

A Curriculum Study on the Gray Wolf.

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Natural History of the Gray Wolf.

Key Terms:

Canid
Gray Wolf
Canis lupus
Tundra Land
Forest Land
Pack Structure
Alpha
Omega

Wolves are a member of the **Canid** family – a family which most of us are very familiar with. Every single known species of domesticated dog is a member of the Canid family as well. The Canid family contains thirty-five known species, of which eight inhabit North America in the wild; the gray wolf, red wolf, coyote, red fox, gray fox, kit fox, swift fox and arctic fox.¹ Of these groups, the wolf species is the largest. In fact, wolves were once the most distributed of all the wild mammals in the world.

There are several different species of wolves worldwide. We are going to concentrate on the **Gray Wolf (Canis lupus)** (which also goes by the common names Timber Wolf or Tundra Wolf). These wolves are the largest Canid in North America. They range in coloration depending on their natural habitat (which could be anything from open tundra to forest) and age, and live anywhere from ten to eighteen years in the wild. The average size of an adult Gray Wolf can range anywhere from a length of 40 – 64 inches (102 – 163 cm) with a tail length of anywhere from 14-22 inches (36-56 cm). An adult male will typically weigh anywhere from 85-115 lbs (39-52 kg) and an adult female will typically weigh anywhere from 50-100 lbs (23-49 kg).

¹ International Wolf Center. http://www.wolf.org/wolves/learn/intermed/inter_sci/canid_na.asp.

The primary habitat of the Gray Wolf includes open **tundra² land** and **forest land**. Before European settlement the range of the Gray Wolf was common throughout Alaska, Canada and the United States. The wolf has a unique **pack structure**, consisting of two to twelve individuals. The size of the pack is dependant on the amount of prey available to them. The male and female members of the pack are organized on a hierarchy of dominance. There is an **Alpha male and female wolf**, which “govern” the wolf pack are dominant over the rest of the pack, with the Omega wolf being the lowest ranking member of the pack. In fact the **Omega** wolf is usually picked on or tormented by the other members of the pack. The Alpha wolves will get the pack breeding rights, first access to food and generally the best of everything available to the pack. The alpha wolves generally produce between two and eleven pups per litter per year, and the entire pack is involved in the care and maintenance of the pups. Depending on the amount of food available, the pack can range an area of about fifty square miles to over one thousand square miles.

Gray wolves will mate between January and April depending on the altitude and weather where they live. They follow a gestation period of approximately sixty-two days to when the pups are born. The pups are completely dependant upon their mother for six to eight weeks, when they are weaned. Then they become more active members in the packs life. The alpha females (which produced the pups) will hunt for them, while other pack members watch over them. The pups are feed by eating the regurgitated meals of any other pack member. Wolves reach sexual maturity by age one.

Wolves hunt in a **pack structure**, often overrunning larger prey (such as deer, elk or moose in Minnesota) and taking it down as a group. The wolf pack will often single out a weaker member of a herd, such as an older animal or younger animal and section that animal off away from the rest of the herd. Then they will basically run that animal down until it can be taken by the pack. Biologists have estimated that less than 10% of all wolf attacks on large animals are successful, this has been listed as one reason that wolves will single out weaker members of the heard – to hedge their bets a little. Wolves have also been known to eat smaller prey, such as rabbits, beavers, small rodents and even fish when they can’t get sufficient amount of the larger prey. In Minnesota the wolf

² “A treeless area between the icecap and the tree line of Arctic regions, having permanently frozen subsoil and supporting low-growing vegetation such as lichens, mosses, and stunted shrubs”.

population is highly dependant upon deer – of which it takes approximately twenty deer per year per wolf to keep the wolf healthy. ³

Past and Present range of the Gray Wolf.

