

# A CASE AGAINST INTERVENING IN THE ISLE ROYALE NATIONAL PARK WOLF/MOOSE ISSUE

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## BACKGROUND:

Isle Royale, a 209 square mile (133,782 acres) island in northwestern Lake Superior was dedicated as Isle Royale National Park in 1940. In 1976, approximately 99 percent of the park became a designated wilderness area- a part of The National Wilderness Preservation System. In 1980, Isle Royale was added to the list of International Biosphere Reserves. The island lies in the transition zone between the southern edge of the Boreal Coniferous Forest and the northern edge of the Northern-Temperate Deciduous Forest. The island is best known for its six-decades-long "Isle Royale Wolf-Moose Project," a series of investigations of moose-wolf interactions and its influence on the island's habitat.

Wolves first appeared on the island sometime during the winters of 1948-50 when ice bridges connected the island to the mainland (1 female, 2 males). Genetic evidence suggests that there were several additional wolf arrivals from the mainland in the past 60-plus years. It is also known that several wolves left the island for the mainland. Regardless, recent genetic analysis has shown that all remaining members of the Isle Royale wolf population have descended from a single female. This past winter's wolf survey found three wolves on the island- a female and male and what appeared to be a juvenile. One female was discovered to have crossed over to Minnesota where it was shot, and one male was found dead on the island. Three wolves from the mainland were seen on the Isle Royale in February of 2015, but returned to the mainland after six days. Currently, the remaining wolves exhibit signs of inbreeding and may die off due to lowered or non-existent breeding capacity. Park officials have through the NEPA process raised the question of whether or not to supplement the remaining population by capturing and introducing new wolves from the mainland in an effort to "genetically rescue" the population. That is currently where we stand.

Before proceeding, let me make it clear that I am not in favor of intervening with a genetic rescue, but do favor allowing the current situation to play itself out unhindered by human manipulation. And for full disclosure, I am also a board member of Wilderness Watch, an organization dedicated to keeping wild the nation's wilderness areas, and whose position on this issue is also one of non-intervention. However, I am writing this as a private citizen, not representing Wilderness Watch.

## THE CASE:

Over the past decades I've formed my conservation principles, and hence the basis for many of my "desired outcomes" from an amalgamation of some of our nation's greatest environmental laws, including the National Park Service's Organic Act which allows certain environmental manipulations, and the text of the 1964 Wilderness Act whose core value is to leave the land "untrammeled by man." To these I must add my respect for the Precautionary Principle. All of which are reinforced by the writings of various conservation leaders and my own extensive travels in the U.S. and to over two-dozen foreign countries where I was introduced to numerous endangered species and land management programs. Ironically, on Isle Royale we have two of our Nation's strongest land conservation laws overlapping on the same piece of land, each providing somewhat conflicting guidance as how to proceed with the wolf issue. This is not an easy one.

A strong argument can be made that many of the wolf's current problems can be traced back to "human intrusions," primarily the impacts of human-caused climate change and the accidental introduction of parvovirus to the island in 1980 or 1981. However, over and over I read that the lack of genetic diversity leading to inbreeding poses the most imminent threat to their existence. A whole host of scientists attest to this. No question- I believe them and their findings. However, inbreeding is a consequence of many factors, including, but not limited to, disease, climate change and the fact that Isle Royale is a remote and relatively small island. I firmly believe the most significant of these three factors is the isolation of the island's wolf population—which of course is made worse due to climate change.

The real question is what should be done about this- if anything? And not wanting to "split hairs," the word extinction is regularly used to describe the likely future of the Isle Royale wolf population. That could happen, but if it does it is unlikely that it will in any way threaten the overall survival of the wolf as a species. If species survival were at stake here, I would almost certainly have a very different opinion.

Faced with the possibility of losing the island's wolves, we need to remember that there is no evidence that wolves were on the island prior to 1948-50. And it was only in the early 1900's that moose appeared on the island, apparently having swum from the mainland. Also, recent genetic analysis of the island's moose population suggests that they are most closely related to Minnesota's northwestern moose population. This has led to speculation that Isle Royale's moose may have been brought onto the island by humans, contradicting the assumption that all or most of the first immigrants swam from nearby, northeastern Minnesota.

