



DISINTERESTED SCIENCE

The Basis of our Roosevelt Doctrine

By Valerius Geist Ph.D.

B&C Professional Member
University of Calgary (Emeritus Professor
and Founding Program Director for
Environmental Science, Faculty of
Environmental Design)

There is no shortage of advocacy masquerading as science, as well as lamentable flaws inflicted by scientists themselves, from outright fraud to laziness and inexcusable thoughtlessness.

When someone insists that their argument is “scientific,” Samuel Johnson’s famous admonition crosses my mind, namely, that “*patriotism is the last refuge of a scoundrel.*” Replace patriotism with science.

Disinterested science, by definition, is research performed without bias. Put another way, a scientist must search for results untainted by selfish motives or advocacy. “Let the chips fall where they may” is a common enough expression.

Science has reached such a level of prestige today that all sorts of unscientific material is labeled as such, erroneously even maliciously, and powerful parties in commerce and government try to contain or eliminate science, apparently at any cost. This is not new. And I point to the classical example of Stalinist-Russia trying to bring genetics in line with communist doctrine via the odious Lysenko Doctrine, which falsely maintained that environmentally acquired characteristics were heritable. This politically motivated doctrine wrecked biological and agricultural sciences in Russia, till Russian physicists—embarrassed to the bone the new molecular biology—found ways to eliminate the pseudo-science of Lysenkoism. It is now used metaphorically to describe the manipulation of science as a way to reach predetermined conclusions as dictated by ideology, related to political objectives.

However, we are not blameless in the “enlightened” West. Science by its very nature can be an irritant, and while research favoring the biases of funding sources—“bought science” and other forms of dishonesty—are a serious concern, we cannot tolerate big governments and industry undermining science. This is being done by cutting basic ecological and climatic research and monitoring, dismissing and muzzling scientists and of late, librarians, shadowing scientists at conferences with government “handlers” (as once practiced by Iron Curtain countries), using firms which, for a price, will throw doubt on genuine science or even ghost-write fake papers to be planted in refereed journals. It has led to scientists in 17 Canadian cities leaving their laboratories for the streets, taking placards in hand. They decried their government’s war on science, which in turn just announced loudly a richly funded program to generate its “very own science” in opposition to the “science” used by critics.

Two kinds of science? As an environmental scientist, I was well aware of hidden agendas to suppress and eliminate vital knowledge, but



NORTH AMERICAN MODEL OF WILDLIFE CONSERVATION PILLAR NO. 7

Managed by Science – The best science available will be used as a base for informed decision making in wildlife management.

The intricate nature of ecosystems and biotic communities, of which all wildlife and man belong, will be managed under the knowledge of science rather than opinion, conjecture, or special interest.

Boone and Crockett Club founder, Theodore Roosevelt was a strong advocate of science, and that only the best science available was to be used to make critical decisions on natural resource management. The Club began by providing seed money for some of the first wildlife research projects. Under the leadership of member, Aldo Leopold the Club began formulating flexible scientific management policies for wildlife and natural resources to achieve an ecological balance. The Club also called for the first President's Conference on Outdoor Recreation, which led to the establishment of the National Recreation Policy, which coordinated resource management at federal, state, and local levels.

unlike current attempts by governments, the bureaucrats were afraid of discovery and were doing it in secrecy. Chinese curse by wishing opponents to live in interesting times, and indeed, we do!

Our Club has a longstanding policy on science in wildlife management, a tradition created by Theodore Roosevelt and labeled by Aldo Leopold as the Roosevelt Doctrine. It is a principal pillar of the North American Model of Wildlife Conservation: No. 7; *Wildlife is to be managed by science*. And we expect disinterested science and scholarship. However, the Roosevelt Doctrine is credible and effective in wildlife conservation only if the above abuses of science notwithstanding, we subject scholarship to an ongoing housecleaning. Why? Unfortunately, there is no shortage of advocacy masquerading as science, as well as lamentable flaws inflicted by scientist themselves, from outright fraud to laziness and inexcusable thoughtlessness.

A long time ago I received a paper for review from a European journal with brilliant results, endorsed by four prominent scientists from leading American universities. By accident of circumstance I had been using the same math, one exceptionally used in wildlife research. The author's results were so stunningly precise, that they were, literally, too good to be true, which caused me to go over his calculations. I soon suspected that they were cooked. Fortunately, the author claimed that in his calculations he also used values taken from refereed papers. However, I could not find said values in the papers cited. Moreover, there were papers cited which I could not locate. So, I picked up the phone and called the authors of said papers. To make it short: the values were fabricated, as were some of the references. My colleagues at the other end of the phone were quite surprised what they were being cited for. Since some of the mathematical derivations were beyond me, I enlisted the university's department of mathematics. The derivations were bogus! Is this exposure of pure fraud a case of successful peer review? Hardly. It's an example of catastrophic failures at quality control and supervision at our most prestigious universities. The fraud took advantage of the reluctance of busy supervisors to learn a simple, though rarely used mathematics. This is but one example of a much larger and ongoing problem in the life sciences, the paucity of understanding mathematics. Biology limits itself largely to statistics, but look at the diversity of mathematics applied to biology as illustrated in D'Arcy Wentworth Thompson's 1917 *On Growth and Form*. It's a book, as I discovered to my surprise, being read and appreciated by architects and engineers. Investigations into fraud in science raises a troubling warning, namely that competitive environments favor psychopaths that ruthlessly deceive and manipulate.

Reflecting on my own work, I note that hypotheses I debunked or advanced using mathematical formulas are roundly ignored. Studies of peer review show that, among other problems, it stifles novelty and innovation. In plain words: there are

manuscripts, critical of current orthodoxy that are languishing in file drawers, unable to get past reviewer prejudice and editorial rejection, citing (conveniently) editorial limitations on journal space. Yes, there is awareness of this, but it's an uphill battle.

