Predation: Lies, Myths, and Scientific Fraud

by

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In the ongoing debate about predation, did you ever wonder how we went from our forefather's view that predators have a negative impact on deer and elk and severely limited hunting opportunities to today's belief that predators have little or no effect on game populations? To understand how this transformation occurred, we have to go back 40 years and review five events - - - Farley Mowat's book <u>Never Cry Wolf</u>, Hornocker's mountain lion study, Isle Royale's wolves, the Kaibab Deer Incident, and Graeme Caughley's mathematical models.

First, <u>Never Cry Wolf</u>. As a young biologist working in northern Canada, Farley Mowat made an amazing discovery - - namely that wolves did not live by killing caribou!! Instead, wolves survived on rodents and hence wolves were needlessly being persecuted by man. <u>Never Cry Wolf</u> was presented as fact and was later made into a movie by Walt Disney that was seen by millions. The trouble is Mowat's rendition of wolf biology was entirely incorrect - - wolves live by killing large mammals, a fact readily admitted by all the wolf biologists, who have ever lived. Thus, people who study wolves have known for years that Mowat's book was less than truthful.

What has only recently come to light, however, is that Mowat fabricated the entire story!! Not only did he get wolf biology wrong, but he was never in the places he said he was at the times he claims in <u>Never Cry Wolf</u>. In short, the book is a work of fiction. Nonetheless, <u>Never Cry Wolf</u> has been highly influential in changing the public's perception about wolves and other predators. According to a group of noted wolf biologists, "despite its depiction of fiction as fact, this widely read book probably played a greater role than any other in creating support for wolves." When questioned on all this, Mowat has been unapologetic

and contends that the end, protecting wolves, justifies the means, lying. Mowat has also said that he would do it all over again, if given the chance.

Least you think this is old news and that <u>Never Cry Wolf</u> no longer shapes public opinion, think again. At a luncheon during the Clinton administration, I was seated next to a high-ranking Republican Congresswoman from New York, who was telling everyone within earshot that reintroducing wolves to Yellowstone would just be the greatest and that worries about game populations were unfounded because wolves ate mice!! When questioned, the Congresswoman cited <u>Never Cry Wolf</u>. Needless to say, she was not the least bit pleased when I informed her that Mowat had spun the truth to suit his political ends.

In 1970, Maurice Hornocker's study of mountain lion predation on mule deer and elk in central Idaho was published as a <u>Wildlife Monograph</u> by The Wildlife Society - - the professional organization for wildlife biologists. Dr. Hornocher contended that mountain lions had little impact on deer and elk populations, in part, because the cats socially regulated. That is to say, mountain lions used social means to purposefully regulate their population below the level where the cats would effect prey numbers. In that same year, Douglas Pimlott claimed that wolves too socially regulated. Unfortunately, this is <u>not</u> how evolution works!!

It was not true when they wrote it and it certainly is not true today. In their recent book the <u>Desert Puma</u>, Logan and Sweanor, who are associated with the Hornocher Wildlife Institute, repeatedly state that mountain lions "do not socially regulate." David Mech and other wolf biologists have also acknowledged that wolves do not socially regulate. Instead, wolves are in the business of turning

prey animals into more wolves as quickly as they can without any regard for the health of prey populations. "We would expect wolves to kill as many prey as possible. There is little for wolves to gain by being prudent about resources within their territory."

Which brings us to Mech's 1970 book about wolves and moose on Isle Royale. According to Dr. Mech, wolves had little impact on that national park's moose population. Instead, moose numbers were largely controlled by habitat and/or weather. As additional data have been collected over the last 35 years, however, at least five different interpretations of predator-prey relationships on Isle Royale have appeared in various scientific journals - - nevertheless the popular press continues to cite Isle Royale as an example of the "balance of nature" and how predation has virtually no impact on ungulate populations. The trouble is Isle Royale is <u>not</u> representative of conditions anyplace else in North America!!

As Isle Royale wolves kill most of the more vulnerable moose, wolf numbers fall and remain low long enough for the moose to increase. Because this is an island, vacated wolf territories are not automatically filled by lone or dispersing wolves. On the mainland if a wolf pack naturally winks-out or is removed by hunting or trapping, lone and/or dispersing wolves reoccupy the vacant territory, often within a matter of days - - so in the real world, wolf pack density and wolf numbers seldom fall low enough to allow their prey to recover.