The past range of the Gray Wolf included most of North America, ranging into Alaska and Canada, and down into Mexico. If you look at Figure 1⁴, which shows the Historical Range of Gray Wolves in the lower 48 United States, you will notice that all but fourteen of the forty-eight states (Florida, Louisiana, Arkansas, Mississippi, Alabama, Georgia, North Carolina, South Carolina, Kentucky, Tennessee, Virginia, West Virginia, Maryland, and Delaware) have Gray Wolf populations. After European settlement, however, Wolves were hunted and exterminated from many parts of the country (a topic that we will hit upon later). This vastly diminished their range, until 1973 when they were placed upon the Endangered Species list. At the time of their listing, their range had diminished to the point where it only included a very small pocket in Northern Minnesota of approximately 20 breeding pairs (Figure 2). Today, thanks in part to reintroduction programs; the Gray Wolf's range is making a comeback, thanks in part to many reintroduction programs. Gray Wolves can now be found in northern parts of Minnesota, Wisconsin, Michigan, Idaho, Montana, and Colorado (Figure 3).

³ Minnesota State University Moorhead – Natural History of the Gray Wolf.

⁴ <http://midwest.fws.gov/wolf/population/range.htm> - The United States Fish and Wildlife Service.

Figure 1.



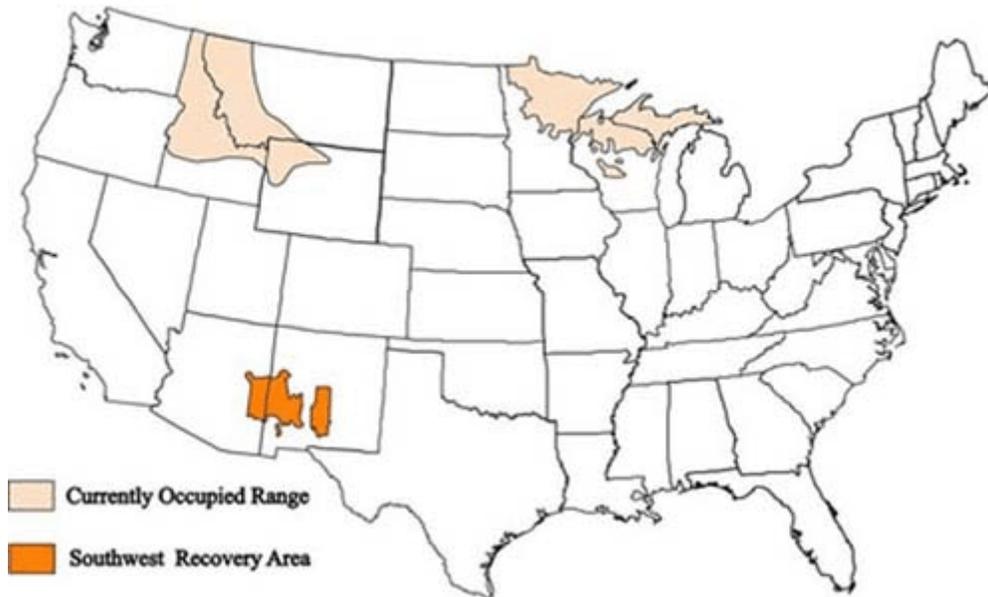
Figure 2

Gray Wolf Range at Time of Listing Under the ESA (1974)



Figure 3

Current Gray Wolf Range and Southwest Recovery Area



Questions to Ponder:

1. Why do you think the Gray Wolf's range decreased so dramatically between the beginning of European Settlement and present? Why do you think that the settlers, and later the citizens, of these areas chose to kill the wolves?
2. What is your favorite story that features a wolf somewhere in it (some examples are "Little Red Riding Hood", "The Three Pigs", "The Jungle Book"). How were wolves portrayed in the story – was it negatively or favorably? How do you think that stories like these could have affected our perception of wolves?
3. Wolves have been gone for a very long time in some of the areas where they are not being reintroduced (such as Yellowstone national Park). What effect do you think that the wolves are going to have on the ecosystem of these areas?

