

Ma'iingan Relationship Plan

1837/1842 Ceded Territory

Version 1.0

August 2022

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Great Lakes Indian Fish and Wildlife Commission

ACKNOWLEDGEMENTS

Tribal Elders: Miigwech to Joe Rose Sr., Marvin Defoe, Wayne LaBine, Robert VanZile Jr. and the many other tribal elders and leaders who helped to inform the development of this document.

Reviewers: Jonathan Gilbert Ph.D., Miles Falck, Tanya Aldred and Ann McCammon-Soltis reviewed earlier versions of this document.

Preferred Citation: David, P. 2022. Ma'iingan Relationship Plan: 1837/1842 Ceded Territory. Great Lakes Indian Fish and Wildlife Commission. Odanah, Wisconsin.

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THE RELATIONSHIP WITH MA'IINGAN

This document will attempt to describe the appropriate relationship between the Anishinaabeg and ma'iinganag (wolves) in the 1837 and 1842 ceded territories.

Of all the beings with whom the Anishinaabeg share Aki, there is no other with whom the people share a greater connection, and no other with whom the Ojibwe directly share a common and intertwined fate. As such, the long-term health of the People can only be assured when the ma'iingan population is healthy and vibrant as well.

The goals that are outlined in this plan were informed by a triad of understandings of ma'iingan: 1) traditional Ojibwe teachings; 2) Traditional Ecological Knowledge (TEK) that the Ojibwe have gained over countless generations of co-existing with ma'iingan; and 3) contemporary ecological, biological and social science. It is the intent of the Voigt Intertribal Task Force, who approved this document, that it be transparent about the underlying justifications for the goals it contains. As such, it is appropriate to begin with a summary of some of the primary teachings which informed these goals.

A Teaching: The Creation Story

"After plants, Kitche Manitou created animal beings, conferring on each special powers and natures."
Basil Johnston, Ojibwe Heritage

Ma'iinganag, like all animal beings, are part of the third order of creation. The rock, water, fire, and wind created in the first order needed to exist to create the places where the second order of creation, the plant beings, could grow and thrive. The lush and complex world created by the plant beings in turn made it possible for the earth to welcome the third order - the animal beings – that depend directly or indirectly on the plant beings for their own survival. Ma'iinganag are part of this third order, and are dependent upon all that came before or with them for their own chance at health and abundance.

Finally, in the fourth and final order of creation, the original human was lowered to the earth. This being was last because he was and remains the most dependent being of all, unable to survive without the gifts of the beings – often referred to as the more-than-human beings – that came before him.

The Creator directed Original Man to give names to all of the parts of creation. As Original Man did this, he learned much about creation, including the beauty, benefits, and interconnections of the beings. He also noticed that many of the animals had partners and were part of communities, while he was alone, and felt a loneliness in his spirit. When Original Man shared these observations with the Creator, the Creator responded by providing a ma'iingan for Original Man to walk and talk and play with, and he tasked Man and Wolf with visiting all the Earth's places together.

As Original Man and ma'iingan worked together to complete this formidable task they grew very close, as they came to understand the unique relationship they shared. It is often said they came to be like brothers, but others contend that even this powerful bond fails to capture the full nature of the relationship, saying that Wolf and Man were really one being, parts of a greater whole.

Thus, it must have come as a surprise or a shock when they completed their travels and returned to the Creator, to be told, "From this day on, you are to separate your paths. You must go your different ways. What shall happen to one of you will also happen to the other. Each of you will be feared, respected, and misunderstood by the people that will later join you on this Earth" (The Mishomis Book, Edward Benton-Banai, 2010). In many ways, this teaching of intertwined fates forms the ultimate foundation for the relationship between Anishinaabeg and ma'iinganag.

"And so, you Anishinaabe, if your brother ma'iingan passes out of existence you'll soon follow. You will die of great loneliness of spirit."

Joe Rose Sr., Bad River

A Teaching: The Original Treaties

When Anishinaabe people speak of the Original Treaties, they are talking about the treaties they made with the more-than-human beings they depend upon for survival. The early Anishinaabe people understood their dependency upon the earlier orders of creation. While those beings were not dependent upon humans, the People could not survive without the gifts the other beings provided. Fortunately, the more-than-human beings took pity on the humans and agreed to provide for them, but certain things were expected from the humans in return.

"And all the animals stepped forward and said what they would give to the people, and they did it out of love for the people that wanted to come live in the universe."

Chairman Robert VanZile, Sokaogon Tribe

Ma'iingan assumed many responsibilities, including teaching the Ojibwe how to survive on an often-harsh landscape; how to hunt; how to build stamina and work cooperatively; and importantly, how to raise young in extended family groups. They would also work to keep the deer herd healthy and help protect populations of plant beings important to the Ojibwe from over-browsing by deer. The Ojibwe responsibilities were to view ma'iingan as their relative, to treat them with respect, to think of their best interests, and to be appreciative and humble in accepting the benefits that wolves provide. And, as in the other treaties made with the more-than-human beings, the Ojibwe recognized that the proper relationship with all these beings demanded reciprocity and responsibility. Since treaties are recognized as "supreme law," these tenets have never changed. The Ojibwe not only still respect these treaties, but many tribes have joined other indigenous nations in reaffirming their commitment to them (Global Indigenous Council Wolf Treaty, Appendix 1; Figure 1). And in this context, it is important to acknowledge that wolves hold treaty rights, just like their Ojibwe brothers.



Figure 1. Winona LaDuke and Paul Demain with the Global Indigenous Council Wolf Treaty.

Co-existence with Ma'iingan

While these cultural teachings underlie the primary tenets of this plan, the application of those teachings is also informed by the TEK that the Ojibwe gained from sharing the land with ma'iinganag. Like Original Man, generations of Ojibwe learned about - and from - ma'iingan. Wolf recovery has allowed this learning to start anew in the 1837 and 1842 ceded territories; tribal members and tribal biologists are again being gifted by wolves, as they tell us more about themselves and provide new lessons on living in a good way.

The Ojibwe's successful co-existence with wolves provides an important contrast with the prevailing perspective brought to Turtle Island by Europeans, whose primary interest in wolves was eradication – something at which they proved very adept. While those interests are changing among many in the non-tribal public today, some still carry old biases toward ma'iingan and cling to unfounded myths about the nature and ecological roles of wolves. Of greater concern is that many of the most misinformed retain the greatest influence on state natural resource agencies, whose funding is generally derived from only a small portion (primarily hunters, trappers, and fishers) of the public they are supposed to represent.

Co-existence with wolves can yield understanding and appreciation. A deer hunter holding an overly-simplistic belief that since wolves eat deer, wolves are bad for the deer herd, may only see wolves in a negative light, while a hunter who understands the wolf's role in maintaining the long-term health of the deer herd by selectively preying upon the weak, injured, and diseased may appreciate the benefits wolves provide the herd – especially in the face of diseases like chronic wasting disease. A person only focused on the losses some livestock producers experience from wolves may not understand that most wolves do not kill livestock, or that hunting wolves offers few tangible benefits to Midwest ranchers. A person who is highly fearful of wolves may struggle to understand the minimal actual danger ma'iinganag pose to them and may not be aware that wolves may be reducing his or her chance of hitting a deer on the highway or getting a tick-borne disease. When the Ojibwe share their nuanced and complex relationship with ma'iingan, and illuminate it with new understandings, others may come to see wolves in a different light as well and learn that a healthy relationship with ma'iingan is good not only for wolves, but for humans.

"We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then and have known ever since that there was something new to me in those eyes, something known only to her and to the mountain. I was young then and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view."

Aldo Leopold, Sand County Almanac

Finally, in addition to the insights provided by the traditional teachings and TEK discussed above, this plan is further enlightened by the inclusion of understandings gained from contemporary science. Those understandings can offer insights on the myths often applied to wolves and re-enforce both the traditional teachings and TEK. This triad – cultural teachings, TEK, and contemporary science – all inform and support what follows in this plan.

GOALS FOR THE MA'IINGAN POPULATION

While the Ojibwes' goals for the ma'iingan population can be as numerous and detailed as the goals for their own communities, a small number of primary goals can capture the overarching desires for the ma'iingan population in the ceded territories. In very brief, this may be stated as having a healthy and ecologically functional ma'iingan population occupying all areas of suitable habitat. And while this plan is focused upon the 1837 and 1842 ceded territories, the tribes' hopes for the ma'iingan community do not stop at the ceded territory boundary.

Unlike state wolf management plans, which often attempt to use humans' objectives to define or limit what they consider suitable wolf habitat, this document recognizes that ma'iinganag themselves are best at determining what habitat and range is suitable for them. Thus, at a landscape level, ma'iinganag should be allowed to determine their range and population level. Only this goal allows ma'iinganag to completely fulfill their treaty with the Anishinaabe, for only at this level can they fully provide the cultural and ecological benefits the tribes depend upon, over the greatest area.

This goal also recognizes that ma'iinganag are only able to fulfill their responsibilities when the wolf population is healthy. In the Ojibwe world view, determining the health of the ma'iingan population involves much more than simply determining the number that exist. Like human communities, the demographics of the population are also important, as social structure is critical in wolf packs, so that wolves, like their human relatives, can pass down teachings and properly raise their young. Thus, demographics like wolf density and pack size should again be determined by wolves themselves, and not be altered by negative human influences.

Individual ma'iinganag should also be healthy, and not exposed to dangerous levels of environmental contaminants, or be subject to unnatural levels of diseases or parasites because of human activity.

The recreational harvest of wolves is both culturally abhorrent and incompatible with the goal of a healthy wolf population. In the Original Treaties, the Ojibwe agreed to take only what was needed, and most non-tribal hunters maintain a similar ethical code that contends that killing any animal should only be done for a legitimate reason. As is discussed later in this document, the reasons most often given for wolf seasons (human health and safety, impacts on the livestock or the deer herd, or to keep the population from growing "out of control") are not supported scientifically, and killing an animal to simply experience the act or gain a "trophy" runs counter to both the Ojibwe world view, and to most in the non-tribal community.

The tribes recognize that wolves – like other relatives – sometimes negatively impact some in the human community. While the tribes encourage efforts to reduce and address the losses some livestock producers incur, Ojibwe understanding necessitates preventative and non-lethal programs as a primary response in these situations. Lethal control should only be taken as a last resort, in a timely and targeted manner, in cases where evidence is clear that ma'iinganag were at fault and where non-lethal efforts are ineffective or unworkable. (For greater detail, see *Livestock and Pet Depredations*, below).

Should a state in the ceded territory nevertheless initiate recreational hunting and trapping seasons for wolves, there are several steps which must be taken by the state, including:

- Recognizing that ma'iingan living within reservation boundaries should be stewarded under the authority of the respective Tribe.
- Coordinating off-reservation depredation control efforts with individual tribes if they occur within 6 miles of a reservation or within an alternate buffer area established through consultation with an individual tribe.
- Monitoring wolf populations with a high level of precision and accuracy.
- Consulting and attempting to reach consensus with tribes on harvest quotas. Quotas must recognize the considerable uncertainty associated with population estimates. Quotas must be applied to all state-sanctioned taking, including depredation kill, otherwise lethal depredation control reduces the tribes' share of the quota. Harvest must not reduce the distribution or ecological function of wolves on the landscape. Finally, harvest quotas must not be exceeded, and the tribal portion must be respected.
- Closing public lands to wolf harvest until the state wolf harvest can be adequately controlled to meet these requirements and ensure protection of tribal interests.

In addition, ceded territory wolves should be stewarded as a part of a larger regional population. Ceded territory ma'iingan should connect healthy populations in Minnesota, Michigan, and the central sands region of Wisconsin.

Ma'iingan Population Trends

Ma'iingan is the Ojibwe name for the animal known in English as the wolf. Wolves in the Great Lakes region are sometimes commonly referred to as timber wolves, but this term is falling out of use, as it neither has specific meaning, nor accurately describes the habitat requirements of this being.

Western science also applies a unique Latin name to this being. However, the scientific classification of ma'iinganag in the 1837 and 1842 ceded territory has varied over time and is likely to continue to do so as new genetic analyses are developed and applied, and new understanding is gained and interpreted. Currently, wolves in the region are generally considered to be gray wolves, or *Canis lupus*, in the Latin nomenclature. For the purposes of this document, all wolves found in the 1837 and 1842 ceded territory are considered simply ma'iingan, without further differentiation.

Historical Distribution

The population and range of ma'iinganag in the 1837 and 1842 ceded territories has exhibited marked variability over the last two centuries. Wolves in this area were originally part of a much larger population that covered much of North America, including most of what is now the Lower 48 of the US (Figure 2), and the history of ma'iinganag from the region surrounding the ceded territories provides perspective on the history of wolves within them.

Prior to European contact, ma'iinganag ranged not only throughout the entire 1837 and 1842 ceded territories, but the entire area that would come to make up the states of Minnesota, Wisconsin, and



Figure 2. Historic gray wolf range before European settlement (U.S.F.W.S, 2009).

Michigan. However, wolves were heavily persecuted by European settlers who generally viewed them as threats to livestock, abundant populations of wild game, and humans. In Wisconsin, intensive efforts to eradicate wolves under nearly a century (1865-1957) of state-funded bounty programs ultimately met their goal, and by 1959 wolves were extirpated from the state for the first time since they originally inhabited the landscape (Theil, 1993). Similar efforts in Michigan yielded similar results, although it is thought that a very small number of wolves – measurable by a single digit – may have persisted in remote areas of the 1842 ceded territory in the Upper Peninsula (Michigan Wolf Management Plan, 2008).