In addition, there are no bears on Isle Royale, either black or grizzly, while throughout the rest of North America, one or both species of bear are common. Research has demonstrated that bears often are a significant predator on

newborn moose and other ungulates. Moreover, bear predation and wolf predation are additive and together they have a significant impact on big game populations. In fact, throughout most of Canada and Alaska, combined predation by bears and wolves routinely limits moose numbers to 10% or less of what the habitat could otherwise support. Bear and wolf predation also severely reduce hunter opportunities. Acceptable human offtake rates in bear-wolf-moose systems vary from 0% to 5%, while in predator-free areas hunters harvest up to 55% of the over-winter moose population each year, without a decline in moose numbers. Thus, Isle Royale is an entirely abnormal situation.

Many readers may be too young to remember the Kaibab Deer Incident but it figures prominently in debates over predators. The Kaibab Plateau, also called the North Kaibab because it is located north of the Grand Canyon in Arizona, is known for producing large-antlered mule deer, and because of that, it was set aside as a game preserve by President Theodore Roosevelt in 1906. Hunting was banned, while wolves and mountain lions were killed. With predators eliminated, the mule deer population irrupted to an estimated 100,000 animals that then proceeded to strip the range bare before starvation lowered deer numbers - - Ahhh the good old days when there were too many mule deer!!

For nearly 40 years, the Kaibab was cited as proof that predators limited ungulate populations and that hunting was therefore necessary where wolves and mountain lions had been eliminated. Aldo Leopold, among others, cited the "Terrible Lessons of the Kaibab." All this changed in 1970, though, when Australian ecologist Graeme Caughley published a paper in Ecology, a scientific journal of the Ecological Society of America.

Caughley's paper was actually on introduced Himalayian thar in New Zealand and his belief that ungulate populations are food-limited and that predators have little effect on prey populations - - historically New Zealand lacked ungulates, all of which were introduced by Europeans and New Zealand, to this day, still lacks predators. First, however, Caughley had to discredit the prevailing paradigm of the day, namely the Kaibab Deer Incident, which he did - - or at least he said he did. Others, citing Caughley's <u>Ecology</u> paper have called the Kaibab a myth and deny it ever happened!! Today, the Kaibab Myth is cited by many as proof that wolves and mountain lions have no effect on mule deer populations - - instead deer numbers are set by available habitat.

Now unlike Caughley, who in a later publication admitted <u>that he had never set foot on the Kaibab,</u> I have been to Kaibab numerous times, have spent a great deal of time looking for Kaibab documentation in various archives, and I can unequivocally report that the Kaibab happened just like Leopold said it did. If there is any myth at all, it is Caughley's 1970 publication, a "scientific paper" in name only. According to Caughley's view of the world, mule deer have always been superabundant in the West, and deer have always severely overgrazed the vegetation, especially on winter ranges. Thus, historical journals should be overflowing with references to abundant mule deer, archaeological sites ought to be full of mule deer bones, and the earliest photographs should show that vegetation on western ranges was very heavily grazed by mule deer and other ungulates. None of which is true. Sightings of mule deer are rare to non-existent in first-person historical accounts; mule deer and other ungulate bones are rare in archaeological sites, even on the Kaibab; and vegetation depicted in historical

photographs shows absolutely no browsing by mule deer, elk, or moose anywhere in North America.   All datasets that Caughley never bothered to consult.

After his triumph in Ecology, Caughley developed a mathematical model of plant-herbivore interactions, which he claimed represented how the natural world works. These were paired, simultaneous differential equations containing a number of parameters, such as the rate at which mule deer turned forage into more mule deer. Therefore there were, and still are, no data for most of these parameters, so Caughley simply picked numbers that he claimed were representative of plant-herbivore systems. Caughley then grew his model 25 times a year inside a computer. This produced an outcome where the vegetation and herbivores reached equilibrium after 2 or 3 oscillations. Caughley subsequently published various versions of this model in leading ecological journals in the U.S. and Europe.

