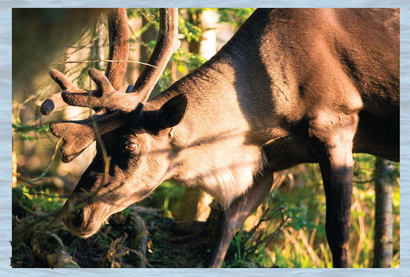
Mammals on Isle Royale- Historical Context

Missing Mammals

Trappers were very successful on Isle Royale in the early 1900s. Here two trappers show off lynx, coyote, fox, and marten pelts. Photo from Isle Royale archives, circa 1920.

Historically Isle Royale was not populated by wolf or moose as it is today. Until just prior to becoming a National Park, Isle Royale's dominant large mammals were Canada Lynx and Woodland Caribou. Evidence form Archaeological records indicate that these two species had been present on the island for 3,500 years. Both of these species were removed by direct human actions. Caribou were extirpated from the island by hunting and lynx were removed by trapping. The last woodland caribou was seen on Isle Royale in 1925 and no animals have attempted to recolonize the island. Lynx were effectively killed off by the 1930s, however, new immigrants (that crossed the ice bridge from Canada) have been seen on the island periodically. The most recent sighting was of a single individual in 1980.

Both archaeological and recent genetic evidence suggests that many of the mammals that inhabit Isle Royale today colonized it early after the last ice age and have persisted there ever since. Mammals present in the archaeological record that still persist today include: Snowshoe Hare, Beaver, Muskrat, Red squirrel, and Deer Mice. Mammals that must have been present on the island for thousands of years due to their genetic distinctness include the: Isle Royale Red Squirrel, Isle Royale Deer Mouse, and the American Marten. Wolves and moose were never present on Isle Royale until recently (approximately 1908 for moose and 1949 for wolves). Historic evidence, archaeological research, ethnographic records, and fur trapping data support this conclusion.

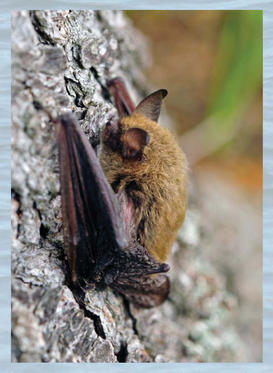


Coyote, called "brush wolves" on Isle Royale, were present on the island for approximately 50 years (1905-1955). Photo from http://wildlifeanimalz.blogspot.com/

Canids are what scientists call members of the Dog family. On Isle Royale wolves are not currently, nor historically, the only canid on the island. Coyote, known regionally as "brush wolves", made it to Isle Royale on their own in around 1905. Coyote were found on Isle Royale for about 50 years, until after decades of persecution by humans hunting and trapping them, they ultimately disappeared when wolves arrived in the 1950s. Coyotes may have attempted to recolonize the island in recent years.

Bat history at Isle Royale

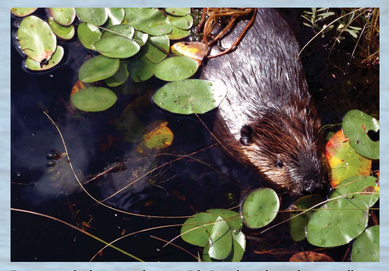
Bats have a significant advantage over other mammals at Isle Royale due to their ability to fly. Flight gives this group of animals a much greater ability to disperse over great distances. It is no wonder then that one third of all mammal species on Isle Royale are bats. Bats have likely been coming and going from Isle Royale since insects colonized the island after the retreat of the last ice age. All the island bats migrate back and forth each season as there are no areas on the island suitable for them to hibernate. Their ability to fly allows them to recolonize the island each spring. In 2011 a resident population of tri-colored bats was identified on the island. This species had not been recorded for almost 50 years. It is unknown if it was always present in low numbers or if it was extirpated, or simply did not recolonize for a time. Another species on the island, the Northern long-eared bat, like the other bats on the island returns each year, but lately this bat has been returning in smaller and smaller numbers. It has been hypothesized that a bat disease, white-nose syndrome is killing them off at their hibernating locations. This species has been proposed to be listed as endangered in the USA.



Northern long-eared bat, one of 7 species of bat on the island.

Rodent history at Isle Royale

All the rodents on Isle Royale have been present on the island for a long period of time and their populations have sometimes fluctuated widely. They arrived by various means; beaver being a larger aquatic rodent likely got to the island by swimming, while mice and squirrels likely drifted over on floating vegetation. Mice especially could have gotten to the island accidentally through the movements of people, but both the Deer mice and Red squirrels on the island are considered genetically distinct subspecies from those on the mainland. This suggests that these rodents got to the island and have remained there for a very, very long time. Both these mammals likely predate any other mammals on the island.



Beaver are the largest rodents on Isle Royale and can dramatically effect the ecosystem. NPS Photo by Mark Romanski

Deer mice are long-time residents of Isle Royale.

Red squirrels are one of the most abundant species and have been here for hundreds of years.

Lagomorph history at Isle Royale

Snowshoe hare fur changes color according to the season, allowing them to hide from predators.