Wolf Ecology and Human-Wolf Interactions

Key Terms:

Ecology

Keystone Species

Ungulates

Carrying capacity

Kaibab Deer

Extinct

Henry William Herbert

Game species

Vernon Baily

William T Hornaday

Allopatric

Predator

Aldo Leopold

SB Locke

Edward Goldman

Henry Wallace

Ecology⁵ is defined as: the relationship between organisms and their environment. This is a very large field of study and can cover many areas and topics. In the case of wolves, we not only have to look at the natural history of the wolf in particular, but also the history of the species that the wolf preys upon, and is preyed upon by. We need to look at all aspects of how the animal lives, and if that is effecting the environment in any

⁵ <http://dictionary.reference.com/search?q=ecology>

way. Modern Ecologists will acknowledge that every species and organism on this planet interacts or affects another organism. Some species exist in a symbiotic or parasitic relationship, where they cannot exist without another organism. There are some species, however, which have an enormous effect upon the ecosystems in which they live – these species are called **Keystone Species**.⁶ Wolves are considered a keystone species because they help to maintain the predator-prey balance in their ecosystem. Wolves feed upon other animals, especially **ungulates**⁷. Ungulates are composed of hoofed animals, and while wolves do feed on elk, bison, or mountain sheep – in Minnesota we are mostly concerned with deer. Deer also play an important part in the ecosystem, especially in Minnesota.

Deer are voracious eaters, and will eat a huge variety of vegetation when it is available to them. Their diet depends on the time of year, the climate, and what is available. They have been known to eat leaves, grasses, shrubs, lichen, garden plants, vegetables, and bark. They have been known to denude an area of vegetation to the point that they cause their own starvation. Wolves prey on the deer, and thereby keep the deer population in balance. If the wolves are taking members of the deer herds, especially the young and weak members of the herd, it keeps the deer population down, and doesn't stress the environment. If deer populations are allowed to increase unchecked, then the population will quickly hit the **carrying capacity**⁸ of the environment where they are living. Once the environment can no longer sustain the amount of deer, then the deer will face the consequences, such as starvation or weakened states, which can lead to disease. One of the better known examples of this principle would be the case of the **Kaibab Deer** study.

In 1906, President Theodore Roosevelt established the Grand Canyon National Game Preserve on the Kaibab Plateau in the Southwestern United States. The Plateau is located in northern Arizona, and is approximately 45 miles wide and 60 miles long. It is

⁶ A keystone species is a species whose very presence contributes to a diversity of life and whose extinction would consequently lead to the extinction of other forms of life. Keystone species help to support the ecosystem (entire community of life) of which they are a part.

⁷ Of or belonging to the former order Ungulata, now divided into the orders Perissodactyla and Artiodactyla and composed of the hoofed mammals such as horses, cattle, deer, swine, and elephants.
<http://dictionary.reference.com/search?r=2&q=ungulate>

⁸ The maximum number of individuals that a given environment can support without detrimental effects.
<http://dictionary.reference.com/search?q=carrying capacity>

bordered on the South and East by the Grand Canyon, on the North by high desert, and on the West by Kanab Canyon.⁹ The purpose of the creation of the game preserve was because “conservationists planned to protect the deer by systematically removing predators such as mountain lions and wolves from the Kaibab Plateau”.¹⁰ While saving one species by destroying others may seem like a strange concept for us now, back at the turn of the last century it was actually quite common.

When this country was founded, the sentiments of most Americans could be stated as, “The good Lord put us here and the Good Book says, ‘man shall have dominion over all creatures.’ They’re ours to use.”¹¹ The animals in this new and vast land were for the white settlers, to be used as was seen fit. If the animal in question was a benefit to man, such as sporting birds like ducks and geese, or animals such as deer or elk then the animal was to be protected and increased in number. But, if the animal was seen as a competition to either game or damaging to property (wolves, mountain lions, and coyotes have a nasty habit of eating cows, pigs or sheep) then they were to be eliminated. The early settlers went about this mission with a vengeance – they organized circle drives to herd animals into an area to be killed¹² they set out poison and put a bounty on the heads of wolves and other “varmints” to encourage them to be slaughtered.¹³ The settlers were very effective at this – by 1850 wolves were very nearly **extinct** on the East Coast of the United States.

Around the time of the American Civil War the idea of hunting was changing in this country. Before this time, hunting was seen only as a means to get food. But, under the influence of England, and **Henry William Herbert**, (an English immigrant) the concept of hunting for subsistence began to change to the concept of hunting for sport. Henry William Herbert wrote on field sports under the pseudonym Frank Forester. “hunting and fishing”, he said “were not ways of wasting time of getting food for the

⁹ Young, Christian “Kaibab Deer – part 3”

¹⁰ Qtd. in Young, Christian “The Development of Wildlife Biology in America:” p 1-2.

