

## **Isle Royale Wolves: A Brief Discussion of Their Current Dilemma**

By: John Baker

Isle Royale has arguably captured the imagination of just about everyone that has visited, myself included. It is a rugged, isolated paradise surrounded by the largest body of freshwater in the world. It was once a refuge for a unique predator-prey relationship that has defined certain areas of ecological sciences for half a century. The wolf-moose dynamic on Isle Royale has been the basis of a decades long study that has led to information regarding how an ecosystem declines without an apex predator or with an overabundance of large prey. Unfortunately, the wolves have all disappeared from the island, leaving the moose to grow unchecked. At this point, saving the wolf population is no longer an option. However, a reintroduction has been recommended by many expert researchers such as Rolf Peterson, a veteran wolf researcher on Isle Royale. This proposition has sparked a debate about the ethics and logistics involved in the suggested reintroduction, creating a halt on any plans to restore wolves. Because of the inaction of the past several years caused by this argument, conditions on Isle Royale have grown much worse than they were in the past. Wolves are no longer at a point of genetic rescue and the moose are becoming unhealthy themselves. The moose are also decimating the vegetation on the island due to overfeeding, as well as destroying habitat for aquatic species such as turtles. All of this was evident when I visited the island in July of 2017. Isle Royale will continue to struggle and decline as an ecosystem due to a lack of population control on the moose and ecological imbalance unless wolves are reintroduced.

The origin of moose on Isle Royale is not accurately documented; although, some claim that moose swam by their own accord, while others claim they were brought by humans for hunting on the island (Vucetich et. al. 2012). Wolves, on the other hand, are known to have crossed an ice bridge to the island several decades after the arrival of the moose and have remained there since. It is known for sure that a breeding pair made their way to the island during a winter ice bridge sometime between 1948 and 1950 (Scarpino, 2011). Their effect was immediate. The wolves bred, and their offspring began hunting the moose. The issue of moose overabundance on the island was no longer spoken of. The moose themselves became healthier as a collective because the wolves preyed upon the weaker and older individuals, leaving only the healthy and dominant. In a sense, the entire ecosystem on the island became balanced and began to function efficiently. Wolves hunted the moose that would not typically have survived with predation, while the healthy moose were left to browse the island's vegetation at normal, sustainable rates. Currently, this relationship does not exist due to the presence of only two wolves and an increasingly large population of moose (Carolyn Peterson, personal conversation).

Not only did the wolves and moose benefit from their new relationship, but so did most of the other species on the island. The red fox, who once had to compete with coyotes on the island prior to wolf presence, were now free to prey on rabbits and squirrels with very little competition

due to the decline of coyotes courtesy of the wolves. Loons, whose nesting sites were often disturbed by large amounts of moose wading in the inland lakes to feed, began having more successful mating seasons. The aspens that the moose had previously devoured at will on the island were able to finally grow high enough to be out of reach. Finally, with an apex predator present, the island was returning to an equilibrium it hadn't experienced since the moose arrived. Similar results were seen when wolves were reintroduced to Yellowstone National Park. The entire ecosystem benefitted from the balance that a predator can bring, and in Isle Royale's case, the balance that is needed.

Over the next several decades, the moose and wolf populations varied relative to each other and other significant environmental factors. Both experienced high and low periods, as do any predator / prey related species. However, the wolves had many more challenges to survive than the moose. During the early 1980's, Canine Parvovirus was detected in the Isle Royale wolves (Vucetich et. al. 2012). Canine Parvovirus, or CPV, is an extremely contagious and very resistant virus that affects the digestive system of dogs, causing diarrhea, dehydration, and often death (American Veterinary Medical Association 2017). Researchers believe this disease was transmitted to the Isle Royale wolves by an infected dog or a human that had recently handled a contaminated dog. Although dogs are not allowed on the island by the National Park Service, those that reach the island via their own watercraft still bring pets. The disease caused the wolf population to have its first significant collapse. In turn, the moose population grew quickly while the wolves were not able to cull them as efficiently as before. Subsequently, the moose population also later collapsed once the population reached a point where the island could not support the rising numbers. After the first collapse of the wolves, the population was saved by the arrival of a new wolf from Canada that spread his genetics throughout the island in the early 1990's (Adams et. al. 2011). Unfortunately, once the new wolf passed away, the wolf population declined again.

