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WILDLIFE MANAGEMENT AS PRACTICED BY THE BIOLOGICAL SURVEY

Excerpts from an address by Dr. Ira N. Gabrielson, Chief, Bureau of Biological Survey, U. S. Department of Agriculture, delivered at the 34th Annual Convention of the National Association of Audubon Societies, New York City, October 25, 1938.

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The Biological Survey is engaged in many phases of wildlife management. In fact, practically every activity of the Bureau might be so described, but there are several phases of this work in which the Bureau participates actively.

In the first place, the research work of the Survey and the facts developed by it are widely used by game-administrative officials all through the country in determining game-administration policies. Research is one of the fundamentals of sound wildlife management, and there are still many problems that need extended research in order that the management programs may have a more solid basis. It will probably always be so. There are many fascinating things in the wildlife research problem that it would be interesting to delve into. Today, however, there are two other phases that I prefer to discuss.

One is the management of lands and wildlife as practiced on the national wildlife refuges under the control of the Biological Survey. Here we have control of the land and can manage both land and vegetation to the better interests of wildlife so far as present knowledge will permit. The other is that form of wildlife management that has particular concern with the control of species that are detrimental to man's economic interests. I can discuss only briefly these two phases of the Bureau's activities, and because there are so many ramifications in both, it will be possible to discuss only the general principles and programs.

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Let us consider the control of injurious species first. The Biological Survey has long been charged with the study of the relation of birds and animals to agriculture. In fact that was one of the first activities set up in the history of the Bureau, which began some 53 years ago. . .

Actual control operations by the Bureau have been largely centered in the Western States. This is due to a peculiar combination of circumstances that does not exist in eastern North America. In the first place, much of the land, varying from less than half to more than three-quarters of the acreage of individual States in the West is still owned by the Federal Government. Most of this is waste or rough land, unsuitable for any economic use or so low in possible economic returns as not to invite private ownership, or else it is in areas that have been reserved for specific purposes by the Federal Government, such as Indian reservations, national forests, wildlife refuges, and the like. Throughout much of the western country stock raising and forms of agriculture interrelated with livestock production are the only possible sources of livelihood in many communities. It is on the livestock industry alone that many of the communities depend. In a great many of the more isolated communities agriculture itself is dependent on the livestock industry to the extent that agricultural land is devoted to the production of hay and feed crops for the winter use of the livestock that run on the great ranges during the summer season. . .

Two groups of wild animals do affect directly the prosperity of the livestock and farming industry, sometimes to an amazing degree. The livestock industry may embrace cattle, goat, or sheep production, and in more restricted communities poultry growing of one kind or another is the major source of income. Carnivorous animals of certain kinds prey directly upon livestock and poultry. Certain types of ground-burrowing rodents directly and often disastrously affect crop production. The several species of ground squirrels, prairie dogs, and pocket

gophers are perhaps the most continuously destructive, although the raids of great hordes of rabbits in some years are more spectacular.

The people of these communities always have fought and always will fight these destructive forms of life, so far as knowledge and ability make it possible, trying thus to minimize the damage to their interests. You and I would do exactly the same thing if we were in their place. Many of the practices they formerly used in reducing the numbers of these various forms of pests have been unduly destructive to other forms of wildlife and inadvertently so. These people did the best they know how. It is not possible to go into this in detail but I can refer to two from my own personal experience. One was the former widespread use of phosporus-coated grain in fighting ground squirrels. It was a cheap and somewhat effective poison, but one that was also exceedingly destructive to other forms of wildlife. The other was the practice found in the West and one formerly indulged in by practically every stockman of carrying around a bottle of strychnine sulphate crystals, which were inserted in every carcass of every description found on the range land. Under this practice, which was a sort of range law, the carcass remained for months a menace to every feeding animal that came along. Many years ago the Biological Survey was given the task of working out a solution to this problem. A great deal of progress has been accomplished in improving, simplifying, and making more specific the methods of control. . .

Technique in field application of control methods has been greatly improved. Methods of using poison have been developed, simplified, and made less dangerous to wildlife by decreasing the strength of the poison, by experimental studies to determine the bait material that would be least attractive to other forms of wildlife and still produce the results on the rodents against which the work was directed. Here too, there is still much room for improvement.

So far as the predatory-animal control work is concerned, the major efforts of the Biological Survey have been directed against one species -- the coyote. Only locally and incidentally have any efforts been directed against bears, and those were usually against individuals that had developed marauding proclivities. Most of the wolves and mountain lions taken by the Bureau have been in the States bordering on Mexico, to hold in some check the drift of these animals across the border and into the stock-raising districts of the Southwest. I want to say here that the Biological Survey believes in control, not extermination, and there is absolutely no danger of the extermination of even the coyote, whose range extends from Point Barrow, Alaska, to Costa Rica, in Central America, the principal species against which our efforts have been directed. Vast areas in the western country have never been touched by the Biological Survey and probably never will be. Efforts have been centered around the major livestock producing areas in an effort to safeguard in some measure the people's means of livelihood. The United States Government is in this field, and I feel properly so, because it is by far the largest landowner in the Western States. Any landowner may well and often does protect his crops from rodents, so far as rodents are produced on his own land. It is beyond the resources of that man, however, or of that community to control the rodents that, coming from the vast acreages of Government land around them, may invade their comparatively small acreage of cultivated crops.

In addition to the injurious effects of rodents to farming and stock raising is the relation of rodents to public health, as some rodents are carriers of plague and typhus. . .

The guiding principles on which these control operations are now being carried out are about as follows: We are endeavoring to reduce the damage in areas where it is sufficient to justify operations for control. We are requiring substantial local cooperative contributions from the people most intimately affected.