It is known that at the beginning of the 20<sup>th</sup> century, Isle Royale was home to caribou, lynx, coyotes and spruce grouse- all now extinct on the island. And who knows how many other species have appeared only to disappear later for unknown reasons, but likely human-related. This is not unusual for island ecosystems whose species composition tends to be less complex and much more volatile than larger mainland systems. This is particularly true when modern humans enter the picture.

(Isle Royale is home to 19 mammalian species while the nearby mainland is home to 40.)

Many people question the meaning and very existence of “natural” and “wildness.” Isle Royale is an island and history shows that its species composition has changed in modern times. Consequently, where on the time-line of the island’s biotic history do we define natural: Pre- or post-caribou? Pre- or post-moose? Pre- or post-wolf? When and how often in the past have human actions affected species make-up on the island? What significance should we assign to Pre- or Post National Park designation? What do we hold up as our naturalness standard?

Evolution is a process and it takes place on all scales, even at the ecosystem level, and even within small island systems. And by my thinking, evolution itself is a process worthy of protection, one worth leaving alone. Importing wolves to the island would be a significant, conscious act of human intervention in this evolutionary process- however tarnished we might think it is.

The 2006 National Park Services Management Policies states: “*The National Park Service will preserve and protect the natural resources, **processes, systems,** and values of units of the national park system in an unimpaired condition to perpetuate their inherent integrity and to provide present and future generations with the opportunity to enjoy them.*” (Emphasis added). I believe these words make a strong case for the protection of the **system** or **process** of change- of evolution, even if it means by not intervening we might lose a species.

Perhaps seen as weakening my own argument, I will add that the same policy document makes clear that native species extirpated by human action shall be restored. Unfortunately I’m not aware of any park document that provides guidance or establishes protocol for dealing with species extirpated due to indirect human phenomenon such as climate change. And to the best of my knowledge, park service documents provide no clear guidance as to the appropriateness of intervening to rescue a species as opposed to restoring a lost species. This is the new ground we as conservationists must find our way through. This isn’t going to be the only such dilemma we face as climate change increases its impact on the globe and humans continue to encroach into our shrinking wildlands.

Regarding the human-caused presence of parvovirus- that is the argument I see as having the strongest legs in this discussion. However, looking at the wolf and moose numbers before and after the occurrence of parvo and up to about 2010, it seems wolf numbers remained in the 20 to 40 range with one or two years exceeding 50. Clearly, in the past 5-6 years wolf numbers have plummeted, but the strongest, proximal culprit still appears to be inbreeding as evidenced in large part by the observation that since 1994, every wolf skeleton found on the island has shown significant abnormalities.

As mentioned earlier, recent genetic analysis suggests that the remaining wolves all descended from a single female. Additionally, at least twice single males have

immigrated to the island (1967 and 1997), and contributed to the populations' genetic diversity, but to no long lasting benefit.

During the same period moose numbers fluctuated widely- as they did before the arrival of wolves. The literature suggests that part of the more recent fluctuations can be attributed to severe winters and above normal summer temperatures accompanied by heavy winter tick infestations. And, of course, there is the predatory role of wolves. A publication by M. Nelson, R. Peterson and J. Vucetich (2008. The George Wright Forum. Vol. 25, No. 2) concludes that *"These discoveries (50 years of moose-wolf interactions on Isle Royale) suggest wolves are the proximate, but not ultimate, cause of most moose deaths."* The article went on to say that: *"That is, wolves seemed to have relatively little impact on moose abundance."* And last, the article stated that: *"Most importantly, most of the fluctuations in moose abundance are attributable to factors that we have yet to identify."* I don't pretend to say that wolves are not a major factor in lives of Isle Royale moose, only that they are far from being the only, significant factor.

With ongoing climate change, future environmental factors may have even greater impacts on the moose population, particularly as the island's average temperature increases causing habitat shifts from boreal forest species to temperate forest species with the potential loss of balsam fir, an important winter food source of moose. This is a trend already being noticed on the island. In nearby northeastern Minnesota the moose population has recently plummeted primarily due to parasite infestations augmented by warming climate. A similar situation is occurring in northern New England where declining moose numbers are tied to rising temperatures and a huge increase in winter ticks. Consequently, the Isle Royale moose population may very well undergo a decline- or extirpation caused more by environmental changes than by the presence or absence of wolves. Or stated differently, importing wolves to Isle Royale may contribute little to the long-term survival of the island's moose population. In fact, under the worst case scenario doing so could hasten their demise.

