KEYSTONE PREDATION

and Trophic Cascades

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There has been a lot written lately on keystone predation and trophic cascades. According to some, wolves are a keystone predator that have created a trophic cascade in Yellowstone National Park, much to the benefit of the entire ecosystem. The contention is that wolf predation has been good for aspen, willows, beaver, song birds, and just about everything else that walks, crawls, or flies. Thus, it is claimed that wolves need to be restored, not only to every national park, but to the entire United States. Before we can determine whether or not these assertions are true, we first need to understand what keystone predation is and what trophic cascades are. The classic example is sea otters, kelp forests, and sea urchins.

When Europeans first arrived off the west coast of northern California, they found an abundance of sea otters, huge kelp forests, and relatively few sea urchins. Sea otters are a predator, sea urchins a herbivore, and kelp is a very large type of seaweed. Undersea kelp forests harbor a host of other marine organisms and offer protection to juvenile fish; a sort of fish nursery where young fish are safe from larger fish. Sea urchins eat kelp and other marine plants, while sea otters eat sea urchins, as well as other mollusks and crustaceans. The plants, or kelp, comprise the lowest trophic level, with sea urchins at the next higher trophic level because they consume kelp, while sea otters are at the upper or top trophic level because they prey on sea urchins. In ecology this is called a trophic

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In a trophic cascade, a keystone predator is one that causes a major reduction in the herbivore population, which then causes a major rebound in the associated plant community.

pyramid with the plants on the bottom, herbivores on the next trophic level, and predators on top. Some trophic pyramids have more than three levels, where predators prey on other predators, but the system in this example has only three—kelp, sea urchins, and sea otters.

Sea otters have an extremely luxuriant and highly-prized pelt or fur, which was the species' downfall, as sea otters were hunted to extinction along the California coast and elsewhere. With their primary predator removed, sea urchin populations exploded and the urchins became so numerous that they ate all the kelp creating what are known as urchin barrens, where the sea floor is covered with nothing but sea urchins eating algae from off the rocks. With the kelp forests gone, juvenile fish had no place to hide and they were all eaten by bigger fish before the former could reach maturity. In time, the entire fishery collapsed. A few sea otters, though, somehow managed to survive off the coast of Alaska, and some of those otters were eventually transplanted to the sea off northern California. All hunting of sea otters was banned.

With total protection and an abundance of sea urchins, the sea otter population increased. As the sea otter population grew, the number of sea urchins, the otters primary prey, declined. Moreover as the sea urchin population fell, there was less herbivore pressure on the urchin's primary food, kelp. With time, the kelp forest was reestablished and with it an entire marine ecosystem. This then is what is called a cascading trophic effect, where what happens at one trophic level impacts what takes place at the other trophic levels. In this case, sea otters are the keystone predator because whether or not sea otters are present determines what happens at the herbivore trophic level, and in turn, what takes place at the herbivore trophic level establishes what transpires at the plant or vegetation trophic level. It is important to remember that all this takes place because sea otters, the predator, greatly reduce the number of herbivores, sea urchins, in this instance. That is to say, a keystone predator is a keystone predator only because predation causes a major reduction in the herbivore population, which then causes a major rebound in the associated plant community.

So, to call the wolf a keystone predator by definition means that wolf predation significantly reduces the numbers of ungulates, such as mule deer, elk, and moose, which in turn reduces or eliminates hunting opportunities for you, me, and everyone else. This, though, creates a problem because wolf advocates have repeatedly stated that wolves have no major impact on ungulate numbers or hunting opportunities! How can they have it both ways? Because wolf supporters have been talking out both sides of their mouths at the same time. To date, this fraud has been successful because the media, the public, and even federal district court judges are ecologically incompetent. In other words, a lot of people have been using the term keystone predator in regard to wolves, without knowing what that term actually means. Now, however, you know the truth. A keystone predator is one that significantly reduces the numbers of its prey, elk and deer, in the case of wolves. Contrary to what pro-wolf advocates have claimed for years, scientific studies have shown that wolves, bears, and other carnivores can reduce ungulate numbers to 10% or less of what the habitat would otherwise support. So wolves and other carnivores must be keystone predators that are needed to restore functioning ecosystems? Right? Not really, because wolves and other carnivores were never THE keystone predator. Instead, that role was reserved

for Native Americans. Native people determined the distribution and abundance of elk, deer, and other ungulates, not carnivores. To call wolves, grizzly bears, and other carnivores keystone predators is simply white racist theology.

Prior to the release of wolves in Yellowstone there were an estimated 100,000 elk and 5,000 bison in that ecosystem. Historically, though, there was very little wildlife in Yellowstone, or anyplace else, due to native hunting. Between 1835 and 1876, 26 expeditions spent 765 days in the Yellowstone ecosystem on foot or horseback, yet they reported seeing elk only once every 18 days. Bison were only observed on three occasions, none of which were in the park, and no one saw a single moose. Furthermore, no one observed or killed a single wolf, an indication that wolves were so rare they could not have been a keystone predator. Early explorers, however, made 45 references to native people.

