heat stress and prone to overheating when the temperatures rise above 23°F in winter and 57°F in summer. For this reason, you won't find any moose in the southern United States. When temperatures do rise above their comfort level, moose risk exerting too much energy to cool themselves and lose valuable fat stores needed to survive winter. The animal need not fear the cold, however, as it possesses a superior coat with two layers of hair for insulation. The guard hairs, shed every spring with the molt, are filled with air to help the animal stay toasty during winter's chill.

These air-filled hairs also increase the buoyancy of moose, who are known to be expert swimmers. The animals have been spotted miles out at sea. One historical account details an attack by a killer whale. Thoreau writes in *The Maine Woods* of the Penobscot Indian belief that "the moose was a whale once" to explain the animals' prodigious swimming abilities. Moose can swim up to two hours, maintain a 6 mph or more speed and can dive 20 feet under water.