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March 1978

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# INFLUENCES ON THE SCIENCE OF ANIMAL DAMAGE CONTROL

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ABSTRACT: This paper is about the complexity of animal damage control science and its research, methods development, and control applications. It is not the point here to discourse on the individual methodology used in animal damage control research. The discussion is to point out that many researchers, wildlife managers, bureaucrats, or advocates fail to understand the situation in the science of animal damage control and its attendant problems that need resolution. (1,2,3)

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Judge John H. Wood declared at the recent trial on the killing of eagles in Texas, that it was the most controversial case he had ever encountered as a trial lawyer or federal judge. (4) Furthermore, public involvement on both sides of the question was "mind boggling." Mice carrying a parasite causing a rare human disease (Babesiosis) transmitted to ticks thence to humans may not be controllable because of potential loss of pesticides. (5) A battle over control of wild horses in Nevada has become a battle between professional expertise and advocacy. (6)

Florida alligator attacks on humans caused 10,000 complaints to the Florida Game and Fresh Water Fish Commission. According to Mr. Tommy C. Hines, Biologist for the Commission, alligators were untouchable until this January. (7) Headlines state: "Minnesotians take on the big, bad - but protected wolf." Some protected wolves were shot and left on courthouse steps. (8) In each case, the situation became an issue unresolved because it appears that many animal damage control scientists have essentially abdicated their scientific position to advocates and revelationists. (9,10,11,12)

Regulations being issued on the scientific aspects of animal control easily leads one to believe that many contemporary scientists in animal damage control are advocates and revelationists. They seem to believe that statements on animal damage control will become facts just because the words are sincere, and repeatedly spoken over the media. (2,13,14,15,20)

For some inexplicable reason they tend to ignore Newton's Third Law which says that every action is matched by an opposite and equal reaction. Furthermore, they seem to want to rely more and more on their own publications and tend to remain almost exclusively within the thin gray line of government and institutional references of their own discipline rather than cross discipline.

Unorthodox as it may seem, this paper starts with its conclusion, viz, that given the state-of-the-art in science of animal damage control the only way to resolve this problem is to change its philosophy on future research, methods development, and application. (16,17,18,19)

Review of the U.S. Government and U.S. academic literature on animal damage control indicates that it is not very useful for all practical purposes, from a regulatory and decision-making point of view. (21) As one scientist describes it: "It appears that much of it seems to have been done for the scientist's own amazement."

The contemporary animal damage control science situation is analogous to a story about a dog by psychologist John Watson in his book "Behaviorism."

Watson related this fanciful tale: "Without taking anyone into my counsel, suppose I once trained a dog so that he would walk away from nicely ground, fresh hamburger steak and would eat only decayed fish. I trained him, by use of the electric shock, to avoid smelling the female dog in the usual canine way--he would circle around her but would come no closer than ten feet. Again, by letting him play only with male puppies and dogs and punishing him when he tried to mount a female, I made a homosexual of him. Instead of licking my hands and becoming lively and playful when I go to him in the morning, he hides or cowers, whines and shows his teeth. Instead of going after rats and other small animals, in the way of hunting, he runs away from them and shows the most pronounced fears. He sleeps in the ash can--he fouls his own bed, he urinates every half hour and anywhere. Instead of smelling every tree trunk, he growls and fights and paws the earth but will not come within two feet of the tree. He sleeps only two hours per day and sleeps these two hours leaning up against a wall rather than lying down with head and rump touching. He is thin and emaciated because he will not eat fats. He salivates constantly (because I have conditioned him to salivate to hundreds of objects). This interferes with his digestion.

Then I take him to a dog psychopathologist. His physiological reflexes are normal. No organic lesions are to be found anywhere. The dog, so the psychopathologist claims, is mentally sick, actually insane; his mental condition has led to the various organic difficulties such as lack of digestion; it has "caused" his poor physical condition. Everything that a dog should do--he does not do, and everything that seems foreign for a dog to do, he does. The psychopathologist says I must commit the dog to an institution for the care of insane dogs; that if he is not restrained, he will jump from a ten-story building, or walk into a fire without hesitation.

I tell the dog psychopathologist that he does not know anything about my dog; that, from the standpoint of the environment in which the dog has been brought up (the way I have trained him) he is the most normal dog in the world.

I then take the psychopathologist into my confidence. He becomes extremely angry. 'Since you've brought this on, go cure him.' I attempt then to correct my dog's behavior difficulties, at least up to the point where he can begin to associate with the nice dogs in the neighborhood. If he is very old or if things have gone too far, I just keep him confined; but if he is fairly young and he learns easily, I undertake to restrain him.

I use behavioristic methods. I uncondition him and then condition him. Soon I get him to eat fresh meat by getting him hungry, closing up his nose and feeding him in the dark. This gives me a good start. I have something basic to use in my further work. I keep him hungry and feed him only when I open his cage in the morning; the whip is thrown away; soon he jumps for joy when he hears my steps. In a few months time, I not only have cleared out the old but also have built in the new. The next time there is a dog show, I proudly exhibit him, and his general behavior is such an asset to his sleek perfect body that he walks off with the blue ribbon." (pp. 298-300) (22)

The central thesis to this tale is that the contemporary animal damage science situation is that it could be termed psychopathological or self destructive. It is a teaching or conditioning phenomena which can be unlearned and counter-conditioned, and depending upon where you work, it appears to form the basis of current research and application in animal damage control.