In Minnesota, wolves were also heavily persecuted and were considered eliminated from most of the state, including all of the 1837 ceded territory, by the early 1950s (Minnesota Wolf Management Plan, 2001). However, remote areas in northern and northeastern Minnesota provided a bit of a haven for wolves, and a modest population maintained itself there – the only place in the lower 48 states where wolves were not eradicated by human persecution. The Minnesota population, which remained contiguous with wolves in Ontario, is thought to have bottomed out at roughly 350-700 animals in the mid-1960s.

Recovery

After the implementation of the federal Endangered Species Act (ESA) in 1973, the remnant Minnesota population began to increase, likely due to an increasing deer herd as well as ESA protection (Minnesota Wolf Management Plan, 2001).

While lone wolves likely occasionally dispersed through the 1837 Minnesota ceded territory after they were eradicated from the area, it is not clear exactly when packs became reestablished there. A wolf population survey conducted in 1988-89 documented range expansion toward the ceded territory compared to a previous survey conducted in 1978-79, but it was not until a 1997-98 survey was completed that some northern portions of the Minnesota 1837 ceded were considered wolf range. Range in the state has continued to expand; by the spring of 2018, about 3 quarters of the 1837 ceded territory in Minnesota was considered “wolf range,” although only about half of that area was believed to be occupied by wolf packs (John Erb, personal communication). The state is expected to make its next effort to estimate range over the winter of 2022-2023.

More intensive monitoring in the state of Wisconsin provides a more precise picture of ma'iingan recovery in that state. In the winter of 1974-75, after being absent from the state for a decade and a half, a pack was discovered near the Minnesota/Wisconsin border south of Duluth/Superior, near the boundary between the 1837 and 1842 ceded territories. By 1980, the Wisconsin population had grown to include 4 packs in the same general region, while a single pack (of uncertain origin) was discovered in Lincoln County, over 125 miles to the southeast (Thiel, 1993; Wydeven et al. 1995). All five of these packs were located within the 1837 or 1842 ceded territories.

Over the 1980s and early 1990s, these few ma'iingan packs did little but maintain themselves numerically, but they may have helped a new cohort of wolves to become established in the western Upper Peninsula (UP) of Michigan, in the 1842 ceded territory. It is thought that wolves may have also entered the UP from the east, making winter immigrations across the ice from Ontario, and entered the 1836 ceded territory (Jensen et al. 1986). The first contemporary documentation of breeding in Michigan occurred 1989, when a single pair was confirmed in the 1842 ceded territory in north Dickinson County in the central UP (Beyer et al., 2009).

From 1970 to 2004, the Minnesota wolf population displayed marked growth, reaching a level of approximately 3000 animals by the end of this period. Most of this population growth was north of the 1837 ceded territory, although a modest number of wolves had become established in the northern portions of the Minnesota 1837 ceded territory by 1997-98. It is noteworthy that the growth in Minnesota occurred despite an active lethal depredation control program which removed an average of 140 wolves from the population annually from 1992 to 2004 (Ruid et al., 2009). (Lethal control was legal in Minnesota because the Minnesota population was classified as Threatened rather than Endangered under the Endangered Species Act; it has primarily only been legal in Wisconsin and Michigan during periods of delisting, such as from 2012-2014, because wolves in those states have been listed as endangered while under the Act's protection.)

Since 2004, the Minnesota population displayed some years with substantial decline, followed by some recovery in the most recent years. The lowest estimates, from 2013-2016, seem to be associated with both years of relatively low deer abundance (resulting from intentional MnDNR management actions), and the 3-year (2012-2014) period of delisting, during which recreational killing occurred. Over the past four years for which estimates are available (2017-2020), the population has been very stable, ranging from 2,655 to 2,856 wolves, estimates which are not statistically different.

The growth in the Minnesota population over time seemed to initiate marked population growth in Wisconsin and Michigan, particularly within the ceded territories, beginning in the mid-1990s. The recovery in Wisconsin occurred in concert with the reaffirmation of off-reservation treaty rights in the state (David, 2009). After displaying little population growth in the 1980's (the Wisconsin population only grew from 25 individuals in 1980 to 31 in 1989), the growth in the 1990's resulted in the Wisconsin wolf population expanding to approximately 250 animals by the end of the century, with most of these animals being found in the ceded territory. Appreciable annual growth continued for more than another decade, with the population reaching approximately 850 animals in the spring of 2012 (WDNR data).

Growth in the Wisconsin ma'iingan population was interrupted in 2013 and 2014 after wolves in the Western Great Lakes region were federally delisted in the spring of 2012. Delisting resulted in two substantial new forms of human-induced mortality in Wisconsin: lethal depredation control and recreational killing (see Mortality section). The latter was forced upon the state when the Republican-controlled legislature quickly passed a law requiring a recreational hunting and trapping season whenever wolves were not on the federal or state Endangered Species lists (2011 Wisconsin Act 169).

A Note on Contemporary Population Data:

Recent wolf population data has been gathered and summarized at the state level. Each of the 3 states in the ceded territory uses similar but unique methodologies to estimate wolf populations, typically incorporating radio collar data, direct observations, and track surveys. Techniques now used in all 3 states estimate the population level in late winter/early spring, when it is at its lowest point in the annual cycle.

Currently, each state estimates the total wolf population within its borders. However, until 2007 in Michigan and 2021 in Wisconsin, those states attempted to census the wolf population, generating a minimum population count, as opposed to a total population estimate. As a result, population figures made after the change in methodology are not directly comparable with those made before. More detailed descriptions of state monitoring methodologies can be found in the respective state management plans.

The state wolf population began to rebound after the state reduced the harvest quota for the 2014 season, and growth continued when a successful legal challenge to the 2012 delisting returned Endangered Species Act protections to ma'iingan in the western Great Lakes region in December 2014. The Wisconsin population continued to grow until 2017, then showed little change for 2 years before again showing an increase in 2020.

In 2021, the state ceased conducting an annual minimum count of wolves and began estimating the population solely by the use of an occupancy model (OM). The OM had been tested over the 3 previous years (2018-2020); during this period the OM generated a population estimate that was about 14.5% higher than the annual minimum count produced. The spring 2021 population estimate, state-wide, was 1,126 wolves, with a 95% credible interval of 937-1,364. This figure included about 41 wolves living primarily within reservation boundaries. About 84% of the Wisconsin population lived within the ceded territories. This is the most recent population estimate available at the time this document was written. However, this figure applied to the population prior to a devastating sport season that took place in February of 2021 (see Mortality section). While uncertain at this time, it has been estimated that that season, coupled with other forms of mortality and reduced recruitment resulting from the February season, could have reduced the population by approximately 30% (Treves et al. 2021).

Ma'iingan population growth in Michigan followed a similar numeric trajectory as was seen in Wisconsin, with Michigan population estimates frequently lagging Wisconsin numbers by about a year. However, the Michigan population, all located in the UP, stopped growing in 2011. Since 2011, the MiDNR has generally made population estimates every other year. Since 2011, the estimated population has ranged from 618 to 695, and averaged 653 ma'iinganag. The Michigan wolf population did not appear to be appreciably affected by the 2012-2014 delisting period (see Mortality section) due to very low levels of lethal depredation control, and minimal take during a 2013 harvest season limited to areas with above-average livestock depredation levels. (While the northern Lower Peninsula of Michigan has appreciable areas of suitable habitat, to date ma'iinganag have not successfully established a sustaining population in that area.)

Approximate Three-State, And Ceded Territory Population Estimate

While the Minnesota wolf population is the largest of the 3 states, the portion of the 1837 ceded territory which extends into what is now Minnesota is south of the state's primary wolf range, and thus this state contributes the fewest wolves to the ceded territory count. Of the estimated 2,696 ma'iinganag estimated to inhabit the state in spring of 2020, about 173 are estimated to live within the 1837 ceded territory, based on the portion of the area occupied by packs (about 4,623 km²) and average territory size and pack size that year (J. Erb, personal communication).

Unlike Minnesota, most Wisconsin's wolves are found in the ceded territory, with the primary exception being those ma'iinganag that have re-colonized the central sands portion of the state. Of the state-wide population estimate for spring 2021 (before the February hunt) of 1,126, about 952 resided within the ceded territory, including about 41 wolves living primarily within tribal reservations.

Wolves have been documented in every county in Michigan's UP (where the entire Michigan population currently resides (exclusive of wolves on Isle Royale)), but wolf density currently is about 1.8 times higher in the 1842 ceded territory than in the 1836 UP ceded territory. As a result, about 64% of the Michigan population is in the 1842 ceded territory (B. Roell, personal communication). This suggests that of the spring 2020 population estimate of 695 wolves, about 445 reside in the 1842 ceded territory.

Thus, prior to Wisconsin’s February 2021 recreational killing season, the total ma’ingan population in the 3 states likely numbered about 4,500 animals, with over a third of this figure (about 1,570) residing in the 1837 or 1842 ceded territories. While many concerns about the future health of the ma’ingan population remain, there has nevertheless been a remarkable recovery of ma’inganag since 1970, when the 1837 and 1842 ceded territories were devoid of wolves. Today, Ojibwe people may potentially encounter their brother in nearly any part of the 1837 and 1842 ceded territories, and ma’ingan and the Ojibwe may again fulfill their obligations to each other, if the population is properly stewarded for the generations yet to come (Figure 3).

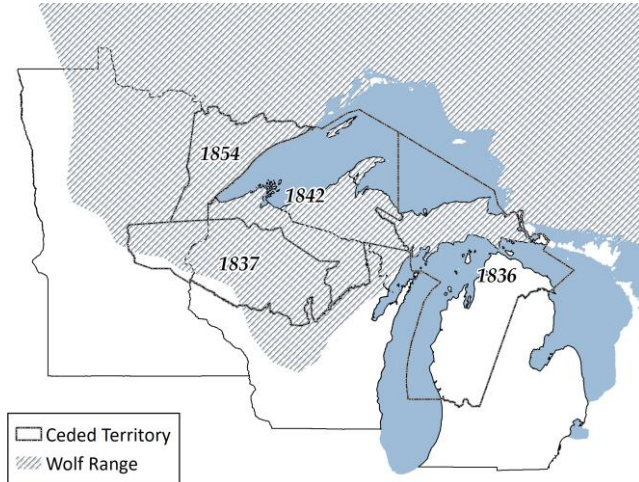


Figure 3. Current range of the gray wolf in the ceded territories of Minnesota, Wisconsin, and Michigan (IUCN, 2022).

Ma’ingan’s Natural Level: The Ceded Territories Potential Biological Carrying Capacity

One measure of the health of the ma’ingan population is how close the population is relative to its “natural level” on the landscape. While this level is not a specific, fixed number – the number of any species will vary over time with changes in weather, diseases, food availability and other factors – wolf populations that are not subject to hunting tend to show only modest year-to-year variation once this level is reached. This level is referred to in ecological science as the biological carrying capacity, or “K.” This level is also important because the benefits (often call “ecological services” in scientific literature) which ma’inganag provide are maximized when wolves reach and maintain this level.

It can be difficult to determine K for any species, especially one that is introduced to a new area or may still be recovering from earlier extirpation. Models have been developed and used to predict K for ma’inganag in particular areas, but models inherently include assumptions that may or may not prove sound. Early estimates of K for ma’ingan in Wisconsin, for example, estimated K at about 500 animals, or less than the half of the recent population estimate for the state, due to faulty assumptions about the suitability of habitat.

Determining K for wolves is complicated by the fact that human-induced mortality – particularly legal and illegal killing – can greatly influence the number of wolves on the landscape. While models can be improved over time, and biologists certainly have learned much over the past 20 years that have helped refine models used to estimate K, the truest determination of K would come from minimizing human-induced mortality and allowing ma’inganag to determine their own level on the land.

Because of their highly territorial behavior and normally limited prey availability, wolf populations at K are typically at very modest levels compared to most other species. In Wisconsin, for example, the black bear population is more than 20x higher than the peak estimates of the wolf population. In addition, wolf populations do not normally appreciable exceed K for even short periods of time (unlike some species). When human-induced mortality is low, and wolves approach K, interspecific (wolf-on-wolf)

mortality often becomes the predominate cause of death in ma'iingan populations, serving to maintain the population at a level appropriate for the environment.

The relative stabilization of the Minnesota wolf population – which has not been hunted since 2014 - suggests that K has been reached in that state and is in the range of 2500-3000 animals. (This assumes that current levels of human-induced mortality, primarily poaching and lethal depredation control, are not significant enough to be maintaining the population below K.) The actual number of wolves on the landscape currently appears to vary from year-to-year primarily in response to changes in the deer population which result from human management or weather impacts.

Similarly, the plateau in population estimates for the Michigan's UP suggest that the wolves may have reached K there as well. This population has not been subject to appreciable levels of sport harvest since recovery, and relatively few animals are taken under lethal depredation control each year. However, the level the population has plateaued at is well below the level of K predicted by some models. A habitat suitability model developed by Mladenoff et al. (2009) developed for the 3-state region suggests that Wisconsin and the UP have about half (52% and 51%, respectively) as much quality wolf habitat (defined as the area with a greater than 51% probability of being occupied) as Minnesota, so K in these states is likely considerably smaller than in Minnesota. While this figure alone is not sufficient to make an estimate of K, the disparity between the population levels in Michigan versus the other 2 states has some biologists concerned that illegal kill in the state may be high enough to impact current population levels. On the other hand, it may be that heavier average snow fall levels in the UP make the area less suitable for both deer and wolves.