From the 1990's to the 2000's, the wolves continued to produce offspring and hunt moose as they always had since reaching the island, while maintaining a somewhat constant, stable population. However, in 2012, for the first time since the wolf study began, no new offspring were recorded. Even with the influx of new genes from the male in the 1990's, inbreeding was still threatening the future of the wolves. Researchers believed that the wolves either refused to mate with each other because of their close relation, or their attempts at mating were unsuccessful (Mlot, 2013). For the wolves to have been rescued at this point, human action was necessary or new mainland wolves would need to reach the island and breed, but neither of those things were able to happen.

In recent decades, the area surrounding Lake Superior has experienced much milder winters than in the past. Because of this, the ice bridges that typically form between the island and mainland have become much less stable and much more inconsistent, sometimes lasting for only a day or two at a time. Recently, the winters have yielded no ice bridges. Due to the importance of

populations having strong genetic diversity to survive (Adams et. al., 2011), it is necessary for species like the wolves on Isle Royale to mate with new individuals that cross from the mainland like the male from the early 1990's. The lack of ice bridges forming due to human-caused global warming has greatly reduced the chances of new individuals coming to the island regularly enough to mate and improve the genetic quality of the wolves on the island. In an indirect way, humans are partially responsible for impeding upon necessary ecological behavior that contributes to the success of the wolves. Because of the lack of natural opportunity for genetic diversity caused by humans, we should have been introducing wolves artificially in order to help the population throughout the span of their existence on the island. It is impossible to say that more wolves would travel between the island if the climate was not changing, but it would certainly be more likely.

Island colonization by wolves in the twenty-first century is not unheard of. Michipicoten Island, in the western portion of Lake Superior, was recently inhabited by wolves (Mlot, 2015). Home to a herd of woodland caribou, like Isle Royale was prior to moose, Michipicoten has become the new full-size experiment regarding predator-prey relationships away from humans. Those that disagree with a wolf reintroduction to Isle Royale see this new situation as a way to counter the claims of researchers that there is still more to learn about predator-prey dynamics on the island. Although the data collected from Michipicoten will be highly illuminating in comparison with the data collected on Isle Royale, there is still more to be learned on Isle Royale. In terms of effects of wolf predation on moose that could yield new evolutionary traits in either species, or if both species could at some point reach an equilibrium, the research could have profound results.

One of the main arguments that the wolf situation has evolved into is whether man is responsible for restoring or interfering with nature or not. Regarding Isle Royale, many people hold the opinion that the wolves died off because that is what nature intended. These people believe nothing should be done to restore wolves because if they reached the point of extinction now, they'll just do it again. However, many other people believe that humans have had such an astronomical impact on the Earth's ecosystems, that nearly every occurrence in nature is in some way affected by humans. This means that humans are responsible for fixing anything that goes wrong in nature. Unfortunately, there is so much grey area within this matter that a consensus cannot be reached. The situation on Isle Royale has many different factors, but human activity is certainly one of them

Even though humans are partially responsible for preventing the Isle Royale wolves from succeeding, we still have reason to bring them back. As a National Park, Isle Royale is meant to function both as a preservation of natural space and as access for the public to experience nature. Wolves, a mysterious and charismatic large animal, are part of Isle Royale's reputation. The relationship between the wolves and moose and the scientific knowledge that has been gained from that relationship has been bringing people to the island for years. Now that only two wolves remain, people come to the island to try and see them before they disappear. Once they are gone,

their draw on visitors will cease and the moose will continue to decimate the vegetation on the island. A reintroduction would not only be beneficial for the sake of the ecosystem and other species on the island, but also for increasing visitor interest.

Because of its status as a National Park, it would be assumed that species in said park would be handled in the same way as in other parks. This is not the case. Parks like Yellowstone and the Everglades are currently or have historically reintroduced large predator species to their land in order to balance the ecosystem. Yellowstone's wolves had not existed in the park for many years, and once introduced, the negative effects of the prey species in the park like buffalo and beavers declined. In the Everglades, panthers are suffering a similar fate of the wolves on Isle Royale. Inbreeding and disease spread through the population, yet new individuals have been introduced to negate those effects. Similar occurrences are not restricted to only National Parks. Even states are working with Federal government agencies to reintroduce species to their native territories or introduce new individuals to struggling populations. Prairie chickens in Illinois, California Condors, and many more are all examples of what should be happening with the wolves on Isle Royale. The precedents have been set, but there still has been a lack of action by the Park Service to save the wolves.