I have very reliable information that the park service recently ran five population models with various scenarios, four of which predicted that moose would go extinct on the island with or without wolves while the fifth predicted a drastic fall in numbers, although perhaps not extinction. The point is that if current environmental trends continue, the Isle Royale moose population will very likely drop significantly if not completely die out. What do we do then? Begin limiting wolf numbers in order to increase moose survival? Import moose to augment their population? Where does this end?

Climate change is certainly largely due to human activities, but to use climate change to drive a decision as significant as this is wrought with unintended consequences. I say this because if we open this door, where does it lead us: do we attempt to modify the island's habitat in response to climate change by planting balsam fir even though the species can no longer compete with the encroaching temperate deciduous forest species? Do we somehow manipulate the terrestrial

environment or even the moose population so that they can better adjust to warming temperatures, regardless of the direct impacts of disease and parasites- or the absence of wolves? Where is the wilderness or naturalness then?

I understand the emotions and share the desires to keep wolves on the island to keep the systems operating as we know them, to hang on to the conditions of yesterday when the island was dominated by moose-wolf interactions. But then what? Does it, as many prominent biologists admit, cause us to adopt a long-term plan of importing wolves every time inbreeding shows its deadly head? That is not sustainable, that is not natural and that is not wildness.

Science is critical in any environmental discussion, but so too is the rule of law and the authority of existing regulations. Isle Royale functions under the authority of the park service's Organic Act, its enabling legislation, Director's Orders etc., AND the 1964 Wilderness Act. The park's web page states that "*The purpose of Isle Royale National Park is to: (1) Preserve and protect the park's wilderness character for use and enjoyment by present and future generations. (2) Preserve and protect the park's cultural and natural resources and ecological processes. (The next two purposes deal with the public's recreational and educational opportunities.) And the last purpose listed- (5) Provide opportunities for scientific study of ecosystem components and processes, including human influences and use, and share the findings with the public.* Clearly, these purposes can be interpreted differently. For me, the need to protect the wilderness character and on-going ecological processes stand out. I say, continue to document the changes and share the (tragic) results with the public. Yes, results that could make Isle Royale one of the first, dramatic examples of the consequences of society's refusal to act on climate change.

Many scientists and wolf proponents state that a reason to import wolves to the island is to continue the 50+ year wolf-moose interaction research. That could be seen by some to be just a few words short of saying wolves need to be imported so "someone" can maintain their job. The proponents likely don't mean it that way, but proposing an action as precedent-setting as importing wolves to a national park in order to keep a research project going seems inappropriate. Plus, once wolves are imported, the resulting research reports will always have to include a bold asterisk explaining that at some point the system was deliberately altered by the importation of X-number of wolves from the mainland. The resulting data would not represent information from a continuing, natural predator-prey study, but rather it might best be described as a "before and after intentional human intervention" study. And again, how long will it be before additional wolves have to be imported to again avoid the perils of inbreeding? When does this wolf population shift from being free-ranging to becoming a routinely manipulated population experiment in a natural island impoundment? Where is the wildness and naturalness then? Importing wolves may provide a short-term fix, but it is not a long-term solution.

The argument is made that with climate change, ice bridges are occurring far less frequently, and therefore the chances of wolves naturally immigrating to the island are diminished. That makes sense, but if I'm reading the most recent information

correctly, the past two winters have seen ice bridges form in Lake Superior. And apparently, two wolves from the mainland did get to the island this past February (2015), but after spending 6 days wondering about they returned to the mainland. Their departure is truly unfortunate, but apparently all natural. If we are willing to physically import wolves, should we not have tried to entice these two wolves to remain the island? I say this rather tongue-in-cheek, but doing so could be seen by some as being half natural while physically importing wolves is totally unnatural. And then there was the recent case where the ice bridge allowed one female to leave the island and migrate to the mainland. In the future do we “haze” wolves away from such behavior?