¹¹ Qtd. In Dunlap, Thomas “Saving America’s Wildlife”. P 5.

¹² Read an account of a circle drive in “War against the Wolf” by Rick McIntyre. P43 “the Great Hinckley Hunt” by Milton P. Pierce. It is an accounting of an 1818 Christmas Eve hunt in northeast Ohio.

¹³ This actually started very early on in the colonial period in America. For example, from the records of the Governor and company of the Massachusetts Bay in New England – November 9, 1630. “It is ordered, that every English man that killeth a wolf in any part within the limits of this patent shall have allowed him 1d (one penny) for every beast & horse, & and ob. (1/2 penny) for every weaned swine & goat in every plantation, to be levied by the constables of the said plantations.”

table: they were the recreations of gentlemen, who pitted their craft against that of the game in “fair chase” and were actually “preparations for life”.¹⁴ The huntsman was encouraged to take only “suitable species” which was a sharp decrease in variation from the practice of taking anything you could. While the limiting of species taken let some animals off of the hook – the animals which were considered “suitable species” or “**game species**” started facing even stiffer competition. Then the old economic adage of supply and demand kicked in – the larger the demand the lower the supply. As more and more hunters went into the woods to kill deer, there were less and less deer to be found. Therefore, the need to be rid of any of the other competitions for the increasingly scarce deer increased, along with the rate at which wolves were hunted. In 1907, **Vernon Bailey** published a report on wolves entitled “Destruction of Wolves and Coyotes”. In this report he is quoted as saying that “in some of the Northern States they (wolves and coyotes) threatened the extermination of deer on many of the best hunting grounds”.¹⁵ This policy of working to increase and “manage” favorable species permeated the wildlife policy at the turn of the last century. And that leads us back to the Kaibab Plateau.

Due in part because of Game Conservationists like **William T. Hornaday** and his comments like this “Owing to Certain conditions, natural and otherwise, it is not the finest place in the world for the peaceful increase of wild game. The Canyon contains a few mountain sheep, and mule deer, but Buckskin Mountain, on the northwestern side (of the Kaibab Plateau) is reeking with mountain lions and gray wolves, and both those species should be shot out of the entire Grand Canyon National Forest”,¹⁶ wolves had been actively hunted for management purposes in the area of the Kaibab Plateau. In fact in the first 25 years of management for predators, government managers killed 4,889 coyotes, 781 mountain lions, 554 bobcats and 20 wolves. Even more were killed by professional hunters hired by private stockmen.¹⁷ And by the time that Theodore Roosevelt declared the area to be a game preserve, there were actually very few wolves left in the area. The deer, however, were doing very well. The Kaibab Plateau is a

¹⁴ Qtd in Dunlap, T. “Saving America’s Wildlife” p 9.

¹⁵ Qtd. In Young, Christian “The Development of Wildlife Biology in America:” p 78.

¹⁶ Qtd in Young, Christian “The Development of Wildlife Biology in America:” p 79.

¹⁷ Sheremata, Davis. “The Predators Run the Show” Alberta Report / Newsmagazine 1998