None of these scientific journals, reviewers, or editors, though, ever required Caughley to present a sensitivity analysis of his model - - this is where you vary parameter estimates singularly or in combination to determine how robust or universal is the model's output. Unlike most professionals, who have uncritically accepted Caughley's claims, I performed a detailed sensitivity analysis on Caughley's model. By varying the parameter estimates in Caughley's model, within reasonable limits, herbivores can also take the plants to extinction or the herbivores and plants repeatedly cycle never reaching equilibrium. Also recall, that to obtain the outcome that he published in various journals, Caughley "grew" his model 25 times per year, but mule deer and other

ungulate populations only grow once each year; i.e. North American ungulates do not birth throughout the year. If you grow Caughley's model only once per year, instead of the 25 times per year that Caughley used, it takes the herbivores and plants 600 years to each equilibrium, not the 40 or so years reported by Caughley.

Clearly, Caughley selected his parameters to produce a pre-ordained outcome. How he deceived all the people all the time is certainly an indictment of the scientific process, or at least how science is practiced by many ecologists and wildlife biologists. But Caughley did not stop there, for he then developed a model where he added predators to his previously defined plant-herbivore system. This produced three simultaneous differential equations; one for vegetation, a second for herbivores, and a third for predators. Again, there are no actual data for any of the model's many parameters, so Caughley picked numbers he said "seemed appropriate" and hit the run button on his computer. His outcome?? Stability and equilibrium - - AND predators had little impact on ungulate numbers. As before, Caughley conducted no sensitivity analysis. When I conducted my sensitivity analysis on Caughley's plant-herbivore-predator model, I was shocked!! - - this was many years ago when I was still naïve. Caughley had picked the only numbers that would produce the result he reported - - equilibrium and no predation effect!!! Any other numbers produce erratic model output, be they strange attractors or complex limit cycles. Whatever Caughley's models are, they certainly are not science.

So why have I spent so much time on Caughley, who you probably never heard about? Well, Caughley co-authored a book on wildlife management that is

still used in University classes. Caughley has since died, but in his obituary that was published by The Wildlife Society, Caughley was hailed as a pillar of the wildlife community because his views on ungulates and predators have come to dominate the profession. In life there are liars, statisticians, and modelers. The first two are bad enough but you should never ever trust a modeler unless you fully understand the underlying math <u>and</u> go through the computer codes line by line.

As an aside, did you ever wonder who anti-hunters and their technical experts cite as proof that you do not have to hunt deer or elk populations to keep those animals from destroying the range?? Why Graeme Caughley!! For he "proved" that plants and herbivores will reach equilibrium without any need for predators, be they carnivore or human. Sweet!!

Finally, predator enthusiasts object to characterizing wolves and mountain lions as killers. Instead they call them "adorable" and take tame wolves into schools to show the peaceful disposition of the animals. But what about interspecific and intraspecific aggression? In a 15 year study of an unhunted mountain lion population in New Mexico, Logan and Sweanor reported that cats killed cats at a rate of 18% per year. While David Mech and his coworkers reported that unhunted wolves in Alaska killed wolves at 36% per year. Thus, mountain lions kill mountain lions at a rate of 18,000 per 100,000 per year, while wolves kill wolves at a rate of 36,000 per 100,000 per year - - this is how the FBI reports crime statistics.

For comparison, the murder rate in the U.S. is around 7 people per 100,000 per year. So the mountain lion homicide rate, as reported in New

Mexico, is 2,500 times the human murder rate. While the wolf homicide rate, as reported in Alaska, is 5,000 times the U.S. murder rate. In addition, lions kill wolves and other predators whenever they can, and wolves return the favor killing cats and any other predators they can catch - - this is not predation, as the victims are seldom eaten. Whatever else wolves and mountain lions may be, they are stone cold killers.

A few years ago there was a nature special on TV about lions and hyenas in Africa. The entire hour was devoted to lions killing hyenas and hyenas killing lions - - finally nature depicted how it really is, "red in tooth and claw." The next day a member of my department asked me what I thought about the African nature special and I said it was GREAT!! She admitted, however, that she had to turn the TV off, as it was too violent and upset her moral sensibilities. Violent yes, untruthful (or…unnatural) no.