Environmental organizations are fairly successful advancing the view that they, and not their critics, are the true purveyors of science. One favorite claim is that such and such policy would restore the balance of nature. Who remembers that the great Charles Elton, the father of ecology, rejected that notion? Unfortunately, enough biologists have fallen for that notion, not realizing that ecological balance is untenable in principle. It is based on the mistaken analogy of physiological or biochemical balance processes within individuals. Such balances (i.e. blood sugar) are based on negative feedback; whereas populations of organisms within ecosystems can operate only on positive feedback. This means that populations use resources (selfishly) in competition with other populations to the limits of their abilities. That can lead, temporarily and unpredictably, as to level or duration to a kind of balance illustrated by two sumo-wrestlers pushing against one another in temporary stasis to the limits of their strength. Now, the above theoretical explanation is not an easy one to digest, so that I applaud, for instance, William Porter, Boone and Crockett Club Professor at Michigan State University, who showed in the fall 2013 edition of *Fair Chase* that—empirically—two studies on wolf versus prey have not shown the expected balance and were not likely to do so in the future. Still, all efforts notwithstanding, I harbor no illusions that the fallacious balance-of-nature argument will go away soon—if ever!

Another hollow illusion of significance is the “it is natural” argument, followed by the admonition to “let it be and hands off” because “nature knows best.” What a lovely excuse to abscond from reading, studying, and thinking! So, you think the forest-covered landscapes, especially in national parks, are “natural?”

Let's make a tiny, tiny step backward in geological time, a mere 11,000 years. Five species of ground sloths then roamed North America from Panama to the Yukon, the largest located in what is the current U.S. exceeded African elephants in size, and the smallest, a mere grizzly-bear-sized midget. Tree-shredders all! And they were ably assisted by American mastodons, Colombian mammoth and brush shredders like the giant camel and llamas. Poor trees! And yes, the tree-shredders did a grand job clearing open spaces. If not, the speedy pronghorn and that, which drove its evolution, the American cheetahs would not have existed. Nor the fleet-footed American horses. Nor would the American bison, then geared for speed just as were the muskoxen then. These cursors or high-speed runners needed wide, open spaces to exist. Today's bison, dwarfed since those days, are geared for power, not speed.

Tree covered landscapes speak to the extermination of the mega-fauna by humans. And please, do not think that's irrelevant to current policies and concerns. Look at the devastating forest fires in California or Arizona, or Idaho or the brush fires in Australia. They are a direct consequence of modern environmental protectionism or “let it be” non-management. Under natural conditions mega-herbivores continually reduce fuel build-up, which results in small, benign wildfires. Conversely, exterminate mega-herbivores and wildfires result from

horizon to horizon. These almost certainly did in much of the biodiversity and explain the huge post-glacial loss of our native birds. Native people, here and in Australia, were caught in that dilemma shortly after they destroyed the mega-fauna. Consequently, they began to manage landscapes via controlled burning first for safety, and secondly for the rich return in plant and animal foods. Looking at today's destructive fires here and in Australia, it appears that we still have to learn that elementary lesson, excepting the ignored scientists and managers that long ago recognized the need for controlled burning. Tree-covered landscapes today are an unnatural human artifact, probably not seen since the days after dinosaur extinction.

The belief in the sanctity of forested landscapes is so potent, that elephants become “evil” for deforesting parks in Africa; or introduced moose in Newfoundland for changing the forest cover, affecting some songbirds. The African elephant example is, of course, an illustration of the negative consequences of the “nature knows best” non-management approach. Lost in these simple-minded assessments is the effect of the mega-fauna in generating living conditions for other biota. I was an unhappy witness to the effects on wildlife of a dairy operation being shut down, with the loss of impact on the land by dairy cows, a proxy for a mega-herbivore. Within three years, large swarms of over-wintering American widgeons (short-grass feeders), as well as green-winged teals, Canada geese, Trumpeter swans, pheasants, killdeer, whip-poor-wills, night herons and nesting Wilson's snipe disappeared completely. Tall grass surrounding ponds extinguished mallard nesting, as ducklings could not forage in the tall, dense grass now grown for hay. Songbird abundance

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The giant sloths roamed North America from Panama to the Yukon.

and diversity dropped precipitously and we had empty swallow nests. The deer population dropped to about half the original number, and we noted a big decline in grazing by black bears. The close cropping, trampling, and manuring by the Holstein dairy cattle that had maintained a rich biodiversity was now sharply reduced by the beautifully green tall-grass hay-meadows.

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Let us never forget, science in wildlife management decision-making is but a tool to pair with historical scholarship. It is rarely an instrument all to itself. "Science informed" is the proper discharge. ■

POSITION OF THE BOONE AND CROCKETT CLUB

Adopted 6/13/2013 by Boone and Crockett Board of Directors

USE OF SCIENCE IN THE MANAGEMENT OF WILDLIFE

Situational Overview

The United States and Canada pioneered wildlife conservation through the creation and institutionalization of a science-informed wildlife profession. However, wildlife management, as documented by the Wildlife Management Institute, is not merely getting the science right; it has always had a political dimension owing to the public nature of the resource and management in the public trust by agencies of federal, provincial, state, tribal, and First Nations government agencies.

Position

The Boone and Crockett Club supports science-informed management of wildlife. Use of science in decision making is one of the pillars of North American wildlife conservation and was instrumental in the restoration of wildlife across the continent. Decision-making authority should be placed in agencies and citizen commissions or boards dedicated to upholding the public trust. Agencies should inform decisions on wildlife management policy and practice through critical thinking, applying social and biological sciences, experience, and societal values as appropriate to choices being made.