natural area which allows for an **allopatric**¹⁸ separation of mule deer by geography. The deer can't migrate in or out due to the Grand Canyon, the Kanab Canyon, and the desert. It allowed for a perfect situation to study the effects of a large and growing larger herd on a specific area. Because the specific management practices of the area included the elimination of **predator** species such as wolves and mountain lions, the deer had no adversarial predators, and could increase unchecked. The herd was protected and hunting was not allowed, and because the natural predators of the herd had been eliminated, the herd was growing. This had an immediate effect upon the local ecosystem. The herd was destroying local vegetation and severely overgrazing the area. Grazing rights for local ranchers were worthless, as their sheep and cows didn't have anything to eat. The deer exceeded the carrying capacity of the land, and then began starving to death. There were other effects upon the land besides the starving deer. There was a marked increase in erosion due to the lack of vegetation brought on by the overgrazing. There was also a shift in plant material due to the overgrazing of relatively soft and "preferred" grasses to hardier shrub brush. The brush species have roots which hold much less soil around them than the grasses. As the plants die or change, the ability of the roots of the plant to hold onto the soil decreases, and the soil is free to erode. This also increases flooding of natural rivers due to the fact that the rainfall is not stopped and held up by the roots and vegetation, but rather is runs headlong into the nearest river. By the early 1900's when Aldo Leopold (a student of the works of William Hornaday) was working in the American Southwest as a forester he worked with or knew about approximately two dozen valleys and areas in the southwest that were "already wholly or partly ruined or were in the process of being eroded."¹⁹ **Aldo Leopold** concluded that the cause of this erosion was overgrazing of areas brought about since white settlement. But, he still considered the needs of game management to be more important to the needs of preservation of "varmints".

By 1922 when **Edward Goldman** and **S.B Locke** became the first "experts" to study the situation on the Kaibab Plateau things had reached alarming levels. The

¹⁸ "Occurring in separate, nonoverlapping geographic areas. Often used of populations of related organisms unable to crossbreed because of geographic separation". <http://dictionary.reference.com/search?q=allopatry>

¹⁹ Flader, Susan "Thinking Like A Mountain; Aldo Leopold and the evolution of an ecological attitude toward, deer, wolves, and forests" p. 43

amount of deer had skyrocketed to over 20,000 individuals, with deer being “abundant everywhere”. Goldman and Locke recommended that the carrying capacity of the land be ascertained, and then the populations of both the deer and the local grazers be reduced to a number that could be sustainable. However Goldman and Locks again recommended that predatory animals, instead of being allowed to increase and help with population control of the deer, should continue to be hunted so allow for enough game for the hunters. At this time, the deer were dying, the overgrazing continued, the erosion was getting worse, and the hunters weren’t taking enough deer, or more specifically enough of the right kind of deer. (hunters don’t tend to take the weakest members of the herd, thereby increasing the overall strength of the herd – rather they take the prime bucks or do). It took until 1924, when the effect of predators in the area was recognized by **Henry Wallace**²⁰. He suggested that predatory animals may actually be beneficial in game preserves to promote the survival of the strongest animals. This suggestion signaled an important change in thinking. While actual policy didn’t change regarding wolves for many years still, there was an acknowledgement that wolves and their presence may be beneficial not only to the environment, but to the game species in question.

²⁰ Henry C. Wallace was the United States Secretary of Agriculture. He worked with Sterling Yard, Stephen Mather, Hubert Work, WB Greeley o attempt to clarify what the leaders in the situation hoped to accomplish and “how they could maintain the preserve and protect the deer”. Young, Christian p 101

Questions to ponder:

1. Why did the deer die out on the Kaibab Plateau? (use the term carrying capacity to explain the relationship between the deer and the land).
2. Do you think that the historical connection of wolves as competition for game could have contributed to their being illustrated as “evil” “no good” “bad” or “tricky”? Please say why or why not.
3. Please define each of the key terms or tell who the person was and what effect they had on ecology or policy of the time.
4. Who was Aldo Leopold? Read the copy of “Thinking Like a Mountain” (next page), an essay by Aldo Leopold included in “A Sand County Almanac” in 1949. Do you think his attitudes regarding wolves changed during his lifetime? Why?

Thinking Like a Mountain

By Aldo Leopold

A deep chesty bawl echoes from rimrock to rimrock, rolls down the mountain, and fades into the far blackness of the night. It is an outburst of wild defiant sorrow, and of contempt for all the adversities of the world. Every living thing (and perhaps many a dead one as well) pays heed to that call. To the deer it is a reminder of the way of all flesh, to the pine a forecast of midnight scuffles and of blood upon the snow, to the coyote a promise of gleanings to come, to the cowman a threat of red ink at the bank, to the hunter a challenge of fang against bullet. Yet behind these obvious and immediate hopes and fears there lies a deeper meaning, known only to the mountain itself. Only the mountain has lived long enough to listen objectively to the howl of a wolf.