Some may claim that the species mentioned above have a historical record of living in the locations they have been reintroduced to, while the wolves on Isle Royale do not. The reason those species needed reintroductions was because humans prevented them from surviving where they had persisted for hundreds of years. Implying that a reintroduction of wolves to Isle Royale is not necessary because those wolves do not naturally belong there does hold some weight. However, the wolves initially reached the island naturally, and according to most claims and evidence, the moose did too. If these arrivals had taken place even two hundred years earlier, the place of wolves on the island would never be questioned. Just because their arrival was recent does not discredit the fact that wolves made themselves an integral part of the Isle Royale ecosystem. This argument also does not address the fact that humans played a role in the failure of the Isle Royale wolves as well.

Critics of the wolf reintroduction may also question whether wolves are worth reintroducing in order to balance the ecosystem or if we should simply allow the moose to die off as well and let the island revert to how it was. This option does appear to be relatively logical, albeit gruesome, but if the island was fine without both species in the past, it will be in the future. The problem with this way of thinking is that the organisms on the island have grown accustomed to having both wolves and moose around. Any time a variable is taken out of an ecosystem that has been there for a while will be a resounding impact on the other organisms. For example, without moose browse, vegetation on the island could become too dense and increase the risk of fires in the dry season. Also, Isle Royale was historically home to lynx and woodland caribou that had inhabited the island for thousands of years before being extirpated by hunting and trapping (National Park Service). These species' existence overlapped slightly with the wolves and

moose, meaning that for thousands of years, Isle Royale has not been without a large predator and prey dynamic. Not returning wolves to the island and allowing moose to die off would put the island in an unprecedented and unnatural state.

Many things are at stake with the loss of wolves on Isle Royale: the uniqueness and knowledge of the wolves themselves, years of scientific research, the ecological health of the island, and a major part of the island's draw for visitors. These things are not worth losing and are certainly not something that humans should add to our list of failures. It is our responsibility to right our wrongs when it comes to how we affect the natural world. Without wolves, Isle Royale would be forever changed, both in terms of how we perceive it and how it functions as an ecosystem that supports many forms of life.

## References

- Adams, J. R., Vucetich, L. M., Hedrick, P. W., Peterson, R. O., Vucetich, J. A. (2011). Genomic sweep and potential genetic rescue during limited environmental conditions in an island wolf population. *Royal Society Publishing*, doi: 10.1098/rspb.2011.0261
- Canine Parvovirus (n.d.) *American Veterinary Medical Association* Retrieved from <https://www.avma.org/public/PetCare/Pages/canine-parvovirus.aspx>
- Mammals on Isle Royale – Historical Context pdf. Retrieved from [https://www.nps.gov/isro/learn/nature/upload/Mammals\\_ver7.pdf](https://www.nps.gov/isro/learn/nature/upload/Mammals_ver7.pdf)
- Miller, M., (2013). Should We Let the Wolves of Isle Royale Disappear? *Nature.org* <https://blog.nature.org/science/2013/10/10/should-we-let-the-wolves-of-isle-royale-disappear/>
- Mlot, C. (2013) Are Isle Royale's Wolves Chasing Extinction? *Science*, 340, 919-921. doi: 10.1126/science.340.6135.919
- Mlot, C., (2015). Inbred wolf population on Isle Royale collapses. *Science*, 348, 383. doi: 10.1126/science.348.6233.383
- Scarpino, P. V. (2011). Isle royale national park: Balancing human and natural history in a maritime park. *The George Wright Forum*, 28(2), 182-198. Retrieved from <https://search.proquest.com/docview/1003614969?accountid=28041>
- Vucetich, J. A., Nelson, M. P., & Peterson, R. O. (2012). Should isle royale wolves be reintroduced? A case study on wilderness management in a changing world. *The George Wright Forum*, 29(1), 126-147. Retrieved from <https://search.proquest.com/docview/1040682779?accountid=28041>