While the rate of population growth in Wisconsin appeared to be slowing prior to the February 2021 season, the population has not yet clearly plateaued. Stenglein et al. (2015) estimated K for Wisconsin to be 1242 wolves, a level only about 10% higher than the figure estimated by the WDNR's occupancy model for the population prior to the February 2021 recreational season. That season, and possible future seasons in the state, could prevent wolves from establishing their own level on the landscape.

In short, while the precise level of K in the ceded territory remains uncertain, it appears that the wolf populations in all 3 states of the ceded territory may have been approaching K in the spring of 2021 before Wisconsin had its February season.

MA'IINGAN BIOLOGY AND ECOLOGY: A SUMMARY

A full summary of ma'iingan biology is beyond the scope of this document. However, a basic summary of biological characteristics can be informative for some readers, while providing biological support for certain stewardship actions or policy positions.

Individual Ma'iingan

Wolves are the largest member of the Canid or dog family, which also includes (in the treaty territories) coyotes and foxes, as well as domesticated dogs. They can be differentiated from coyotes by several characteristics including their calls, height, and weight (coyotes weigh about half as much as wolves), and foot size. Facial features also differ, with wolf ears being shorter and rounder than the longer and more pointed ears of a coyote; wolves also have a broader face and snout, which are narrower in coyotes. Nevertheless, with the brief glimpses often gained under field conditions it can be difficult to identify between the two without physical evidence such as tracks. Coyote tracks are typically less than 3 inches long, wolf more than 4 (including nails). However, it can be difficult to differentiate between the tracks of large dogs and wolves.

The table below lists weights for adult wolves in each of the three states in the treaty territory as reported in respective state management plans. In comparison, average weights reported for German Shepherds are 66-88 pounds for males and 49-71 pounds for females.

Table 1. Weights of adult wolves in the Great Lakes region.

Gender	Minnesota	Wisconsin	Michigan*
Males	70-110 lbs	57-102 lbs (ave: 77 lbs)	Ave: 87 lbs
Females	50-85 lbs	46-75 lbs (ave: 62 lbs)	Ave: 76 lbs

* Michigan also reported a weight range of 58-112 pounds, both sexes combined.

Life Span

While wolves in zoos have lived up to 20 years, wild ma'iinganag have challenging lives, and generally are not long-lived. The International Wolf Center (Ely MN) website reports that “many pups don’t make it through the first winter of their lives. Those that survive the first two years have a pretty good chance of living another two to four years if they can avoid fatal injury and if they can get enough to eat. Some wild wolves do live to be 9 or 10, and there are verified records of a few living into their early teens.”

Social Structure: Life in the Pack

Ma'iinganag are highly social animals, and most wolves spend their lives living in packs, which are analogous to family groups. Pack size can range from a mated pair to a dozen or more animals, but averages about 4.1 individuals in Wisconsin, 4.7 in Michigan and 5.1 in Minnesota (see respective state wolf plans). Packs typically consist of the breeding pair (previously often referred to as the Alpha pair), surviving offspring from the previous year, and the current year’s pups, but older offspring or unrelated animals may also be members of a pack. While these reported pack sizes are smaller than many in the public expect, it is in part because of when and how wolves are usually counted: population estimates (including pack size) are generally made in the late winter/early spring, when both packs and the population are typically at their lowest. In addition, a breeding pair of animals is considered a pack, even before pups are born. At other times of the year, and under certain circumstances, wolf packs can be much larger; the Druid Peak pack in Yellowstone National Park once included more than 30 individuals, but large packs are fairly rare in the treaty territories and may split into 2 packs when they do occur. Pack sizes in the treaty territories may also be smaller than in some other areas because white-tailed deer are the primary prey in this area; pack sizes tend to be higher in areas where the primary prey specie is larger, such as moose, elk, or bison.

Wolves in a pack – especially yearlings approaching their second birthday – often face a choice to either remain in the pack in hopes of someday achieving breeding status or dispersing out in hopes of finding a mate and vacant (or assumable) territory as they approach sexual maturity. It is difficult to estimate the number of “lone wolves” that may exist in an area at any time, and the number undoubtedly varies with time of year, availability of vacant habitat and other factors. Estimates tend to fall in the 10-15% range, (Fuller, et al., 2003). However, these estimates are often surmised, or based limited data, and the percentage may be lower when population data is typically gathered than at other times of the year. With the development of GPS tracking collars, some lone wolves have been documented making

remarkable journeys – sometimes of hundreds and even thousands of travel miles, in efforts to find a suitable partner and place to settle. It is quite possible that a single lone wolf could be counted in multiple survey areas as it moves across the land.

Territoriality

While ma'iingan are highly social within their pack, they are also highly territorial beings, and will strongly defend their pack's territory from other wolves. Ma'iingan territories in the 1837 and 1842 Ceded Territories average about 65-70 square miles in size but may vary over time in response to changes in the availability of vulnerable prey and other factors. Since wolves will usually attempt to exclude other wolves from their territory, wolf population growth becomes self-limiting as suitable habitat is occupied. In areas where human-induced mortality is low and wolf populations are well established, wolf-on-wolf mortality is often a leading cause of death. As a result, wolf populations never reach very high densities compared to most species of animals.

Reproduction

Growth in wolf populations is highly influenced by several factors, including their social structure. Wolves are sexually mature at 22 months, but in most cases reproduction within a pack is limited to a single breeding pair. In the 1837 and 1842 ceded territories, breeding generally takes place between late January and early March; with a gestation period lasting 60-63 days, most pups are born in April. Litter size is typically 4-8. Pups are kept at the den site for 6-8 weeks, but by mid-June are moved to the first rendezvous site, an area they occupy while adults are seeking food. Over the summer, 2-3 rendezvous sites will be used. By September/October, the pups have grown enough to begin traveling with adults, and the pack becomes more nomadic over its territory. Pup survival is highly variable, but on average only about 3 out of 10 pups will survive their first year. In addition, various factors, including food scarcity and hunting seasons, can result in a pack failing to produce pups at all.

Diet

Ma'iingan have primarily a carnivorous diet, eating many of the same beings that Ojibwe people eat. Within the 1837 and 1842 treaty territories, the most important animal in the diet is the white-tailed deer, followed by beaver. Studies suggest that a wolf consumes about 16-19 deer a year, and perhaps 10-25 beaver (varying by location, season and even the hunting practices of individual wolves; one wolf in Voyageurs National Park killed and ate 36 beavers in a single year). Wolves also eat smaller animals such as snow-shoe hares, birds and even rodents. Interestingly, we are still learning more about ma'iingan's diet; recently, wolves in northern Minnesota have been documented catching fish, an activity not previously documented on inland waterways. They have also been shown to seasonally consume significant amounts of blueberries, both for their own nutrition, and - by gorging on them and regurgitating them back at the rendezvous site - for the pups (Homkes et al., 2020).

Ma'iingan's Relationship with Prey: White-Tailed Deer

Because ma'iingan in the ceded territories feed primarily on deer, many people contend that ma'iingan must reduce the deer population, and so wolves should be killed so there can be more deer. However, neither traditional Ojibwe nor western science support this contention. Wolves and deer have co-evolved over countless generations, and healthy deer are well equipped to avoid being preyed upon. Unlike human deer hunters, wolves select old,

"Our Reservation home has a healthy deer herd and healthy wolves."

Chairman Mike Wiggins Jr., Bad River

weak, injured, or diseased individuals, contributing to the long-term health of the deer herd. The numeric impact on the deer herd is also lessened in other ways. For example, wolves will feed on deer killed by cars, or killed but not retrieved by hunters. There also are probably at least two forms of compensation for some of the take that does occur: wolves will reduce the number of coyotes in an area, and thus fewer deer are taken by that being in areas occupied by wolves, and a recent study also found that wolves alter deer behavior, reducing the time they spend on roads. This not only saves humans' money by reducing the number of deer/vehicle accidents which occur (estimated at 63x the costs of verified wolf depredations on livestock), but it reduces the number of deer that are killed by cars (Raynor et al., 2021).

"Where there is the ma'iingan, the Anishinaabe know that there will be good hunting."

Marvin DeFoe, Red Cliff

Wolves (and other predators) likely play an important role limiting the spread and prevalence of infectious diseases in deer and elk, including Chronic Wasting Disease (Wild et al., 2011, Brandell et al. 2022). It may take 1.5-2.5 years (or longer) for an infected deer to reach the clinical stage of infection, where humans would be able to observe physical changes in the deer's appearance and behavior. Ma'iingan's sense of smell is extraordinary; by having 50x as many olfactory receptors than humans, the accuracy of their sense of smell is 10,000 – 100,000x better than our own (Vucetich, 2021). As a result, they likely can detect infected animals long before humans observe the behavior changes brought about by the disease. A study of cougars suggested that they select for CWD infected prey (Krumm et al., 2009), and another study found that when captive cougars were fed meat spiked with CWD prions, more than 96% of the prions were destroyed by passing through cougars' digestive system (Baune et al., 2021). While these findings have not yet been confirmed in wolves, both are likely to hold true; in fact, ma'iingan are believed to be more selective for diseased (and injured or weak) animals than cougars because wolves predominantly track, chase, and select ungulate prey, rather than ambush them as cougars do.

In addition, the deer population is impacted by many other factors, including winter severity, habitat quality, human harvest (which is far greater), losses to other predators like bear, coyotes and even bobcats (on fawns), vehicle collisions, and disease (Sitar, K and B. Roell, 2021). Losses to ma'iingan alone simply are not great enough to be a primary factor determining the number of deer on the landscape. Generally, the number of deer on the landscape greatly influences the number of wolves an area can support, rather than wolves determining the number of deer.

However, wolves will affect the distribution and behavior of deer at a very local level. While many sport hunters consistently push for very high deer numbers, over-abundant deer populations can have many negative ecological and social impacts, including crop damage, car accidents, and impacts on wild plant communities (Callan et al., 2013; Sabo et al. 2017). One result of this is that plant communities tend to be more diverse and have a greater abundance of the species which deer prefer where wolves are present. Some of the plants which benefit from this have important uses to tribal members as food or medicines; others are important for the health and abundance of other animal beings.

"Ma'iingan serves an important purpose - to balance the ecosystem."

Conrad St. John, St. Croix Tribe

Ma'iingan's Relationship with Prey: Elk

Both ma'iinganag and omashkoozoog are beings that were native to and then eliminated from the ceded territories. These beings have only relatively recently reestablished populations in portions of their former range within the ceded territories, and time will tell how their relationship will evolve.

There are many similarities in the ecological relationship between ma'iinganag and waawaashkeshiwag and the relationship between ma'iinganag and omashkoozoog. As another member of the deer family, elk are a prey species for wolves. However, elk are much larger than deer, which may serve to their advantage. Their longer legs can allow them to travel more efficiently through deeper snow than deer, meaning they may be able to avoid predation under certain snow conditions. This advantage only lasts until the deep snow develops a hard crust, switching the advantage to being more in favor of wolves.

Omashkooz (elk) were once abundant throughout much of the western Great Lakes region, including portions of the 1837 and 1842 ceded territories. However, as European settlement expanded westward, elk in the ceded territories were extirpated by the mid-1800s due to unregulated hunting and loss of habitat. In 1995, an elk reintroduction program was started when 25 elk were released near Clam Lake, WI. Additional elk were translocated to the Clam Lake herd between 2015 and 2019 to increase genetic diversity, increase the number of breeding age females, and to expand the distribution of elk throughout the designated elk range. An additional elk reintroduction site was established in the central part of Wisconsin (outside of the ceded territory) in 2015. In 2018, the Clam Lake elk herd had grown to over 200 elk, which, by state rule, triggered the first managed, conservative, bull-only elk hunt. By 2021, the post-calving population estimate was approximately 332 (296-365, 95% CI) elk. This remains the only elk population in the ceded territory; the population goal for omashkoozoog in the Clam Lake elk range is currently 1,400 elk. One of the current primary objectives for the elk herd is to maximize herd growth to reach that population goal.

Over the duration of the elk reintroduction program, the elk within the herd experienced many causes of mortality. Since many of these elk were fitted with radio tracking collars, biologists were able to investigate and determine the causes of mortality of some, but not all of the elk that died. Of those sources of mortality that were investigated, biologists confirmed that wolf predation accounted for 122 of 377 known mortalities between 1995 and 2020, or about 5 elk per year. Additional sources of mortality included vehicle car collisions, bacterial diseases, bear predation (primarily of calves), legal and illegal harvest, and drowning, among others. Despite wolf predation being the primary source of confirmed mortality in the Clam Lake elk herd, the rate of wolf predation does not appear to be having a significant impact on the growth of the herd. Like deer, the growth of the elk herd can be influenced by several factors, such as winter severity, habitat, and hunter intensity.

Like deer, elk are also susceptible to chronic wasting disease (CWD), but as of early 2022, no wild elk in Wisconsin have tested positive for the disease. The northern and central herds are in areas adjacent to where CWD has been detected in wild deer, so the risk to wild elk is an ongoing concern. As was described in the ma'iingan-deer section above, large predators like ma'iinganag may play an important role in mitigating the spread and/or prevalence of CWD on the landscape. Efforts are currently underway to design and implement scientific field research on the wolf-prey-CWD relationship.

Ma'iingan's Relationship with Prey: Moose

The only established moose population in the 1837/1842 ceded territories can be found near the northeast edge of the 1842 ceded territory, primarily in what is now part of Marquette, Baraga, and Iron counties in Michigan. This population, while small, has demonstrated slow but overall positive growth since it was re-established by air-lifting moose in from Ontario in 1985 and 1987. The most recent survey of this population, conducted in 2019, estimated the population at a little over 500 moose. (A smaller population, not surveyed but believed to number less than 100 animals, also exists further east in the UP in the 1836 ceded territory, in the vicinity of the Seney Wildlife Area.)