Those unable to decipher the hidden meaning know nevertheless that it is there, for it is felt in all wolf country, and distinguishes that country from all other land. It tingles in the spine of all who hear wolves by night, or who scan their tracks by day. Even without sight or sound of wolf, it is implicit in a hundred small events: the midnight whinny of a pack horse, the rattle of rolling rocks, the bound of a fleeing deer, the way shadows lie under the spruces. Only the ineducable tyro can fail to sense the presence or absence of wolves, or the fact that mountains have a secret opinion about them.

My own conviction on this score dates from the day I saw a wolf die. We were eating lunch on a high rimrock, at the foot of which a turbulent river elbowed its way. We saw what we thought was a doe fording the torrent, her breast awash in white water. When she climbed the bank toward us and shook out her tail, we realized our error: it was a wolf. A half-dozen others, evidently grown pups, sprang from the willows and all joined in a welcoming melee of wagging

tails and playful maulings. What was literally a pile of wolves writhed and tumbled in the center of an open flat at the foot of our rimrock.

In those days we had never heard of passing up a chance to kill a wolf. In a second we were pumping lead into the pack, but with more excitement than accuracy: how to aim a steep downhill shot is always confusing. When our rifles were empty, the old wolf was down, and a pup was dragging a leg into impassable slide-rocks.

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.

Since then I have lived to see state after state extirpate its wolves. I have watched the face of many a newly wolfless mountain, and seen the south-facing slopes wrinkle with a maze of new deer trails. I have seen every edible bush and seedling browsed, first to anaemic desuetude, and then to death. I have seen every edible tree defoliated to the height of a saddlehorn. Such a mountain looks as if someone had given God a new pruning shears, and forbidden Him all other exercise. In the end the starved bones of the hoped-for deer herd, dead of its own too-much, bleach with the bones of the dead sage, or molder under the high-lined junipers.

I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer. And perhaps with better cause, for while a buck pulled down by wolves can be replaced in two or three years, a range pulled down by too many deer may fail of replacement in as many decades. So also with cows. The cowman who cleans his range of wolves does not realize that he is taking over the wolf's job of trimming the herd to fit the range. He has not learned to think like a mountain. Hence we have dustbowls, and rivers washing the future into the sea.

We all strive for safety, prosperity, comfort, long life, and dullness. The deer strives with his supple legs, the cowman with trap and poison, the statesman with pen, the most of us with machines, votes, and dollars, but it all comes to the same thing: peace in our time. A measure of success in this is all well enough, and perhaps is a requisite to objective thinking, but too much safety seems to yield only danger in the long run. Perhaps this is behind Thoreau's dictum: In wildness is the salvation of the world. Perhaps this is the hidden meaning in the howl of the wolf, long known among mountains, but seldom perceived among men. ²¹

²¹ Leopold, Aldo. "A Sand County Almanac". University of Wisconsin Press. 1949.

Wolves Today – reintroduction.

Key Terms:

Isle Royale

Ice Bridge

Endangered Species Preservation Act

Endangered Species List

We are going to jump into the future a bit from the 1920s. During the next few decades' wolf management continued pretty much as it had through the past several hundred years. Game management was still considered to be the more important issue, and although people were starting to realize that predators played an important role in ecology, there were no real strives to “save” the wolf. In the meantime the populations of wolves were steadily decreasing throughout the lower 48 Unites States, until by the early 1970's, there was only a small population of 20 or so breeding pairs in the extreme northern corner of Minnesota.

In 1950 the winter in Northern Minnesota was cold enough to create an ice bridge between **Isle Royale** (the largest island in Lake Superior) and the land in northern Minnesota and Ontario, Canada. A pack of wolves followed a herd of moose over on the ice bridge and became trapped there when the ice melted in the spring. Scientists started studying the predator-prey interaction between the wolves and the moose in 1959, and continue to this day. Isle Royale is completely isolated in the fact that new wolves are not moving in or out, with the very few exceptions of the possibility of an **ice bridge**. Before the wolves came to Isle Royale, there had been substantial grazing of the Balsam Species by local moose, to the point that the balsam was starting to have detrimental

effects, and much like in the Kaibab Deer Study, the moose were also starting to have detrimental effects. With the introduction of the wolves however, the population of the moose has been in control enough so that the Balsam species have made a comeback.²² The continuing research on Isle Royale has allowed scientists to observe a “natural” ecosystem (or as natural as it can be with the scientists crawling around) and observe the cycling in the populations of moose and wolf.²³ Using this data, scientists were able to further support the evidence that wolves should not be eliminated, but rather protected, and that it would not hurt, but actually help to maintain a strong and viable game population. But, by this time there weren’t many wolves left to protect.