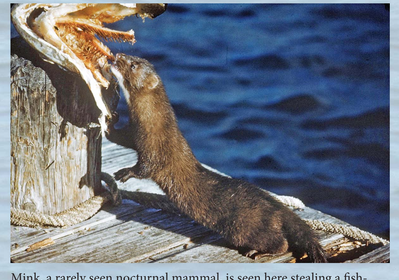
Snowshoe hare populations have been rising and falling on the island for thousands of years. They are one of the mammals that can be found in the archaeological and ethnographic records of the island. Further, as the main prey for Canada lynx, their longtime presence varied up and down not only due to this predation, but also due to other predators (including man), weather, and changes in the island vegetation. With their main predator removed in the 1930s, snowshoe hare density has continued to fluctuate up and down. Snowshoe hares could have originally arrived on Isle Royale by crossing an ice bridge or drifting across the water on floating vegetation.

Mustelid history at Isle Royale

With the exception of the river otter, most mustelids on Isle Royale are rarely seen. In fact such a long time had gone by (70 years) since seeing an American marten on the island that they were thought to have been extirpated. Their recent rediscovery and the subsequent genetic analysis prove however, that they not only never left, but are one of the original mammals that made their way to the island hundreds of years ago. The same could be true of the rarely seen long-tailed weasel and the mink. Both of these small mammals are occasionally sighted by park staff and visitors, but little is known about how or when they got to the island. They have been present since at least 1905, and likely well before that. The other mustelid, river otters, surely have the ability to swim to and from the mainland.

American marten, not seen for 70 years, were never actually gone from Isle Royale. NPS Photo by Jim Krueger

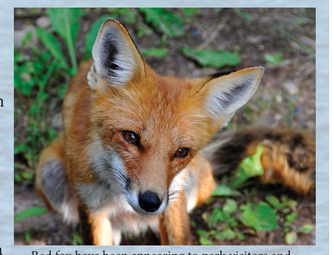
River otter sunning itself on a boat dock.



Mink, a rarely seen nocturnal mammal, is seen here stealing a fish-head. NPS file photo

Canid history at Isle Royale

Red fox appeared on Isle Royale around 1925 and may have been stocked there by people. The perception of fox seems much more variable than other canids with some preferring to feed these wild animals as if they were pets, while others actively hunted and trapped them for their pelts. Red fox numbers fluctuate wildly from year to year depending on the availability of food, winter conditions, breeding success and human interaction. Their population is believed to be stable on Isle Royale at this time.



Red fox have been appearing to park visitors and residents since their arrival in 1925.

Coyotes, having made it to the island by 1905, persisted on Isle Royale until the 1950s, when after decades of human persecution they ultimately disappeared. They undoubtedly got to the island via the winter ice bridges and could recolonize the island naturally.

Our best available information suggests that wolves arrived on their own to the island in winter of 1949-1950. having crossed an ice bridge from mainland Ontario, Canada. Evidence collected at the time suggests that there were 1-2 wolves alive on the island in the summer of 1950. At this time coyotes were still common on the island. Next came an introduction effort to stock wolves from the Detroit Zoo. In 1952 one or two of four stocked wolves successfully assimilated into the population. In 1967 the next immigration to the island took place. Seven wolves were seen crossing the ice from Canada to the north shore of Isle Royale. Four of these animals were black. There was significant conflict with the island wolves causing one wolf to return back to Canada. The rest go on to augment the island population. The last known immigration to the island was by a lone male in 1997. This individual crossed the ice bridge to the island and subsequently became the dominant male. His genes permeate the current population.

Plaster cast of wolf track found in the area of Siskiwit Bay in 1951 by National Park staff.

Seven new wolves immigrated to Isle Royale in the winter of 1967-1968. Several of these animals were black.

Cervid (deer) history at Isle Royale

There are several ways which animals can disperse (immigrate) to islands. The most commonly accepted ways are the animal arrives naturally by walking, swimming, flying, or drifting. They can also be introduced by the actions of humans, either accidentally (as in invasive species) or intentionally (as in stocking efforts). Moose arrived on Isle Royale in the early 1900s. How moose got to Isle Royale has been a debated mystery. Unlike their relatives the caribou, moose rarely walk across ice, and so it is very unlikely that moose immigrated to the island via an ice bridge. Moose swim very well. So it is entirely plausible that they arrived to the island by swimming. This is the most widely accepted theory of how they arrived. However, even for a good swimmer like moose, 14 miles is a very long swim. In addition, enough moose (both males and females) would have had to have made this epic journey within a small window of time for the population to become established. There is also another scenario. Cultural evidence has suggested that a private citizen's group may have intentionally stocked the moose onto the island for the purposes of recreational hunting. However moose got to Isle Royale, they did well and their population steadily increased for several decades. In 1937 the population of moose in Michigan was very low. A decision was made by the Michigan Department of Natural Resources to restock the population. At this time moose were very abundant on Isle Royale and so 70 moose were removed from the island to restock Michigan's upper peninsula (and several were sent to the Detroit Zoo) Most of these animals died shortly thereafter and the restocking was considered a failure. Poor habitat and disease (likely brainworm) caused much of the mortality. Some of these animals may have persisted and their descendants could be represented in the 430 moose now in the western U.P. An attempt was made in 1906 to introduce white-tailed deer to the island. 12 animals were released, but the population quickly died out. The current health of the moose on the island may, in part, be due to the absence of deer.

Cow moose feeding on fireweed.