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Prior to European settlement, willows and aspen were abundant in Yellowstone, as were beaver, riparian songbirds, and a host of other species. Yellowstone Park was established as the world's first national park in 1872 and one of the initial orders of business was to forcefully remove the park's original owners, without compensation, and then create the myth and lie, that aboriginal people never visited the park because they feared the thermal areas, a claim NOT supported by archaeological data. This was all done to promote tourism because after what happened on the Little Big Horn in 1876, no one was going to visit a park filled with "savages." The Yellowstone model of park management, unfortunately, has been exported throughout the world where it is known as Fortress Conservation—that is throw the aboriginal people out and then lie about it. In his recent book on Conservation Refugees, author Mark Dowie estimated that in the last few years at least 10,000,000 of the poorest people on earth have been removed, at gunpoint, to create new parks and "wilderness" pleasuring grounds for largely white elites. Lies have consequences.

In addition to my research on Yellowstone, I have conducted a detailed, continuous-time analysis of all the wildlife observations made by Lewis and Clark on their 1804-1806 expedition across the West. I also quantified each and every time Lewis and Clark met native people. In all, there are over 40,000 numerical data entries. Thus, I can plot the distribution of wildlife and aboriginal people day by day for all 863 days of Lewis and Clark's journey. If it were not for buffer zones between tribes at war, Lewis and Clark would have found little wildlife anywhere in the West. It is not as if buffer zones were unhunted, because they were, but only in force sufficient to repel attack. Most of the wildlife Lewis and Clark encountered, and especially grizzly bears and bison, were between the Missouri and Yellowstone Rivers in what is now eastern Montana because that area was a six-sided buffer zone constantly at war.
Then too, Lewis and Clark were proceeded by smallpox and other European-introduced diseases that reduced aboriginal populations by 90% or more BEFORE any explorers set foot in the West. Prior to being decimated by disease, there were more Native Americans and even less wildlife. In 1491, there were not 60 million bison, 10 million elk, or 100,000 grizzlies, as is often claimed. Even passenger pigeons were rare. Again we know this from the archaeological record. It was only after the American Holocaust decimated native people that wildlife populations increased to unnatural levels.

Before Yellowstone was established as a national park, native hunters roamed throughout the ecosystem, and because of the constant hunting, there were few elk or other ungulates. Without an overabundance of herbivores, aspen, willows, and other species, like beaver, were abundant. Then native people were exiled followed by an abnormal increase in elk, bison, and moose, which in turn, resulted in a steep decline of aspen, willows, and other plants. Correct me if I am wrong, but is this not a classic example of keystone predation causing a cascading trophic effect? Prior to European contact, there was an abundance of sea otters (native people), which preyed upon sea urchins (ungulates), and thereby kept the sea urchin herbivores (elk) from destroying the kelp forests (aspen-willows).

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Europeans arrive and eliminate Native Americans (sea otters), which lead to an abnormal increase in elk and other ungulates (sea urchins), while the ungulates (sea urchins), in turn, destroyed aspen and willows (kelp forests) causing the ecosystems to collapse and change states.

So to restore Yellowstone, or any other national park to its former, natural condition, we simply need to add native people and I have testified to this effect before Congress. Hunting, after all, is a natural ecological process, and as such is in keeping with Park Service regulations. All that is needed is to change certain peoples' views about the original state of nature. Although it is not what some would care to admit, the national park idea that was formulated in Yellowstone and sold to the world is, at its heart, not only romantic, but racist. Native people were the keystone predators, not wolves or bears.

Did you ever wonder why grizzly bears den in such remote places? Because those that did not, were killed and eaten by Native Americans! Aboriginal peoples routinely hunted denned bears during winter. Or did you ever wonder why grizzlies never extended their range across the Great Plains? Because there were no safe den sites. Once you leave eastern Montana, with its isolated mountain ranges or the Missouri-Yellowstone river breaks, there was no place denning grizzlies could escape native hunters. Similarly there were few grizzlies historically in Alaska. Areas like McNeil River or Katmai, where large numbers of bears can be seen today, are solely artifacts of the American Holocaust that decimated native people.

As noted by Lewis and Clark, grizzlies like bison and other ungulates only occurred in buffer zones between tribes at war because the bears were simply large packages of fat meat aboriginal hunters killed at will. Now, that is the sign of a true keystone predator—a predator preying upon another predator at a higher, or fourth, trophic level! Native people also relentlessly hunted wolves both as food and to remove a competitor. The Inuit had a particularly effective way of eliminating wolves. Aboriginal Inuit hunted bowhead whales from umiaks or skin boats. Bowheads use long plates of baleen to filter out their microscopic food. Baleen is indestructible like plastic yet coils like fine spring steel. Europeans hunted bowheads because, at that time, baleen was used as stays in women's corsets. To kill wolves, Inuit would take a sliver of baleen, sharpen it at both ends, twist it into a small, tight coil, and bind the coil with sinew. The coiled baleen was then placed in a small ball of fat and allowed to freeze. The frozen balls of fat were then placed near dens and other places frequented by wolves. When discovered by a hungry wolf, the fat balls would be swallowed whole. Once in the wolf's stomach, the sinew holding the coiled baleen was dissolved, but not the baleen. As the baleen, with its ever so sharp points, uncoiled, it punctuated the wolf's stomach or intestines killing the animal. Once a fat ball was swallowed, death was certain. Again a predator hunting another predator.

As a rule, carnivores did not kill and eat aboriginal people. Instead aboriginal people killed and ate carnivores, especially bears, making humans the ultimate keystone predator.

The truth of the matter is that hunting is a natural ecological process. And since archaeological records indicate that humans have long killed and ate other carnivores, that makes humans the ultimate keystone predator...not wolves and other predators.