As with many other beings, ma'iingan's relationship with moose likely varies depending on the location, habitat, and a host of other factors, and one may need to use caution on applying findings from one area to another. For example, fascinating insights have been gained from one of the longest predator/prey studies in history, which has focused on moose/wolf relationships on Isle Royale, but the unique conditions which exist on the island may have limited application on mainland populations of either species.

Unlike with white-tailed deer, there has been relatively little public concern expressed about possible negative effects of ma'iinganag on the Michigan moose population. This may be because the population has been slowly building over time - while moose populations in many areas on the southern edge of their range have been in decline - or because hunters hold less interest because this population has never been subject to a harvest season.

While some people blame wolves for moose population declines in other areas, it appears that other factors associated with habitat changes and climate change may be underlying moose decline, as moose have also declined in areas without wolves. High populations of white-tailed deer pose another threat, as a brain worm that has little impact on deer can be fatal in moose. A recent study in northeast Minnesota found that wolves may mitigate this problem to a degree, by acting to separate deer and moose populations, reducing transmission (Oliveira-Santos et al., 2021).

Ma'iingan's Relationship with Prey: Beavers

Ma'iingan's relationship with beavers is complex, and likely varies markedly in different landscapes and with different beaver densities and even the behavior of individual wolves. Beavers are likely the second-most important food for wolves in the ceded territories, but the impact wolves have on beaver populations are not well understood here. In Yellowstone, where beavers were quite rare, wolf reintroduction appeared to increase beaver numbers by triggering a trophic cascade – a “discovery” consistent with TEK teachings about the interconnectedness of all life. In this instance, it was brought about by wolves impacting elk feeding behavior, which encouraged tree regeneration in river valleys, which provided habitat for beaver. In Voyageurs National Park, where beavers are abundant, beaver seem to be an important spring and summer food source but appear to have little impact on beaver population levels (Gable et al., 2020). And on Isle Royale, an increase in beaver populations seemed to be associated with a period of low wolf numbers. Collectively, these findings suggest caution when assuming the impacts of ma'iingan on beaver in particular areas.

However, all these studies also suggest that wolves can indirectly impact hydrology in an area by impacting beaver presence and activity, as well as impacting plant communities which may in turn affect hydrology. Gable et al. (2020) summarized it by stating “By affecting where and when beavers engineer

ecosystems, wolves alter all of the ecological processes (e.g., water storage, nutrient cycling, and forest succession) that occur due to beaver-created impoundments,” another reminder of complexity and interconnectedness of natural communities.

Ma'iingan's Relationship with Prey: Hares and Small Rodents

While wolves will eat many different animals at times, the proportion of their annual diet that does not consist of deer and beaver is relatively small, and given the relatively small number of wolves on the landscape even when their population is at carrying capacity, the direct impacts of ma'iinganag on the populations of other prey species is likely negligible.

However, as a top-level predator, wolves may affect rodents - and many plant and animal species - indirectly, through other examples of trophic cascades. The indirect impacts of wolves on plants, by altering deer behavior, is discussed above. A similar chain is thought to exist regarding wolves, other Canids, rodents, and ticks. Computer modeling suggests this cascade work as follows: Wolves reduce the abundance of coyotes in an area, which allows the population of fox to increase. Fox are the most efficient predators of small rodents which can be important transmitters of ticks, and thus tick-borne diseases (Levi et al., 2012). Thus, healthy wolf populations may ultimately reduce human exposure to tick-borne diseases such as Lyme disease, anaplasmosis, and ehrlichiosis, all of which have a significant presence in the ceded territory.

Ma'iingan's Relationship with Scavengers, Including Ravens

Wolves often are not able to completely consume their larger prey in a single feeding event, and thus many species have been observed utilizing the carcasses of wolf-killed animals, including ravens, eagles, bears, coyotes, fox, and many others. It has been noted that these “subsidies” from wolves are more important to scavenger populations than the remains left by hunters because they are available year-round (Wilmers et al., 2003). In Yellowstone, this provisioning was found to help stabilize the raven population by providing a regular food supply, regardless of winter severity (Walker et al., 2018). The hair left behind at kill sites can be used by small mammals and birds for nest building (Seward et al. 2004). If the prey was a mature male elk or deer, the antlers can provide minerals and nutrients for porcupines, squirrels, rabbits, and various other small mammals. Decomposers, such as invertebrates, bacteria, and fungi can also benefit from the remains of the carcass. Eventually, when the remains of a wolf-killed elk, deer, or moose fully decompose, the various nutrients and minerals enter the soil, which can influence tree reproduction. These biogeochemical “hotspots” in the herbaceous layer of the forest at wolf prey carcass sites may also influence plant biodiversity (Bump et al. 2009). This, in turn, can be one additional factor contributing to healthier forest ecosystems, sustaining life for all beings within the forest. While the subsidy provided to scavengers may be less in the ceded territories than in areas where wolf prey species are commonly larger (like elk), there is little doubt many species in the ceded territories besides humans benefit from having wolves in the ecosystem.

Naturalists and wildlife watchers have recorded many observations of wolf and raven interactions. An unattributed “Native American saying” is that the wolf acts as the raven's tooth and the raven as the wolf's eye. There are many reported observations of ravens attracting wolves to animal carcasses through loud calling; the ravens later benefit by having wolves open the carcass, making parts available for the ravens to scavenge. There are also reports of ravens playing with wolf pups, including playing “tug of war” with them using sticks.

John Vucetich (2021) has even hypothesized that ravens may be part of the reason that wolves hunt in packs, suggesting that packs allow wolves to lose less of the kill to ravens, as more of the kill can be immediately consumed.

These ecological influences of the wolf-prey relationship illustrate not only the importance of large predators like ma'iingan, but also emphasizes the interconnectivity of everything.

Mortality

Natural mortality in wolves can take many forms, including disease, starvation, injury/accident related, and predation, especially intra-specific (wolf on wolf) predation. Human-induced mortality also takes several forms. Non-intentional forms include vehicle accidents, wolves accidentally shot when mistaken for legal game, and wounding loss during recreational killing seasons. Intentional human mortality includes government-authorized killing such as hunting and trapping seasons, lethal control in response to livestock depredations (and rarely pet depredation or human safety concerns), and poaching. Mortality levels can vary significantly from year-to-year. Mortality rates can leap when wolves are delisted from federal protection, particularly in Wisconsin, where a state law requires a recreational killing season to take place (with its associated wounding loss), and lethal depredation control also occurs when wolves' federal status changes from Endangered to unlisted. In addition, research suggests that illegal killing of wolves increases when federal protections are removed (Santiago-Ávila et al., 2020).

While natal year mortality is typically high at about 70%, mortality for wolves 1-year-old and older averages about 35% in stable populations and can be considerably less in populations that are growing, particularly when protected from hunting, trapping and depredation removal. This relatively modest rate of adult mortality is significant because it limits how much the population can compensate for other sources of mortality, including depredation control and recreational harvest.

In Wisconsin, where more than half of the ceded territory wolves live, mortality from illegal and accidental kill is thought to be in the range of 10-19% of the adult population (Stenglein and Van Deelen, personal communication). Estimates of illegal kill in the Minnesota or Michigan are not available, but some biologists are concerned that the relatively low level the Michigan ma'iingan population has plateaued at suggests illegal kill may be even higher in that state.

Lethal depredation control has been on-going in Minnesota, where ma'iingan have always been listed as Threatened, rather than Endangered, when ESA protections are in place. It is also important to note that while lethal removal of depredating animals has been greatest in Wisconsin and Michigan during the periods of delisting which occurred from 2012-2014 and again since January of 2021, lower levels of lethal depredation control also occurred during many other years under special rules (Table 1).

Recreational wolf killing occurred in Minnesota from 2012-2014; in Wisconsin from 2012-2014 and in 2021, and in Michigan only in 2013. Table 2 summarizes the number of wolves killed under state-authorized take in each state since 2010 and shows the great differences between states. Of course, the biological impact of recreational harvest varies not only with the proportion of the population that is killed, but the sex and age of the animals killed. Timing of the killing is also important. For example, when one of the breeding members of a pack is killed in November or December, there may be an opportunity for another animal to fulfill that role before the breeding season arrives in February. Wisconsin's February 2021 wolf season was not comparable to any other wolf season on record by occurring entirely within the middle of ma'iingan's breeding season. There is little doubt that the impact

on the population was greater than just the number of animals killed would suggest, but no post-kill population estimate was available at the time this document was written.

Table 2. Number of ma'iingan killed, by state, through lethal control or recreational killings, 2010 -2021. Number killed is reported by calendar year for lethal control; recreational kill is reported by the year which the killing season began or would have normally began (see footnote). Lethal control primarily consists of killing in response to livestock depredations, but also includes small numbers of wolves killed in response to pet depredations or human safety concerns. Most lethal control is done by USDA – APHIS Wildlife Services staff, but some was conducted by state representatives, or landowners during periods of delisting. Data compiled from various sources including USDA-Wildlife Services Reports and annual state DNR harvest season reports. MI data provided by B. Roell. MN data does not include take by private landowners.

State	Kill Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
MN	Dep. Control	192	202	262 ^a	114 ^a	197 ^a	213	183	190	189	166	216	152	2,276
	Sport			413	238	264								915
	Total	192	202	675	352	461	213	183	190	189	166	216	152	3,191
WI	Dep. Control	14	4	76	65	35	1	0	1	0	0	4	69	269
	Sport			117	257	154						218 ^b		746
	Total	14	4	193	322	189	1	0	1	0	0	222	69	1,015
MI	Dep. Control	5	4	26	12	15	1	6	1	0	1	0	9	80
	Sport				23									23
	Total	5	4	26	35	15	1	6	1	0	1	0	9	103
Total		211	210	894	709	665	215	189	192	189	167	438	230	4,309

^a Includes take by USDA-Wildlife Services and state contracted trappers.

^b Although this killing occurred in February of 2021, the season which would have normally began in 2020 and is shown as such here to make clear it occurred before the 2021 depredation season.

Diseases and Parasites

Ma'iinganag are known to susceptible to a fairly large number of diseases and parasites, including rabies, canine distemper, canine parvovirus, mange, and dozens of different round worms, tape worms, flukes, or other parasites. However, relatively little is understood about the impacts that each may have on wolf populations and learning more about these impacts is challenging. The impact of each likely varies with factors such as the age, condition, and genetics of the infected wolf, as well as previous exposure the population may have had with the negative agent. In addition, since individual wolves often may be subject to more than one disease or parasite at a time, individual effects may be hard to discern, and cumulative effects may be greater than the sum of individual impacts. Although the paper is now nearly 30 years old, one of the most comprehensive summaries of known infectious and parasitic diseases can be found in Brand et al. (1995). In small, isolated, or recently introduced populations, diseases can sometimes have appreciable impacts on wolf populations. An outbreak of distemper in Yellowstone was associated with a 30% decline in the population in 2005 (Almberg et al.,2016), and the introduction of parvovirus to Isle Royale by visitors by dogs resulted caused a crash in the ma'iingan population there (Wilmers et al. 2006), with the population declining from 51 to 14 animals in 2 years.

LEGAL BACKGROUND

To a degree far greater than for most species, ma'iingan's relationship with people has been interwoven with human law. For the Ojibwe, it began with the original treaties - the "Supreme Law of the Land" discussed above - that defined some of the tribes' relationship with, and responsibility towards, ma'iingan. The relationship between non-tribal members and wolves in the US has also frequently been a matter of law, particularly the Endangered Species Act (ESA). There is also some mention of wolves in the court cases associated with re-affirmation of off-reservation treaty rights, but it is quite limited. Finally, legal responsibilities are also woven into the federal government's treaty obligations and trust responsibility to the tribes. Each of these legal constructs not only affects wolves directly but adds complexity to ma'iingan stewardship in the ceded territories.

It is important to note that since ma'iingan is the brother to the Ojibwe, they are considered tribal members. In this understanding, treaty rights which the tribes hold are also held by ma'iingan.

Federal Laws

The most important federal law regarding wolves is the Endangered Species Act (ESA). Wolves were the first species covered by ESA protections. When the ESA was passed, the only wolves remaining in the contiguous 48 states were found in northern Minnesota. As a result, ma'iinganag in Minnesota were listed as Threatened under the Act; in the remainder of the 48 contiguous states, they were listed as Endangered. The most significant practical difference between the two statuses is that in Minnesota, wolves could be killed in response to livestock depredations, but nowhere else; recreational hunting and trapping was not allowed anywhere.

While a full review of the history of ESA protections for wolves in the ceded territory is beyond the scope of this document, it is important to consider the massive swings in state wolf "management" that have occurred when status under the ESA has changed.

In the ceded territories, for example, over the last 2 decades ma'iinganag have been either downlisted (once) or delisted (4 times), with each action eventually being reversed because of legal challenges. The most recent delisting occurred in January of 2021 and led to the disastrous February 2021 Wisconsin hunt. (Another Wisconsin season, planned for the fall of 2021, was blocked by a suit brought in state court.) That delisting was reversed in February of 2022, again reverting wolves to Threatened status in Minnesota and Endangered in Wisconsin and Michigan. Thus, the current federal status of wolves is not consistent across the 1837 and 1842 ceded territories.