The federal **Endangered Species Preservation Act** of 1966 was the first act to provide protection for wolves, but only on federal land. In 1974 the Gray Wolf was listing on the **Endangered Species List**. This list was formed to protect species that were in danger of becoming extinct. It immediately made it illegal to kill, trap or otherwise harm a wolf under penalty of fines or jail time. Wolves, however, had been decimated to the point that they couldn’t spontaneously reclaim much of their lost territory. In 1994, 20 wolves were reintroduced from areas in Canada into Yellowstone National Park amidst much controversy. The wolves split into several packs and the effects of their reintroduction on the ecosystem have been studied extensively.²⁴ The local ranchers and herders in the area of Yellowstone protested the new risk to their livestock – a risk that they hadn’t had to deal with for at least 50 years. There was concern for the local herds of deer, elk, bison, and other **ungulates** in the park, (and especially the young of these herds) and how the reintroduction would hurt their numbers. There was also beginning to be curiosity as to how the reintroduction of wolves could actually change the plant species in the park. For example, Elk had long lived with out much fear of predation by wolves. They would and could take their time at watering holes without fear and graze on the plants which grew there. Over time, this

²² “How Wolves Save Trees” National Wildlife 33.4 (1995):6

²³ <http://www.isleroyalewolf.org/>

²⁴ Laundre, John (et.al.). “Wolves, Elf, and Bison: Reestablishing the “Landscape of Fear” in Yellowstone National park, U.S.A.” Canadian journal of zoology 79.8 (2002): 1401. p 1402.

changed the amount and type of plant which grew in or near the favorite watering holes. With the reintroduction of wolves, this was bound to change again.

In fact, according to William Ripple and Robert Beschta in their paper “Wolves and the Ecology of Fear: Can Predation Risk Structure Ecosystems?” the increase and return of wolves to the environment can and will have a whole ecosystem change. Ripple and Beschta found that typical grazing patterns of ungulates were disrupted by the reintroduction of wolves into Yellowstone. In much of the same situation that I outlined above, the plant species which grew near watering holes dramatically changed do to the decrease in grazing pressure. This was because the wolves induced a fear response in the ungulates to “get in and get out” without standing around. Before the reintroduction of the wolves, the elk and deer would heavily graze these areas due to the more delicate grass species to the point that they were overgrazed. The areas have now rebounded and species of shrub and tree are returning that haven’t been seen in these environments since the beginning part of the last century. ²⁵

²⁵ Ripple, William and Beschta, Robert “Wolves and the Ecology of Fear: Can Predation Risk Structure Ecosystems?” Bioscience 54.8 (2004): 755-66.

Question To Ponder:

Take time to discuss the effects that YOU think reintroduction of wolves will and have had at Yellowstone National Park. Consider the issue from the sides of the wolves, the elk or deer, the scientists, the ranchers, and the other predator species that still exist in the park (namely the Grizzly Bear, *Ursus arctos*). Also think about how it will change the ecosystem in the park.

Also, do you think that this reintroduction at Yellowstone is a fair representation of how reintroductions will work around the country – for example here in Minnesota? Why or why not?