We are endeavoring to carry out these operations with a minimum harmful effect on other forms of wildlife and constantly to improve technique so as to make more specific the methods of control now employed.

The other form of wildlife management actively practiced by the Biological Survey is on the areas it owns and controls as wildlife refuges. Many of these lands when they came into our possession, particularly in recent years, had little or no value for wildlife of any kind. Much of the land purchased under the recent acquisition program for marsh-inhabiting species, particularly migratory waterfowl, has consisted of alkali flats or abandoned drainage or irrigation districts that were producing nothing of any value either for man or for wildlife. In many cases, therefore, our management program must begin with the basic essentials. On these drained marsh lands and lakes, the first essential is to put the water back. This involves the construction of dams, dikes, ditches, and other engineering devices. The second essential is the restoration of vegetation, whether it be aquatic plants or upland cover. The upland parts of these areas also have often been so denuded by over-grazing that they can have little value for wildlife until the cover is restored. On most of these areas, therefore, the wildlife management problem in the beginning is essentially one of land management, and involves plans to produce vegetation of some kind. . .

In managing this land we have found that three primary essentials must be met before we can even begin to consider one of the areas a wildlife refuge. In marshlands the water must be put back; on all lands, in the western country particularly, where livestock runs at large, grazing must be stopped or at least greatly reduced; and a patrol to protect the wildlife must be established. These are three fundamental principles which are subject to great variation and importance in various localities.

In occasional areas that still provide potentially good wildlife refuge lands, such as the Okefenokee Swamp, the establishment of an effective patrol is the outstanding need. In other areas, such as the newly created Lower Souris Refuge and the re-establishment of Malheur Lake, the first essential is to get water on the land; the second is to get fences established to keep out livestock; and the third is to establish a patrol to protect the birds seeking sanctuary there. . .

After a marsh is re-established then comes the problem of managing the wildlife that appears thereon. Likewise, after the cover and food is restored on an upland area, the same problem presents itself. One of the most puzzling and intricate of all is the one of the interrelationship of species. We must learn just what proportion of each may be allowed to remain on an area without detriment to others.

As an example of upland species it is already well known that deer, elk, and animals of that kind can become so abundant on a given area as to destroy the available food supply, for the scant months of the year at least, and so actually destroy their own population by starvation. This situation has been met to a certain extent by trapping surplus animals and moving them to other places where food is available. We anticipate that the time will come when the surplus population of antelope may necessitate some method of reduction or of other control of their numbers, just as it has been necessary to control the number of elk in Jackson Hole. One State game commission has already developed a successful technique for trapping and moving antelope from areas where they were congested to areas where none were present. Most of the great herds of elk, which are now found throughout a number of the intermountain States, owe their origin to animals trapped out of the Yellowstone herds or other places and moved into those districts. Many herds of deer were established the same way. Many thriving colonies of beavers have been moved out of areas where they were doing agricultural damage into places where they could become an economic asset. It is indeed highly probable that as conditions improve on some of the refuges, a program for controlling the numbers of some species may become necessary.

One of the most interesting problems in wildlife management on these lands is the question of predator interrelationship. The general policy of the Biological

Survey is the management of these areas can be stated briefly: These areas are sanctuaries for all forms of wildlife, and they will remain so except where definite studies show the desirability or the necessity of altering the animal population. Let me say here that there are no general control programs on the wildlife areas maintained by the Biological Survey. . . .

Refuge managers are not permitted to institute control proceedings until they have definitely established the need for them and the extent to which they are to be practiced. As a rule such permission is granted only from Washington. There is only one exception to this at present but there may be others. The one exception is on the Red Rock Lakes Refuge. Here, as you well know, we have a large portion of the only nesting population of trumpeter swans left in the United States. There were 46 adults and 51 cygnets on the Red Rock Refuge at the time our check was made this fall. In adjacent Yellowstone Park are additional birds, but on these two areas are found all of the trumpeter swans left in the United States. This is such a very small number that it is still questionable whether we can bring them back. Certainly any predation on them might easily be disastrous The refuge manage at Red Rock Lakes is under instruction to take active steps to control any species of wildlife on the refuge that threatens the swans in any way. Our fundamental philosophy on this I believe is sound. These are the only flocks of trumpeter swans from which this magnificent species can return. All other species on Red Rock Lakes are present in many other areas and are not threatened to the extent that the trumpeter is. We believe it is only sound management to give them every possible break, including protection from natural enemies to the extent of our ability. If similar situations develop in other areas, the same remedy will be applied. . . .

I wish I had the time to go into the enormous increases in population that have taken place on these refuges as food and cover have come back, but it is a fascinating subject, and one that can well be discussed at some other time. I just want to state in closing that many of the marsh areas that have been restored in recent years, primarily with money obtained for the development of migratory-waterfowl refuges, are serving the wonderful purpose of providing increasingly valuable homes for many species of song, insectivorous, and nongame birds. The increase in the various species of herons, grebes, terns, gulls, cormorants, and others on these refuges, as well as the small marsh-loving song and insectivorous birds, has paralleled the increases in the migratory-waterfowl populations. We believe that our program of management is sound biologically. . . .

The total area of these wildlife reservations now under administration by the Bureau in the United States and Alaska is around 12,000,000 acres. This vast acreage of land presents a fascinating series of problems that are a challenge to the biologists who are administering it. It also presents a wonderful field for research. When the rush of first development, fence building, and construction is over, and more time can be devoted by the resident personnel to the biological problems, we are going to obtain from these areas increasingly valuable information on wildlife, its needs, its interrelationships, and the possibilities of further fostering and conserving this great natural resource.

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