The status of ma'iinganag under the ESA is often greatly influenced by their status outside of the "Western Great Lakes" (a term used by the US Fish and Wildlife Service) population. While significant recovery of wolves has occurred in northern Minnesota, northern Wisconsin and Michigan's Upper Peninsula, large areas of historic and currently suitable range in the contiguous 48 states remain unrecovered. Nevertheless, federal delistings have consistently included areas well beyond the region where recovery has actually occurred, one of the factors which has led to delisting reversals. It appears likely that swings in wolf status under the ESA will continue to occur, at least in some areas.

One major issue related to delisting is that states have often responded to them by rapidly initiating wolf seasons, often aggressive ones. As noted above, Minnesota and Wisconsin held annual seasons

during the 2012-2014 delisting period, and the Wisconsin DNR was forced to hurriedly implement the February 2021 season – despite opposition from the Department, which recognized it needed more time to adequately prepare for it – because of the state law requiring a season.

Neither Minnesota nor Michigan held seasons in 2021. Instead, both states initiated consultation with their publics and with the tribes, and both conducted social attitude surveys and began updates to their state wolf plans. These thoughtful and measured responses to the most recent delisting hopefully reflect a positive development in wolf conservation in those states.

Federal Trust Responsibility

Regardless of ma'iingan's status under the ESA, the federal government holds treaty obligations and a trust responsibility to the tribes. What this means in practice regarding ma'iingan stewardship has not been clear, and federal agencies have largely seemed unenthused about embracing this responsibility, especially on off-reservation ceded lands, during previous periods of delisting.

Recently however, there have been two encouraging developments which may suggest greater implementation of these obligations going forward.

In November of 2021, the Department of the Interior and the Department of Agriculture issued *Joint Secretarial Order No. 3403, Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters*. This order includes provisions regarding the development of agreements with federally recognized tribes for stewardship of federal lands and waters, including wildlife and its habitat. This order could create significant opportunities for ma'iingan stewardship in the ceded territory, primarily because of the large acreage of federal lands, especially National Forests, they contain. Because off-reservation harvesting rights are currently limited to public lands, the health of the ma'iingan population and the benefits they provide, is critical on these lands. Nevertheless, harvest from state wolf seasons is often disproportionately taken from these very lands. For example, while only 28% of the Wisconsin ceded territory is public, 80% of the February 2021 kill was reported on public land. A co-stewardship agreement to protect wolves on National Forests would not only greatly protect tribal interests but would help protect Forest Service interests in forest regeneration and maintaining biological diversity.

Precedents exist for closing federal lands in Wisconsin to wolf hunting. The Apostle Islands National Lakeshore does not allow the taking of wolves from its mainland unit, or from Sand or Long Islands, and Fort McCoy is closed to wolf hunting or trapping.

The second encouraging development occurred in January of 2022, when Assistant Secretaries for the Bureau of Indian Affairs and Fish and Wildlife and Parks sent a letter to WDNR Secretary Preston Cole recognizing the tribes' rights not only to harvest species, "but to conserve and protect them to ensure healthy populations and protect vital ecosystems that support the exercise of treaty-reserved rights." Furthermore, the letter indicated that it was the Department's view that Wisconsin must "honor the Ojibwe Tribes' reserved rights, including their right to protect rather than take wolves, as it undertakes the next round of planning for gray wolf hunts under Wisconsin State Law."

Hopefully these two actions signal greater implementation of the federal treaty obligations and trust responsibility in the future and will help secure the health of the ceded territory ma'iingan population.

Ma'iingan and the Endangered Species Act

The intersection of the Endangered Species Act and the Ojibwe world view has long highlighted significant differences behind the two respective cultures. The ESA is a non-tribal construct designed to protect beings whose populations are in serious peril, and has often being described as the “emergency room” of western wildlife management. It played a critical role in allowing wolves in the Midwest to recover and again occupy traditional lands in the ceded territory, and the tribes appreciate and are thankful for its existence.

The divergence in perspectives becomes pronounced when wolves (or other species) become delisted. The respect and concern previously given to species can appear to evaporate with the stroke of a pen, as happened in Wisconsin in February of 2021, when over 20% of the wolf population was slaughtered, in the middle of their breeding season, just weeks after being “wheeled out of the emergency room.” In the tribal perspective, the relationship with wolves should always be respectful and reciprocal, and so there has often been resistance to delisting, as the protections the ESA provides ma'iinganag are seen as appropriate regardless of their biological status.

Similar perceptions towards wolves certainly exist among many in the non-tribal community – and to a clear majority of the non-tribal community in regard to another being: the Bald Eagle. Eagles are held in high cultural esteem by both cultures. The non-tribal community has expressed its desire to protect bald and golden eagles - regardless of their biological status – by creating special legislation (the Bald and Golden Eagle Protection Act) that immediately provided critical protections the moment these beings were delisted from the ESA. Similar legislation has been proposed by many environmental groups for other animals, especially large predators like wolves which hold critical environmental roles but often remain persecuted by certain portions of society. If these kinds of protections were in place for ma'iingan, opposition to delisting would likely pass.



Until the day that may happen, it is worth noting that many of the tenets outlined in this plan align closely with the protections provided species that are listed as Threatened under the ESA, including no recreational harvest, and limited, but possible, lethal control in response to livestock and pet depredations or the very rare instances of human health and safety concerns. When the health of ma'iingan populations is looked at across the contiguous 48, a national listing of wolves as Threatened appears to be a highly reasonable approach, but to date the U.S. Fish and Wildlife Service has not pursued this option.

State Management

When wolves are not under ESA protections, “management” authority shifts from the federal government to the states and tribes. Unfortunately, the impact of state actions typically dwarfs tribal impacts within the ceded territories and can even greatly affect wolves that live primarily within reservation boundaries, because regional reservations are not large enough to contain entire wolf territories.

Wolf management objectives vary by state. Providing recreational harvest opportunity is often an important concern, but this may be changing as some states’ policies become more aligned with the desires of their greater constituencies, rather than just the hunting and trapping interests. Within the ceded territories, Michigan has largely avoided recreational hunting; it held only one hunt during the last two delisting periods and attempted to design that season to specifically focus take in areas with depredation issues.

Existing state management plans in the region have not specifically identified maximizing ecological function and non-hunting social benefits as goals. However, as of 2022, each of the three states is in the process of creating new or updated wolf plans. We hope the states will use this opportunity to infuse more holistic approaches to ma’iingan conservation in their plans.

While the cases which reaffirmed the existence of off-reservation treaty rights were litigated in federal court, they apply most directly to the relationship between the states and the tribes. However, the cases reaffirming the treaty rights in the Wisconsin and Minnesota portions of the ceded territories provide limited guidance on the implementation of the government-to-government relationship in the realm of ma’iingan conservation. Since these cases were between the tribes and the respective states, and since wolves were under ESA protections and federal authority at the time they unfolded, the states held little legal authority regarding wolves at the time. Thus, unlike several species for which extensive management stipulations were created, no ma’iingan management/stewardship stipulation was developed and wolves were minimally addressed.

“We are fighting for our off-reservation rights all the time.”

*Chairman John Johnson Sr.
Lac du Flambeau Tribe*

The relatively small ma’iingan population in the ceded territory at the time of the cases may have also contributed to the lack of attention they were given. In 1991 when the final judgement was entered in the *LCO v. Wisconsin* case, there were just 40 ma’iingan in Wisconsin, and likely no one anticipated the state would eventually have a 4-figure population. In 1999, when the US Supreme Court affirmed the existence of the treaty rights in the 1837 ceded territory, the Minnesota population was much more robust at about 2,500 animals, but ma’iinganag had only begun to extend their range into the Minnesota portion of the 1837 ceded territory.

The tribes’ model conservation codes which were created in the Wisconsin and Minnesota cases do address ma’iinganag in two ways, however. Both codes have provisions which incorporates any plant or animal on the Federal list of Endangered or Threatened species onto the tribal list, and (with very limited exceptions) prohibits the take of these species. During periods of federal delisting, ma’iinganag can still be included on the tribal list of Threatened and Endangered species at each tribes’ discretion. Lacking that action, however, both codes also include ma’iinganag among the list of “protected species,”

which no member can hunt or trap. (The code for the Wisconsin ceded territories lists “timber wolves,” a common name now falling out of use; the code for the Minnesota Ceded Territory lists the now more commonly accepted “gray wolf.”)

The Michigan portion of the 1842 ceded territory has not been litigated in federal court, but tribal codes have extended these protective provisions to the Michigan portion of the ceded territory as well.

Other Court Stipulations

The stipulations from the Wisconsin and Minnesota treaty cases provide additional guidance on the implementation of government-to-government consultation regarding treaty-reserved rights.

In the stipulation from the *LCO v. Wisconsin* case, it was agreed that the DNR “Wolf Committee,” (and any DNR committee that is formed to address management issues of any treaty-reserved resource) shall include a recognized tribal representative as an official member. Further, it was agreed that a consensus approach would be used and that the parties would make all reasonable efforts to reach a consensus in all committees or processes outlined in the stipulation.

The Minnesota case created a *Minnesota 1837 Ceded Territory Wildlife and Plant Resources Committee* to address coordination of resource stewardship between the state and tribes. While this protocol again does not specifically address wolves because they were federally listed at the time the protocol was developed, it sets clear precedent by: assigning the committee the task of developing recommendations on harvestable surplus levels for other species, indicating that the committee shall strive to reach consensus on all issues, and laying out a detailed process for dispute resolution. The primary protocols involved should be amended to add ma’iingan to the current list of species, which includes bear, deer, turkey, and registered furbearers, to which this language applies.

Ultimately, however, it is likely that the courts will never define the full extent of the treaty right, nor every aspect of the appropriate government-to-government relationship it entails. In the end, the best outcomes for ma’iinganag will be achieved when both parties enter the relationship with respect and commitment, and focus upon the health of the ma’iingan population, rather than upon establishing relative legal authority and satisfying the minimal requirements which the court may establish.

On-Reservation Stewardship & Cooperation with Non-GLIFWC Tribes

While the focus of this plan is ceded lands outside of reservation boundaries, reservation boundaries, like state boundaries, have no significance to ma’iinganag, and some on-reservation stewardship issues inherently extend beyond the reservation border.

It is important that states also maintain appropriate government-to-government relationships with individual tribes to ensure that wolves living both on and off reservations are stewarded cooperatively.

USDA-APHIS WI has long worked cooperatively with tribes when depredations have been reported within a 6-mile buffer around the larger reservations in Wisconsin, including Red Cliff, Bad River, Lac Courte Oreilles, and Lac du Flambeau (as well as the Menominee/Stockbridge Munsee complex), allowing for joint investigation and decision making.

And while Wisconsin recognized the borders of several reservations and closed them to recreational wolf harvests, similar buffer areas have not been put in during these hunts, leaving ma’iinganag which

live primarily on tribal lands subject to harvest when they step off the reservation. This situation has been even worse in Minnesota and Michigan, which allowed hunting and trapping on non-tribal lands within reservation boundaries when recreational seasons were in place. It is incumbent upon the respective states to work with tribal government to address these issues in a cooperative manner. Failure to do so is only likely to trigger conflict.

Of course, many regional tribes that are not members of GLIFWC share many of the relationship tenets described in this plan and hold similar desires for the wolf population. We welcome opportunities to work cooperatively with these tribes to advance common concerns and promote a healthy and appropriate relationship with ma'iinganag within the ceded territory and beyond.

Finally, GLIFWC staff welcome requests from our member tribes to provide biological advice and expertise related to wolf stewardship as requested.

Livestock And Pet Depredations

Although ma'iinganag only depredate livestock on a small number and percentage of farms in the ceded territory, livestock interests often oppose ma'iingan population goals that are necessary for a healthy and biologically functional wolf population. They also have significant political clout. Depredations can also sometimes cause appreciable hardships for individual livestock raisers. Thus, it will remain important to work with the agricultural industry to gain greater support for healthy wolf populations.

Most agencies charged with responding to livestock depredations use some mix of lethal and non-lethal responses to depredations. However, in many areas, lethal control (or attempts at it) have often been the primary response, and significant funds have been applied in the process. Surprisingly, studies on the effectiveness of lethal control have been quite mixed in their findings. Results appear to be affected by the scale at which evaluation is conducted, and evaluation can be difficult when wolf populations are growing over the evaluation period, which has often been the case.

Several studies have found that lethal control was ineffective at reducing depredations when examined at regional or state-wide levels (Wielgus and Peebles, 2014; Musiani et al., 2005; Harper et al., 2008) and sometimes were associated with increases in depredations. Harper et al. also looked at local farm clusters and found reduction in future depredations only on sheep farms and when one or more adult male ma'iinganag were removed.

Two papers have shown reductions in subsequent depredations (Bradley et al., 2015, and DeCesare et al., 2018). The effectiveness of lethal control varied with how quickly it was applied, the size of the wolf pack involved, and the number of animals removed. However, both studies were conducted in western states (Montana, Idaho and Wyoming, and Montana, respectively). Livestock rearing practices are very different in those states than in the Midwest. In addition, depredations in those states peak in the fall versus in the spring in the Midwest, and wolf pack sizes also tend to be larger. Collectively, these differences suggest it may be unwise to assume similar results will be found in the ceded territory, and the need for rigorous studies at a local level remains.

Non-lethal and preventative actions also show benefits. Most recently, USDA APHIS in Minnesota reported that in the two years their conflict prevention program has existed (2020-2021), there has

been no verified wolf damage inside turbo fladry-protected areas or where other non-lethal prevention activities have been deployed (USDA-Wildlife Services Report, 2021).

Until the relative effectiveness of lethal, non-lethal and preventative responses to livestock depredations is better understood, all these approaches will likely continue to be used in all three states in the ceded territory. It is notable that the long-term use of lethal control in Minnesota - in the absence of sport harvest - did not prevent that ma'iingan population from growing and expanding into Wisconsin and Michigan.