Two major camps have developed in contemporary animal damage control science. One camp pays homage in its theoretical formulations and clinical practices of advocacy. The other camp favors the thinking and procedures of institutional concepts.

John Zapp in his 1977 Cummings Memorial Lecture analyzed the situation very precisely. (9) He said that as a method for establishing truth, scientific method has two outstanding competitors. These, he said, are revelation and the method of advocacy.

Revelation, Zapp said, stands outside the scientific method, but has very considerable appeal to many professionals. To illustrate, he quotes the following from the book "Quack, Quack."

"We are living through one of those periods of struggle and decivilization and the well known symptoms of intellectual quackery can be observed all about us invading metaphysical thought. The symptoms are always the same, although superficially they may differ. Reason is dethroned as old fashion, and the man who asks for proof of a fact before he believes it is magisterially dismissed to the bottom of the form and told to write 500 times: "I must not ask for proof..." Sometimes, according to Zapp, reason is abandoned in favor of the pronouncements of an inspired leader."

On the other hand, Zapp says, the method of advocacy enjoys more prestige than the method revelation because it was adopted by the legal profession and the judiciary as the method of establishing truth. In this type truth seeking, according to Zapp, one advocate, or group seek only to prove a proposition while another advocate, or group of advocates seek only to disprove the proposition.

You have all seen this in the science of contemporary animal damage control. Each advocate (scientist) selects only those facts and arguments favorable to his case and ignores those favorable to his opponent's case except those for the purpose of refutation. Both arguments are presented within defined rules of procedure. The proposition is proved or disproved by preponderance of evidence.

At the present time, these two methodologies are intruding themselves into the structure of animal damage control science. Regulatory agencies say they cannot wait for proof. (23,24,25) As a result many so-called scientists within and without these agencies have become advocates to the detriment of science. There is no need to recite the litany of agency actions to show this. Most of you here have been involved continuously with this problem for over twelve years with no end in sight. (26,27)

In some cases, advocates have resorted to logically fallacy, "If you can't attack the argument attack the man." (9)

Those in the field of wildlife and related fields have a social responsibility as do all citizens. However, as a scientist you should not forget that animal damage control is a science and an art. It is devoted to the recognition, analysis, and evaluation of environmental resource damage problems caused by wild and feral animals. Those problems are extremely complex and cannot be left to advocates and revelationists. (14)

As professionals, it should be your first duty to ascertain the truth as well as it can be determined and tell your employers whoever they may be. (28) If you set forth your evidence, your reasoning, and conclusions clearly and intelligibly, your reasoning should provide an argument which is true for each individual mind as well as for your own. (16, 17) Daniel P. Moynihan, quoting the French theologian, Georges Bernanos, said it very succinctly; "The worst, the most corrupting, lies are problems poorly stated." (29)

A survey by the National Science Foundation (NSF) states that campus science is showing a decline. (31) Government science shows the same symptoms. The reasons for the decline according to the NSF is that the situation on the campus supports the proposition of playing it safe in face of the risk of criticism. The report says that unmistakable signs show a loss in scale, vigor, and creativity of

its campus research. (31) Dr. Fred Tschirley, of Michigan State University, on the other hand, says that the next 25 years will be the most exciting in all the history of crop protection. (31)

Regardless, in the present climate, animal damage control scientists must consider a much broader system than in the past or they will soon find themselves outside the mainstream of modern science.

No matter what technique you use for your research, methods development, and control application, its acceptance will ultimately depend upon the validity and reliability of your data on the past and present. (16, 17) In contrast, Harold A. Linstone says the past is a rich reservoir in which fact turns out to be a fishing expedition. Therefore, if good public policy decisions are to be based on facts you must make yourself aware of the present day vagaries, vicissitudes, and perversity of factors bearing on decisions in the public sector. (33,34)

Professor Paul A. Samuelson told his fellow economists that they should be humble because they have a lot to be humble about. (14) No less can be said to animal control scientists today because these same scientists are largely responsible for the situation today.

The power to control is a political question, but the logic of the control decisions themselves must be based on very sound knowledge. This does not mean that every valid animal damage control argument will be accepted at once. Since most of us have our own biases, it will take sometime to overcome them. It is said that Einstein had difficulty getting acceptance for his theory of relativity and that Max Plank's Quantum Theory was not accepted on day one. The plain fact is that the truth never triumphs but its opponents die out. (35) This has been true throughout the history of science. (32,33)

In time true science does prevail and that which is pseudoscience, propaganda or perhaps outright fraud is exposed and dies out. If you are still wondering why I have said what I said, it is because I feel that the science of animal damage control is being threatened by persons, policy, and logical errors long ago recognized as having no legitimate place within scientific method. George Santayana said: "Those who forget the lessons of history are condemned to repeat its errors." (9)

The science of animal damage control cannot cover itself with the mantle of science unless the professionals within it are willing and able to pursue rigorous, logical, and experimental analysis and evaluation of the character necessary and sufficient conditions to substantiate their results. Your science must do more than generate self-consistent explanations. It must demonstrate that certain explanations are better than alternatives. By better, I mean the results are parsimonious, better able to account for existing data, and of greater aid in predicting and controlling the phenomena of interest.

Until this happens the advocates and revelationists will continue to control the situation like Dr. Watson controlled his dog. (2, 22, 30)

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