Changing Management Strategies in Minnesota

Key Terms

Bounty

Endangered

Threatened

United States Fish and Wildlife Service

Timber Wolf

Once the gray wolf was placed on the Endangered Species List the old management strategies of “kill the varmints” wasn’t going to work anymore. The goal of listing a species is to “recover” the species, or when numbers and range have increased to the point that extinction in the near future is no longer considered possible.²⁶ While there hadn’t been any active, state mandated, wolf hunts for quite a while, it wasn’t because the policy had changed – rather it was because the old management strategy had worked so well that there weren’t any wolves to kill. In fact, there was still a **bounty** offered on wolves in Minnesota until 1965.²⁷ The new listing on the Endangered Species List prevented the states from managing the wolves in any way that would threaten or harm them. In 1978, in the state of Minnesota, the wolves were reclassified from **endangered** to **threatened** for a couple of reasons. Minnesota was the only state which had an active wolf population in 1974 when the wolf was added to the list, and the packs had sufficiently rebounded by 1978 to create a problem with livestock kills. The status was reclassified to allow for control of wolves which were attacking livestock, but still allow for the growth of the population.²⁸

In 1978, the **United States Fish and Wildlife Service** created and adopted a plan for the recovery of the **Timber Wolf** (a subspecies of the Gray Wolf), which was just

²⁶ Wolf Tracks” by the United States Fish and Wildlife Service. March 1999.

²⁷ Minnesota Wolf Management Plan – 2001 p 13

²⁸ <http://www.dnr.state.mn.us/mammals/wolves/legalstatus.html>

revised in 1992. The entire purpose of this management plan was to increase the numbers of wolves and assure the survival of the wolf as a viable and important resource. The original recovery plan for the state of Minnesota set a population goal of anywhere from 1250 – 1400 wolves in the state by the year 2000. The goal was met and passed by 1989 – when a survey of the states wolves listed the population at 1500-1750. The management report also set a goal of 100 wolves (combined) for the states of Wisconsin and Michigan – which was reached by 1994, and which they had to maintain until 1999. Because of the great success of the repopulation efforts in Minnesota, the state has adopted a wolf management plan to prepare for “delisting” or being taken off of threatened or endangered lists. This plan must include management options to deal with human wolf interactions.²⁹ In 2001, Minnesota completed this report.

This management plan states that “the goal of this management plan is to ensure the long-term survival of wolves in Minnesota while addressing wolf-human conflicts that inevitable result when wolves and people live in the same vicinity”. This plan was developed after a series of public information meetings throughout the state and meetings to state recommendations utilizing biological, economical, cultural and social data.³⁰ And the management plan covers several different categories; including who the authority and management bodies are at the federal and state level, population monitoring of the wolves, population management including reaching the population goal, public safety and wolf-human interactions, depredation management, and compensation rates for farmers and breeders, habitat management, accidental, legal and illegal human-caused mortality, and law enforcement of the listed laws. The end goal of this management plan will be for a minimum population to never be below 1,600 wolves in the state with no maximum.³¹

The management plan will be monitored state wide to assess the feelings of the population every five years by survey. The reintroduction of the wolves is still a fairly controversial issue, especially with breeders of animals, and anyone whose pet has been the victim of a wolf attack. Even within the past five years there has been word of wolf carcasses being dumped on the state capital steps in St. Paul to protest the protection of

²⁹ “Wolf Tracks” by the United States Fish and Wildlife Service. March 1999.

³⁰ Minnesota Wolf Management Plan – 2001 p 1

³¹ Minnesota Wolf Management Plan – 2001

the wolf. The management plan calls for compensation and details rates at which the farmers are to be compensated for destruction of livestock, but the farmers argue that they would rather not have to buy new stock. Also, if one wolf has started to prey upon fenced livestock, chances are that the wolf will continue to prey upon the same livestock until it is either relocated or killed. This is a serious economic concern for these farmers, therefore it has been given large precedence in the management plan. By acknowledging that humans will interact with wolves, hopefully the state can mitigate the damages by either.

Question to ponder:

According to the most recent wolf survey in the state of Minnesota, there was an 8% decline in the area in which wolves live within the state. This is the first decrease in range since the original 1978 survey was done. There has, however been an increase in relative population size, which now stands at approximately 3,000 wolves in the state of Minnesota with 458 packs.³² Why do you think that the range has decreased? Do you think that this is a positive issue, negative issue or a non-issue with regards to the reintroduction of wolves to the state?

³² Erb, John and Benson, Steve. "Distribution and abundance of wolves in Minnesota 2003-04. Minnesota Department of Natural Resources.

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