With these considerations in mind, the Voigt Task Force has supported the role of government agents in verifying wolf depredations and determining the appropriate responses to them. The Task Force supports the use of non-lethal responses wherever reasonable and effective, but has not opposed the limited use of targeted, lethal control in instances of verified wolf depredations as a last resort where non-lethal approaches have proven impractical or ineffective.

This same policy applies to the loss of pet animals, but not to depredations of hunting dogs that occur in the act of hunting, or training to hunt.

Hunting Dog Depredations

Hunters assume numerous risks when training or hunting with their animals. Dogs may suffer accidents, injure themselves, be hit by vehicles, or be hurt or killed by the animals they are pursuing. These risks are inherent in these recreational activities and must be accepted by the dog owner who voluntarily subjects their dogs to them. Wolves should never be killed in response to depredations on dogs that occur in hunting or training situations.

Of the 3 states included in the ceded territory, dog depredations are highest in Wisconsin. From 2011 to 2018 (years with data available to GLIFWC from both states), dog depredations in Minnesota were 71% lower than in Wisconsin (average of 9.5 per year versus 32.5), despite the ma'iingan population being about 2.5 times higher in Minnesota. A study which compared wolf hunting dog depredations between Wisconsin and Michigan also found the relative risk of depredation to be 2.1–7.2 x greater in Wisconsin than Michigan (Bump et al., 2013).

The high levels of dog depredations in Wisconsin compared to the adjacent states appears to rest on regulatory differences between them. Minnesota does not allow hunting bears with dogs, and bear baiting in Michigan –where dogs can be used to hunt bears - begins nearly 4 months later than in Wisconsin. Bait stations appear to act as focal points which can lead to dog depredation events by putting wolves and hunting dogs in proximity.

The timing of hound dog depredations in Wisconsin is highly seasonal. And most depredations occur during the bear training period, rather than the hunting period (Bump et al. 2013). This is likely because during the training period, wolf pups are less developed and less mobile, and are still living at rendezvous sites. Their immobility makes it difficult for wolves to avoid confrontations with roaming dog packs, and the pups' vulnerability triggers aggressive protection by adults.

Wisconsin also is the only state in the ceded territory where it is legal to hunt wolves with dogs. As the February 2021 season showed, this is a highly effective but poorly regulated method. And it is possible this method may be increasing wolves' hostility towards dogs.

These factors suggest that certain regulatory changes, such as shortening the training or baiting period or banning the use of dogs to hunt bears, could substantially reduce the number of hunting dog depredations that occur in Wisconsin. However, to date hound hunting interests have eschewed restricting their activities in any way, and instead have proposed reducing the wolf population down to biologically unsound levels so they can enjoy their sport with fewer losses.

EDUCATION NEEDS

The need for accurate and effective education regarding ma'iinganag is great, yet it tends to be chronically under-addressed. There are still many people who grew up being taught wolf falsehoods and many anti-wolf organizations continue to advance these myths to advance their agenda. While it can be very difficult to alter the opinions of adults who reject science, youth or individuals with an open mind often come to understand the important ecological role of wolves and the benefits they provide. Social surveys of the general public suggest that educational efforts have been effective in changing attitudes. For example, a recent survey of Minnesota residents (Schroeder et al., 2020) found high levels of support for wolves, with 86% wanting about the same or more wolves in the state, and nearly 89% wanting about the same or more area occupied by wolves. In addition, more residents opposed hunting and trapping seasons than supported them (hunting: 48.9% oppose, 40.5% support, 10.5% neutral; trapping: 58.1% oppose, 30% support, 11.9% neutral). While state DNRs and politicians often remain more responsive to hunters, trappers, and other special interest groups, increasing public support for a sound relationship with ma'iinganag will hopefully eventually result in greater responsiveness to the public, and a greater embracing of science by policy-setters.

Education can take many different forms, and the most effective differ by audience. While the general public remains an important audience, deer hunters may be an especially important group to target. This group may be less imbedded in their opposition to wolves than bear hunters (particularly in Wisconsin) or livestock producers. In addition, while some will resist the idea, at a landscape level, deer hunters directly benefit from wolves' role in maintaining deer herd health, especially regarding diseases such as CWD. Effective education of deer hunters should eventually lead to greater support for wolves from this influential group.

Education is also needed to debunk the falsehoods which have long surrounded wolves. Both TEK and contemporary science can help dispute these falsehoods, and help people understand that many of the reasons given as to why wolves should or need to be hunted are unfounded. While a full review of these arguments and their rebuttals is beyond the scope of this document, it is worthwhile to review some of the primary ones here:

Human Safety Concerns

Many people grow up being taught to fear wolves, but fear, and actual risk of harm, are very different things. While wolves should always be treated in a respectful manner, and people should never habituate wolves to human presence, ma'iingan typically avoid people, and present very little risk. Many other animals and natural events pose far greater risk of harm, including bees, dogs, cattle, and lightning strikes. The National Highway Traffic Safety Administration estimates that nearly 200 Americans die annually from deer/vehicle accidents, while there have only been 2 documented cases of wolves killing humans in North America in modern history, one of which likely involved a wolf that had been

habituated to human presence. Given the recent study which found that wolf presence reduces the frequency of deer/vehicle collisions in Wisconsin (Raynor et al., 2021), wolf presence may overall benefit human safety.

In addition, in the very rare situations in which individual wolves act boldly or threateningly around humans, an immediate and targeted reaction by government agents is an appropriate and effective response. The argument that human safety issues justify a general hunting season is without merit.

Livestock Depredation

The negative impacts of ma'iingan on livestock is often presented as a substantial problem for the industry, and wolves have been documented killing a wide range of livestock ranging from cattle to chickens. Nevertheless, while ma'iingan depredations can be important and painful for some individual ranchers, depredation losses to wolves at an industry level have remained extremely small. For example, the US Department of Agriculture estimated that from 2019-2022, Wisconsin supported about 3.46 million cattle or calves annually, and reported that the average number of cattle or calves slaughtered in the state over 2019 and 2020 was 1.41 million (Tyler Heep, USDA, personal communication). From 2010-2018, the average number of confirmed depredations (killed or injured) of cattle in the state was 47. Thus, the number of confirmed cattle depredations in a year is similar to the number that are slaughtered every 20 minutes. While acknowledging that not every wolf depredation is confirmed and that many of Wisconsin's cattle live outside of primary wolf range, it nevertheless places the level of threat the wolf population creates for the Wisconsin cattle industry into perspective. And this impact is further reduced because unlike for losses to other predators like coyotes and bears, ranchers can be reimbursed for losses caused by wolves. In addition, losses to coyotes are likely reduced in areas occupied by wolves. Thus, while the ranching industry may face many challenges, losses to wolves is clearly not a significant one.

Regardless of the exact level of negative impacts that ma'iinganag may have on livestock producers, there are two related questions that must be considered if one is attempting to justify a hunting season on the basis of depredation losses: 1) does hunting reduce future depredations or not, and 2) do depredation losses outweigh the positive benefits ma'iinganag provide?

Evidence that hunting wolves reduces livestock depredations is extremely limited. A Montana study found that public harvest only reduced the number of statewide depredation events by 6 per year (DeCesare et.al., 2018).

Scientifically defensible data originating within the ceded territory or surrounding states is even more difficult to find, but some insights may be gained from depredation records.

If recreational hunting did reduce future depredations, one would expect fewer depredations would occur in the years which follow years with hunting seasons, versus years without them. Minnesota held hunting seasons from 2012-2014, which would presumably affect the 2013-2015 "depredation years."

While the sample size is very small (3), an average of 19 fewer verified depredations of cattle and poultry were recorded over the 2013-2015 period compared to other years over the 2011 – 2021 period (69 versus 88 confirmations per year) (USDA-Wildlife Services Report, 2021). The lower average was attributable to 2013 and 2014; 92 verified depredations occurred in 2015, slightly higher than the

average for the years not following hunts. The average recreational kill during this period was 305 wolves per year.

One might also expect the number of wolves killed in lethal depredation control to decline in years following years with hunting seasons. Depredation kill was markedly reduced in 2013, but kill was slightly higher than the average of years not following hunts in 2014 and 2015.

Of course, these correlations may be happenstance. Other factors likely also affect depredation levels. Winters which are severe for deer, for example, may make more food available for wolves, and result in fewer livestock depredations. In short, available data is inadequate to draw firm conclusions about the impact that hunting seasons had on livestock depredations in Minnesota.

Attempting to do a similar evaluation for Wisconsin is even less informative, since lethal depredation control also greatly increases during periods of delisting when wolves are also hunted, making it impossible to determine the effects of each. Nevertheless, the hunting seasons from 2012-2014 would be expected to reduce depredations from 2013-2015, and indeed, it initially appeared that this occurred. The record high levels of depredations seen from 2010-2012 (ave. 110 depts/year) fell 27% over the 2013-2015 period (ave. 80 depts/year). However, depredation levels remained low from 2016-2018, when no hunting was occurring (ave. 77 depts/year), and the wolf population was increasing, suggesting the reduction in verified depredations from 2013-2015 was likely not a result of the hunting seasons. Some have hypothesized that the low level of depredations in 2014 was due to the severity of the 2013-2014 winter, which had the highest winter severity index for deer since Wisconsin began collecting data in 1960. Similarly, some have suggested that the greater use of non-lethal responses to depredations in Wisconsin compared to Minnesota may, at least in part, explain why depredations have not increased with the wolf population in Wisconsin. The on-going lethal control of wolves in Minnesota may create voids that are filled by naïve wolves, perpetuating the problem, while Wisconsin wolves may be learning to avoid livestock through the use of non-lethal techniques, and even pass this knowledge on to subsequent generations.

The Wisconsin 2021 February season provides insight on why hunting seasons appear to have little effect on depredation levels. An analysis by Wisconsin's Green Fire (2021) found that of the 218 wolves killed in that season, only 9 (4.1%) were killed within 5 miles of a previous depredation location, 26 (11.9%) between 5 and 10 miles, and the remaining 183 (83.9%) more than 10 miles from the nearest verified depredation. Thus, given typical wolf territory sizes, the vast majority of the ma'iinganag killed were not involved in depredations. A disproportionate amount of the February kill came from public lands. While only 28% of the Wisconsin ceded territory is public, 80% of the February 2021 kill was reported as occurring on public land. Thus 4 out of 5 wolves killed came from the very areas most people consider optimal wolf habitat. This is similar to the findings of DeCesare et. Al., (2018), who found that 83% of livestock depredations, but only 41% of the sport harvest, occurred on private land in Montana.

It is also possible that wolf hunting could lead to increased depredations. Wolves are intelligent beings, and some seem to learn to live near livestock without preying upon them. However, if such a pack is stressed, such as through the loss of important pack members in a hunting season, the remaining animals may be more likely to depredate to survive.

It is difficult to fully measure every negative impact wolves may inflict on livestock, just as it's difficult to quantify every positive impact wolves provide. Undoubtedly not every wolf kill is verified, and non-lethal impacts, such as possible weight loss, are challenging to document and measure. Similarly, while the study of deer/vehicle accidents suggests Wisconsin citizens save \$10.9 million a year due to wolves reducing deer presence on roadways, other major economic benefits such as improved tree regeneration, remain unquantified. However, there is scant evidence that recreational harvest seasons, at least as currently conducted, provide meaningful relief to the small number of ranchers experiencing losses, and the benefits of wolves appear to clearly outweigh their negatives. As with public safety concerns, timely and targeted responses by government agents are more likely to effectively address depredations when they occur.

Finally, research and active management to reduce the number of depredations which occur is generally seen by both wolf advocates and livestock interests as the best outcome of all. In 2020, USDA Wildlife Services in Minnesota gained funding that enabled them to substantially expand the non-lethal component of their wolf depredation program. This dedicated funding has "provided the tools and evidence to demonstrate to livestock producers and others that non-lethal preventative activities can be used to reduce wolf-livestock conflicts before damage has occurred in Minnesota" (USDA-Wildlife Services Report, 2021). Future plans for this funding include helping ranchers with proper carcass disposal, which is frequently a challenge in winter months, so that these carcasses don't attract wolves to livestock operations. Clearly, non-lethal tools can be an important component of livestock depredation management.

Population Control

Some individuals contend that the wolf population will grow "out of control" if not hunted. This is simply false. As noted above, ma'iinganag are highly territorial animals, and the combination of that behavior, and the typically limited levels of available (i.e. sick, injured, weakened) prey naturally keep wolf populations at very low levels compared to other wildlife species (or to people). Wolf populations have plateaued at modest levels in Minnesota and Michigan and were likely very close to doing so in Wisconsin prior to the February 2021 season. (The most recent population model (Stenglein et al., 2015) estimated carrying capacity in Wisconsin at 1242, including ma'iinganag living primarily within tribal reservations.)

It can also be helpful to place wolf numbers into context by comparing them to other species in the region. In Wisconsin, for example, the highest estimated wolf population in the state since recovery has occurred was about 1,126 wolves, counted at the low point in their annual cycle. Trumpeter Swans, still considered uncommon in the state, now number about 6,000. WDNR estimates the black bear population is over than 24,000, and it was believed to be over 28,000 in the mid 2010's. And the estimated deer population, *after* the 2020 hunt, was over 1.6 million, and about a half million higher than the post hunt estimate from just 6 years earlier. Of course, all these figures are dwarfed by the human population. The 2022 estimated human population for Wisconsin was 5.9 million; since 1980, the Wisconsin ma'iingan population has increased by 1,100; the human population by 1.2 million.