Many make the case that the reintroduction of wolves into central Idaho 20 years ago occurred in a wilderness area, so why not do the same on Isle Royale? There is a significant difference between the Idaho reintroduction and the Isle Royale situation. First, wolves were very deliberately removed from Idaho decades ago whereas if Isla Royale’s wolves die off it will be due only in part to unintentional human actions (parvo and climate change). Reintroducing wolves, or righting an earlier wrong, as was the case in Idaho (and Yellowstone Park) seems compatible with the intent of the Wilderness Act which repeatedly states the need to preserve wilderness character. The Act considers the restoration of native wildlife populations that have been depleted due to human actions as compatible management actions.

The Wilderness Act also recognizes that natural processes and fluctuating populations are important components of wilderness character. Unfortunately, as with national park policies, the Act does not differentiate between intended and unintended human actions, or the degree to which either supplements natural events. Nor does the Act give guidance as to what human actions, if any are appropriate responses to such events. That seems to be where we are with the Isle Royale issue. (Perhaps existing case law can shed some light on these questions, I just haven’t taken the time to begin that search.)

I point all this out only to say that I can look at the circumstances and make an argument for leaving events play out without additional human interference. It becomes a personal value call and I respect the well-reasoned opposing positions. What I fear most is the precedent that would be set if wolves were imported into a national park of which nearly 99 percent is a designated wilderness. I worry that this could set a disturbing precedence for the next wave of wilderness challenges looming on the horizon: do we begin planting disease and beetle resistant whitebark pine into Greater Yellowstone Ecosystem wilderness areas to augment the grizzly bear’s fall diet? Do we try and fabricate some method of cooling our mountain streams in order to maintain our native cutthroat and bull trout populations in our parks and wilderness areas? Or some similar scheme- perhaps cloud seeding in order to ensure deep snows at high elevations to prolong summer run offs, or to support wolverine populations?

We can all add to this list of forthcoming challenges brought on by human-caused climate change. My fear-laden questions are simply these: does the trammeling brought on by human-caused climate change justify more trammeling? Do drastic interventions that **may** at best prolong changes in ecosystem mechanics then allow the climate change deniers to say “see, humans can fix these problems without having to address the root causes,” thus delaying the real work that needs to be done now?

And once we begin making exceptions to the provisions of The Wilderness Act, we weaken our defense to those arguing that because no landscape is now free of human trammeling, we should do away with the concept of wilderness all together. Or, how do we argue against those pushing to open up wilderness areas for other activities such as mountain biking. If you are not aware, there is a new Colorado-based organization, The Sustainable Trails Coalition, whose sole purpose is to amend The Wilderness Act so as to allow mountain bikes, chain saws and wheelbarrows in wilderness areas. Where does this end?

The Wilderness Act and the wildlands they protect are under attack like never before. I will defend wilderness because I strongly believe we need intact ecosystems and large contiguous, undisturbed habitats where species can survive by their own wits, with minimal human interference. If we don't maintain the integrity of our wilderness areas, we weaken the heart of our wildlands, and by so doing; we jeopardize the very landscapes all these species require for their survival.

Likewise, I will defend national parks and their charge to allow natural systems to play out, and their authority to restore native species. However, in the case of Isle Royale and its wolf population, importing wolves will almost certainly not be a one-time event, and even if repeated many times, it may still fail in that the wolf's major food source- the moose may go extinct on the island with or without wolves.

I also understand the problem the park service has had, and perhaps still has with The Wilderness Act. Of all the land management agencies, the park service has had the most difficult time embracing this legislation, certainly in the lower 48 states. I don't know what to say other than I wish it weren't so and I hope it isn't part of this Isle Royale issue.

Humans have contributed indirectly to the problem facing the Isle Royale wolves, but it is inherently difficult to retain genetic diversity in isolated island ecosystems, particularly for an apex species such as the wolf that evolved to exist at very low densities spread across extremely large landscapes. This strategy ensured genetic diversity through connectivity even for this naturally low-density species. It appears that the Isle Royale wolves were never, even at best of times, a part of a larger wolf habitat or population. And now their prospects for diversity through connectivity, looks even worse. Available information would suggest that the past 60 years were an anomaly, not a period of normality for the island's very long history. This has even lead some to questioned whether or not wolves and moose are true natives to the island.

This is by far one of the most difficult questions I have faced, but for now I support protecting the wilderness character of Isla Royale over manipulating the island's wolf population. I don't like it either, but this is why I stand where I do on this issue. I don't expect many to change their minds, but I hope we can agree to disagree- with respect.

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