Wolf Impacts to the Deer Population

It is perhaps both surprising and not surprising that the myth of wolves reducing deer abundance has endured as long as it has. Many people assume that since ma'iinganag eat deer, they must reduce the deer population, but natural ecosystems cannot often be reduced to such simple calculations.

Unlike many contemporary deer hunters who view wolf sign in their hunting areas as a negative, tribal hunters and early Europeans explorers recognized the relationship between the abundance of wolves and the abundance of game animals. For example, on August 9, 1831, Henry Schoolcraft (1975) was canoeing about 18 miles south of what is currently Rice Lake, Wisconsin. He noted in his journal that "During the night wolves set up their howls near our camp, a sure sign that we were in deer country."

While wolves may affect the abundance of deer at a very local level, there is no evidence supporting the contention that wolves reduce deer at any type of landscape level.

Deer and wolves have co-evolved for at least one million years (Nelson and Mech, 1981), and deer have clearly been resilient to wolf predation. Few question the idea that both ungulate and wolf numbers were very high when Europeans first came to Turtle Island, suggesting wolves were not limiting prey abundance.

Killing a healthy deer is neither an easy nor a risk-free undertaking for ma'iinganag. Thus, wolves select young, old, injured, weakened or diseased prey. Culling these animals can have an effect like pruning an orchard; it improves the productivity and long-term health and vitality of the population.

Wolves are also only one of many factors affecting wolf abundance on the landscape. Human harvest, weather impacts, habitat quality, vehicle collisions, disease, and other predators such as bear, coyote and even bobcats, all take adult deer or fawns. In this complex environment, wolves simply are not a dominant force in determining deer numbers (Sitar and Roell, 2021).

In addition, not every deer eaten by wolves reflects a true reduction in the deer population. Wolves will readily take advantage of car-killed deer, or will take animals that have died, or are near to dying, from disease, malnutrition, hunter-inflicted wounds, or other factors.

And perhaps counter-intuitively, wolves reduce some other forms of mortality for deer. The study which indicated that wolves reduce deer/vehicle accidents primarily by affecting deer behavior suggests that the number of deer killed by cars is reduced to some extent where wolves are present; the same is true of losses to coyotes, whose abundance is reduced in areas occupied by wolves. And as noted earlier, ma'iinganag likely reduce the distribution and prevalence of infectious diseases. All these factors reinforce the traditional teaching that wolves help maintain the health of the deer population across the ceded territory and elsewhere.

Thus, under normal circumstances wolves do not determine the number of deer on the landscape, so much as the number of deer determine the number of wolves. The ecologically minded deer hunter can return to the old understanding that seeing wolf sign is a reflection of a healthy deer herd in the area.

Finally, it should also be noted that while many deer hunters are never satisfied with the number of deer on the landscape, over-abundant deer populations can have highly detrimental impacts on forest health,

and, through increased disease transmission, even the health of their own populations. As has been discussed, wolves can provide positive benefits in both these realms.

Economics of Harvesting Wolves

The notion that hunting wolves can provide important income to hunters and trappers is the only common argument given for hunting wolves that does not hinge on their supposed negative qualities. Most Ojibwe feel that killing ma'iinganag only for their skin is abhorrent. However, this justification also fails from a purely financial analysis as well when applied to state wolf hunters, who collectively pay significantly to hunt wolves. For example, over the last 4 Wisconsin wolf seasons, the application and license fees collected by the state exceeded \$1,525 for each animal harvested (GLIFWC unpublished data). These costs alone greatly exceed the value of the pelts (or in rare cases mounts) gained, and hunters and trappers obviously have other costs (including time, travel and equipment) associated with participating in the hunt. Only state DNRs generate income on wolf seasons.

In addition, if the individuals and organizations advancing this justification were sincere, they could be expected to support high population goals and be opposed to killing wolves during their breeding period. In most instances that has not been the case, indicating that this contention has been advanced as a false justification for killing wolves.

As each of these falsehoods is debunked, the primary motivations for killing wolves are exposed. These largely consist of killing simply to gain a trophy, or, for some (especially hound hunters who have had dogs depredated by wolves), to gain revenge for their losses. These reasons fail to meet the Ojibwe perspective that killing any animal needs to be based upon need, or the ethic of many sport hunters, who similarly contend that an animal should only be killed for a legitimate reason.

POPULATION MONITORING

The intensity of population monitoring that is required depends upon other management/stewardship decisions. Any time a state is implementing hunting seasons, annual population data should be collected. Alternatively, wolf populations not subject to annual harvests can generally be more lightly monitored, potentially saving natural resource agencies and their cooperators the substantial costs associated with annual surveys.

All 3 states in the ceded territory currently use reasonable approaches to monitoring the wolf population within them, and a duplication of these efforts to track the ceded territory population is not feasible or justified. However, if staffing permits, it would be beneficial to have tribal natural resource staff cooperating in each state's efforts to maximize our understanding of the strengths and weaknesses of each approach. For this to happen, however, the cooperation must include more than simple data collection and sharing but extend to participating in the process of generating the population estimates and interpreting the results.

It has always been difficult to know how sensitive each method is to changes in the wolf population. All methods ultimately rely on 3 basic parameters: how big is the area occupied by wolves, what is the average territory size, and what is the average pack size. Each of these parameters can be mis-measured. Average pack or territory size can be biased if most of the data is collected from non-random locations, such as only in core parts of the range, or areas with the highest prey abundance. Similarly,

some areas which might be considered occupied may not be – particularly if packs are removed or break down as a result of hunting seasons. The limitations of each method, and consideration of the wide confidence intervals they generate, should be considered anytime population model data is used to inform quota setting for state seasons.

RESEARCH NEEDS

While wolves have been heavily studied and a substantial body of TEK and western science knowledge exists, much remains to be learned, and the controversy which continues to surround the human/ma'iingan relationship spurs the need for further study. Some high-priority needs include:

Effectiveness of Lethal, Non-Lethal and Preventative Responses to Livestock Depredation

While various studies have attempted to look at the effectiveness of lethal or non-lethal responses to livestock depredations, results have often been conflicting. In addition, the studies showing the strongest positive result from lethal control have largely come from western states; the great differences in cattle husbandry from those areas compared to the Midwest raise questions about their applicability here. Development of cost-effective techniques to prevent depredations is supported by both agricultural and wolf conservation interests.

Chronic Wasting Disease (CWD)

It would be very valuable to better document ma'iingan's selectivity for CWD infected deer, and the impact of wolves' in reducing the spread of the disease. Although contrary to the Ojibwe world view, humans often weight the value of other beings primarily on the direct impacts they have on us. While wolves likely are selective for CWD infected deer and have positive impacts on prevalence of the disease, better documentation of their level of selectivity, the viability of prions that have passed through ma'iinganag' digestive system, their overall effect on disease prevalence, and the loss of this effectiveness that might result from reducing wolf populations below carrying capacity all could have important stewardship and education applications.

Evaluation Of Wolf Population Estimation Methods

Sound population figures are critical when wolves are subject to killing seasons. While the methods used to estimate populations by each state generate useful figures, they have wide confidence limits around them, and it is unclear if they function as well when applied to harvested vs unharvested populations, especially in instances where packs are lost as a result of hunting.

Health Assessments

True determination of the health of the wolf population goes beyond simply estimating the number that exist but should include understanding the health of individuals in the population, especially given the low levels which characterize wolf populations. An immediate need is to better document heartworm levels, but general monitoring of population health should be an ongoing activity. At a minimum, necropsies should be performed on an adequate sample of animals killed in any state-authorized activity, and special emphasis should be placed on examining any animal killed in the breeding season.

Harvest Models

Harvest of any species with small populations requires the utmost care. While we oppose the recreational harvest of wolves, states may unfortunately continue to have seasons. The model by Adams et al. (2008) has been frequently used to set, or at least inform, quota setting by states in the ceded territories. However, there are several reasons why this model is likely inappropriate to use in the Midwest and may result in overharvest. Problems include: 1) most of the studies which the model is based upon were of relatively small areas, in remote locations, surrounded by areas with low wolf harvest. At this scale, immigration from surrounding areas can make high harvest levels sustainable; the authors recognized that and concluded that wolves were able to compensate for the high levels of human induced mortality in these studies “primarily via adjustments in dispersal components (i.e., local dispersal, emigration, and immigration), whereas responses in productivity or natural mortality have little or no role in offsetting harvests.” However, these components lose their functionality when applied at a state-wide scale (when few wolves cross state lines), and/or at areas on the edge of wolf range where immigration from unoccupied range is not possible. 2) Most of the base studies also came from areas with very long seasons, and with limited access. Losses to poaching, vehicle accidents and lethal depredation are very low in these study areas and not comparable to the Midwest. 3) This model does not consider where the wolf population is relative to carrying capacity, suggesting the same harvest rate is sustainable at any level of the wolf population. This premise is contrary to basic population dynamics. It appears that regular application of this model may drive the population towards roughly $\frac{1}{2}$ of carrying capacity, resulting in a significant loss of the ecological and cultural benefits ma'iinganag provide. More refined harvest models are needed if states continue to implement hunting seasons.

Impacts of Recreational Harvest on Ma'iingan Packs and Populations

Harvest seasons tend to focus only upon numbers: the number to be killed, and the number expected to survive. But ma'iinganag are highly social animals, and harvest seasons can have significant impacts on the social structure of a pack or the demographics of the population. These changes may in turn have repercussions on wolf behavior, such as the ability to transmit intergenerational knowledge, or alter the likelihood of committing depredations.

Harvest could also affect wolf density and reduce their ability to regulate disease prevalence or enhance tree regeneration or plant diversity.

The relatively unsophisticated season structures that have often been in place also results in very non-random distribution of harvest, particularly in Wisconsin, in seasons where a significant portion of the harvest comes through the use of hounds. Harvest can come disproportionately from public lands, and hounders can organize their killing to intentionally remove entire, specific packs.

Wisconsin wolf hunting regulations also allow the season to extend into the wolves breeding season. Killing wolves at that time undoubtedly reduces recruitment more than killing wolves months earlier.

In short, our understanding of the impacts of sport seasons on ma'iingan packs and populations is very limited, and merit better understanding if states continue holding hunting seasons.

SUMMARY

The Ojibwe world view, coupled with TEK and western science, creates a sound and defensible framework for the human/ma'iingan relationship. The ancient relationship between these two beings, as formed in the creation story and formalized in the original treaty with ma'iingan, still is appropriate and applicable today. Only by embracing this relationship can the benefits the treaty yields to humans and ma'iingan be fully realized.

In this relationship, ma'iingan is respected and appreciated. Ma'iinganag determine their own range and population levels; they live in healthy families as an integral part of an ecological community, and they provide the gifts only they can provide to all in that community, including ourselves. The ma'iingan community is not punished for the actions of a few, and are not killed for recreation or vengeance.

This, in brief, encapsulates the treaty that was made, and that will be honored.

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Appendix 1. Global Indigenous Council Wolf Treaty

The Wolf: A Treaty of Cultural and Environmental Survival

THE WOLF IS KNOWN BY MANY NAMES . . .

Hó'nehe. Shó'to'nga. Cheétxiilisee. Šungmánitu thánka. Ómahkapi'si. Mélemštye. Makoyi. Bia isa. Hooxei. Ruv. Tha:yö:nih. Okwaho. Othahyu-ní. Ma'iingan. Skiri. Nci'cn. Kwewu. Wahya. Himíin. Shin-ab. Tséena. The wolf (*Canis lupus*) is known by many names and for time immemorial has held an esteemed place in the cultures and lifeways of the original inhabitants of this continent. The wolf has guided and influenced indigenous people in a foundational way, literally since the beginning of time. The wolf brought knowledge and understanding of Mother Earth that is mirrored in the stars. The wolf has influenced indigenous societal structures through the pack, imparting the communal responsibility to sustain life. The wolf taught many to survive by the hunt and to live in a spiritual compact of reciprocity. The wolf provided guidance for environmental stewardship and ecological balance. The wolf is a teacher, a guardian, a clan guide – a relative.

PURPOSE AND OBJECTIVE OF THE TREATY

Today the grey wolf is functionally extinct in most of its historic range. The US Fish and Wildlife Service estimates that fewer than 6,000 grey wolves presently exist in the contiguous United States. Some two-million wolves co-habited North America with our ancestors, pre-European colonization; the pre-contact wolf population estimates of scientists correlate with those of our elders. What effects the grey wolf in the lower-48 US states, impacts wolves north of the US-Canada border and south of the US-Mexico border. Like the First People of this continent, the wolf does not recognize imaginary lines transposed upon the land. To honor, recognize, and revitalize the ancient relationship we have with the wolf, it is the collective intention of we, the undersigned, to welcome the wolf to once again live beside us as Creator intended and to restore balance to Mother Earth where we are the stewards and the wolf is a protector of our lands. We will do everything within our means so that with the wolf, we will once again live in the sacred cycle of reciprocity to nurture each other culturally and spiritually. In our collective efforts to protect and recover the wolf – and by doing so protect, preserve and perpetuate indigenous cultures – this treaty is analogous to the “United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)” and the principles of the “Rights of Nature & Mother Earth.”

PARTIES TO THE TREATY

We, the undersigned, including Tribal/First Nations, Traditional Societies, Spiritual Leaders, representative Tribal Organizations and Respective Leaders from each generation and from the four sacred directions of Turtle Island. We recognize Mother Earth as a life-giving force, a living entity of which human beings are a part, rather than as human property to be owned, exploited and destroyed.

ARTICLE I – CONSERVATION

Recognizing the wolf as a practitioner of conservation, we, collectively, reaffirm that our ancestors were conservationists before the term existed in the Western lexicon, and that in their honor we agree to perpetuate their principles of caring for Mother Earth that is today called conservation. Fundamental to that is respecting the interrelationships between us and “all our relations” which the wolf embodies. The wolf has a critical role in providing balance, health and structure to ecosystems which benefits a wide spectrum of life, be they two-legged, four-legged, winged, or those with roots. Grizzly bears, buffalo, beavers, songbirds, foxes, and pronghorn are among those aided by the wolf. Wolves prey on wild ungulates, those which are the most vulnerable due to age, injury or sickness, thus providing the healthy with a greater chance to survive and renew the herd. Where the wolf exists, so does balance: without overpopulations of elk, trees such as cottonwood, aspen, willow and serviceberry regenerate, providing crucial nesting and roosting sites for songbirds; enhancing root strength which protects streams from soil erosion, and in turn provides food and building elements for beavers whose dams then create ponds needed by fish; and finally, to enabling the growth of berry shrubs that provide sustenance for grizzly and black bears.

ARTICLE II – CULTURE

The wolf taught us to hunt and imparted that “those with hooves and horns” would sustain us physically, but “those with paws and claws” were to provide spiritual sustenance. Wolves gave of themselves to enable us to live the “Dog Days,” offering their progeny to accompany us, to help us travel and traverse vast distances, to protect us, as their descendants – domestic dogs – do today. We commit to perpetuate and continue our spiritual ceremonies, sacred societies, sacred narratives and sacred bundles in which the wolf has a unique place, which in practice is a means to embody the thoughts and beliefs of ecological balance. Realizing that the wolf is a foundation of our traditional ways, we commit to the ideal of preservation and restoration in all aspects of our respective cultures related to the wolf, including customs, practices, naming, beliefs, songs, astronomy and ceremonies.

ARTICLE III – MANAGEMENT PRINCIPLES

The federal government has never developed a national strategy to recover wolves in the contiguous United States that is in accord with expanded protections. As a statement of sovereignty and cultural and environmental restoration we commit to rectify this omission. Recognizing that our collective objective is to see the wolf returned to areas of biologically suitable habitat on our traditional lands within the wolf’s historic range pre-colonial contact, and for linkage zones to be established between the existing, fragmented populations, wolf management plans for Tribal/First Nations will be formulated from a cultural foundation, while accommodating the “best available science.” We, collectively, recognize that our ancestors practiced the “best available science” in their stewardship of the land, as they lived in balance with our Mother Earth when the biomass was at its height. Spirituality informs the indigenous worldview, which includes our Traditional Ecological Knowledge (TEK). The US Fish and Wildlife Service describes TEK as “Native Science” gained “over hundreds or thousands of years through direct contact with the environment,” and further expounds how TEK “encompasses the world view of indigenous people which includes ecology, spirituality, human and animal relationships, and more.” Our TEK is the very definition of “the best available science.” Our people applied their TEK for millennia prior to contact. “The idea that TEK has guided modern biology (or Western science) should encourage

conservation biologists to investigate TEK more thoroughly,” remains the prevailing finding of the US Fish and Wildlife Service. TEK will guide our management practices for the wolf and must now become a standard applied to federal, state and provincial management plans, following the examples of Rumphius, Linnaeus, Darwin and Merriam. Patterned on traditional practices, management objectives should strive for balance between maintaining our subsistence cultures where they are dependent upon viable ungulate populations, and the true recovery of the grey wolf population in the contiguous US.

ARTICLE IV – RECOVERY OBJECTIVES

Tribal/First Nations have the legal responsibility and authority to protect our ecosystems in the best interests of our people. Our rights and interests do not stop at reservation or reserve boundaries, we have ancestral and treaty lands, Ceded Territories, and reserved rights on those lands. A multitude of scientists contributed to a United Nations report which warns that some one-million species are facing extinction. Since the Industrial Revolution, the decimation of 83% of the mammals on earth has been accelerated, resulting in the once-unimaginable reality that 96% of existing mammals on earth are either humans or livestock. By 1967, approximately 1,000 wolves survived in the US, ostensibly in the Great Lakes region; the slaughter of the wolf inspired by federal policies echoes that which resulted in the near extirpation of the buffalo and the grizzly. The wolf now occupies only 10% of its historic range and only 30% of existing suitable habitat. Tracts of current and ancestral Tribal/First Nations’ territory comprise the 530,000 square miles of suitable wolf habitat in the lower-48 states. Areas of indigenous cultural significance in the southern Rocky Mountains, Grand Canyon, Cascade Mountains in Washington, Oregon and California, the Sierra Nevada and the Adirondacks all offer viable wolf habitat. The long-term survival of the grey wolf in the lower 48 depends upon the wolf’s return to critical portions of its historic range. These ecosystems require healing, having lacked the presence of the wolf for multiple generations. By the US Fish and Wildlife Service’s own population estimate, 6,000 wolves are below what scientists have identified as the minimum viable population size necessary to avoid extinction.

ARTICLE V – GOVERNMENT-TO-GOVERNMENT CONSULTATION

The federal government has a fiduciary obligation to Tribal/First Nations, which includes providing government-to-government consultation on any Endangered Species listing or delisting decision that impacts Tribal/First Nations. Any proposal to delist the grey wolf fits that criteria. The same issues that threatened Tribal/First Nations in the grizzly delisting struggle will resurface with grey wolf delisting: potential harm to tribal sovereignty, undermining treaty rights, stripping religious and spiritual freedoms, and detrimental economic repercussions. Government-to-government consultation must not only be “thorough” and “meaningful” as mandated by Executive Order 13175, but it must adhere to the standard of “free, prior and informed consent.” In 2010, the US endorsed the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) but has yet to honor that commitment. In defense of our rights and the preservation of the grey wolf, we, the undersigned, invoke Articles 25 and 26 of UNDRIP.

ARTICLE VI – NATIVE AMERICAN ENDANGERED SPECIES ACT (NA-ESA)

It has become the norm that federal agencies place a far greater emphasis upon the input of energy companies - with considerable influence being accorded extractive industry executives - in Endangered Species Act (ESA) listing and delisting decisions than is accorded Tribal/First Nations. That disregard of

the federal-Indian trust responsibility has prompted tribal nations to explore the formulation of a Native American Endangered Species Act (NA-ESA). Sovereign tribal lands hold several T&E species and vital habitat, and it is time for tribal people to have a greater input into the management and protection of these species that hold great cultural significance. In the present political climate, for some species an NA-ESA may be the only viable path to survival. As Tribal/First Nations, our sovereignty is consistently compromised by the US Fish and Wildlife Service and the states in respect to wildlife management, including federal administration of the ESA on tribal lands. A NA-ESA would enhance tribal sovereignty, provide vocational opportunity for tribal members, and enable the melding of contemporary biological discipline with tribal Traditional Ecological Knowledge (TEK) in management policies and practices. The NA-ESA would, in essence, be a framework document that could be adopted and amended according to the criteria of individual Tribal/First Nations, be they cultural or economic, as opposed to a “one-size fits all” imposition. We, the undersigned, will continue to evaluate the pathway to a NA-ESA.

ARTICLE VII – ECONOMICS

Recognizing the wolf as a traditional teacher and protector of our lands and people, we, respectively, will research economic development revolving around the wolf in an environmentally and culturally compatible manner, including eco-tourism models with wolf watching, photography and culturally oriented educational tourism, traditional crafts, publishing and literacy materials inspired by traditional narratives to which the wolf is central, and other beneficial by-products arising out of the wolf’s gifts to us. Millions of visitors from around the world travel to Yellowstone National Park annually to catch a glimpse of the wolf, demonstrating that the wolf’s hold upon the human imagination transcends ethnicity.

ARTICLE VIII – EDUCATION

Education and outreach are essential to wolf recovery. Respecting all of the teachings we have received from the wolf, we, collectively, agree to develop programs revolving around the wolf as a means of transferring intergenerational knowledge to the younger and future generations and sharing knowledge amongst our respective Tribal/First Nations to both strengthen and reignite cultural ties that in some instances have been overwhelmed by colonization. We will not adopt state, provincial or federal wolf management plans, as all are infringements of our sovereignty and do not reflect our TEK. We will prioritize vocational and educational programs for our people, so that on our lands, they will be the leaders of our culturally compatible wolf management programs. Upon the signing of this treaty, any management removal of a wolf will be undertaken with ceremony, and such parts of the wolf that have always been kept in sacred bundles or used for traditional practices will be provided to such persons qualified. We will seek to counter popular myths that have become talking points to justify the eradication of the wolf from large parts of its historic range. Contrary to popular mythology, domestic dogs pose a greater threat to people than wolves. Of an estimated 115,000 wolves worldwide, there are only ten recorded cases of fatal encounters with non-rabid wolves in the last half-century, two of those having occurred in North America. By comparison, dog bites are responsible for sixteen deaths per year in the US, with an estimated 4.7 million domestic dog bites reported annually.

ARTICLE IX – HUNTING

At the inception of our relationship with the wolf, this sacred guide instilled the values of the hunt to our ancestors. Generally, current federal, state and provincial management plans that enable and elevate trophy hunting of species of immense cultural importance are antithetical to those ancient principles. Tribal/First Nations will not allow infringements of sovereignty by the influence of any de facto sovereign. We will formulate vocational and educational programs for our people, so that on our lands, they will be the leaders of our culturally compatible wolf management programs.

ARTICLE X – RESEARCH

Recognizing that learning is a life-long process, we, collectively, agree to perpetuate knowledge-gathering and knowledge-sharing according to our customs and inherent authorities revolving around the wolf that do not violate our traditional ethical standards as a means to expand our knowledge base regarding the environment, wildlife, plant life, water, and the role of the wolf in the history, spiritual, economic, and social life of our Tribal/First Nations. We will seek input from the leading, independent biologists qualified in the study of the wolf to ensure that we continue to lead in the preservation and recovery of the wolf.

ARTICLE XI –THREATS

The US Fish and Wildlife Service estimates that approximately 6,000 wolves presently survive in nine of the lower-48 states. In three of those – Wyoming, Idaho and Montana –some 3,500 wolves have been killed since 2011 after the removal of federal protections in those states. Even without trophy hunting and trapping, studies have found that annual mortality rates in wolf packs can reach 50% but typically average around 35%. In Idaho, state managers resumed the engagement of bounty hunters to kill wolves and requested the intervention of US Department of Agriculture/Wildlife Services’ airborne sharpshooters to reduce pack densities. Wyoming designated the wolf with predator status, which permitted the killing of wolves with minimal restrictions, including killing pups in dens. Wisconsin’s current management plan provides for the wolf population to be culled by 60%. These examples highlight the greatest threat to the wolf – the removal of federal protections, the lack of consultation with and authoritative input on wolf recovery afforded Tribal/First Nations, and the enactment of state wolf management plans that are motivated by political interests, not scientific findings. Multiple studies have concluded that the existing wolf populations in the Rocky Mountains, Great Lakes and Southwest are below the minimum, viable population sizes to ensure their survival. These populations are also below levels considered necessary to avoid genetic inbreeding. Like threats facing the grizzly bear, the loss of genetic diversity due to small, isolated populations is a threat that must be addressed through recovery plans that prioritize connectivity.

ARTICLE XII – CONFLICT REDUCTIONS

“When I was a child, I used to ride horseback with my dad and sometimes we would see wolves, and they would never attack us. Our people lived in harmony with the wildlife, I don’t believe in shooting them, they were here long before cattle or anything else,” said Barbara Aripa, a respected elder of the Confederated Tribes of the Colville Reservation. A 2019 report, *Wolf-Livestock Conflict and the Effects of Wolf Management* (DeCesare et al), “found no evidence that removing wolves through public harvest affected the year-to-year presence or absence of livestock depredations by wolves.” That conclusion

was based upon over a decade of data. Since 2014, scientific papers have diverged on whether targeted lethal removals by wildlife managers reduce livestock depredations. There is, however, consensus that proactive non-lethal conflict deterrence methods are crucial to containing wolf and livestock losses. Employing range riders and shepherds, incorporating livestock guardian dogs into conflict reduction strategies, and erecting barriers, be that fencing, fladry, penning or a combination, are effective tools in conflict reduction. Reducing attractants – particularly the removal and disposal of carcasses and separating diseased or ailing livestock – is vital to reducing potential livestock depredations. Livestock – wolf conflict has proven to be predictable and will often reoccur in the same areas. The insightful management of range units and leased lands is necessary to further minimize livestock conflicts, but it should be accepted that when livestock are released onto range units, they are vulnerable, like indigenous species, to a multitude of harms. Where the wolf presently exists, livestock depredations impact less than 1% of available livestock and less than 1% of ranchers in currently populated wolf habitat experience losses to wolves annually. Following the precedent set by some of our sister Tribal/First Nations, we recognize the need for closures to areas that offer the wolf sensitive habitat, particularly for denning sites. In the spirit of our ancestors, we will incorporate contemporary strategies in our culturally compatible conflict reduction programs; such programs will be inclusive, educational, and aim to reconnect our people with the wolf and traditional precepts of tribal society and responsibility.

ARTICLE XIII – PARTNERSHIPS

Tribal/First Nations seek to be equal partners with federal, state and provincial authorities in the true recovery and future management of the wolf. We, collectively, invite representatives of those sovereigns and Non-Governmental Organizations, corporations and others of the business and commercial community, to form partnerships with the signatories to bring about the manifestation of the intent of this treaty. Organizations and individuals may become signatories to this treaty as partners and supporters providing they perpetuate the spirit and intent of this treaty.