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THE WILDLIFE SOCIETY

By Dr. WALTER P. TAYLOR

PRESIDENT OF THE WILDLIFE SOCIETY

WHILE a strong federation of biologists, as suggested by Griggs,[1] is highly desirable, it may be a long time coming. In the meantime, biologists generally might well support with ever-increased vigor such unifying enterprises as the Division of Biology and Agriculture of the National Research Council, the Roster of Scientific and Specialized Personnel and the Union of American Biological Societies (and through it, *Biological Abstracts*). Then, too, the various special organizations should cooperate to the fullest extent with each other and the scientific public so that the science as a whole may be steadily advanced.

In this connection the work of some of these societies is none too well known to the scientific public, this being particularly true of those most recently organized. Perhaps it will help if the various groups know each other better.

[1] SCIENCE, 96: 2503, 546–551, December 18, 1942.

One of the active societies set up within the last few years is the Wildlife Society, organized in Washington, D. C., in February, 1936, to foster specifically the interests of wildlife specialists. Since that date the organization has steadily expanded until in 1942 there were two honorary, 309 active and 454 associate members.

As stated in its constitution, the principal objectives of the society are (1) establishment of professional solidarity and the maintenance of the highest possible professional standards; (2) development of all types of wildlife management along sound biological lines; (3) publications to effect these ends, and (4) protection of the interests of its members.

In pursuance of the first and fourth objectives the society has maintained a Committee on Professional Standards which has worked on such problems as proper qualifications for active membership, wildlife

curricula in the schools and civil service status of wildlife workers. No move has been made as yet to appraise and approve the schools which give wildlife training. In relation to the second objective, through vigorous efforts in research, restoration and administration, attempts have been made to advance the adequacy of wildlife services to the states and the nation as a whole.

The *Journal of Wildlife Management,* for six years under the editorship of W. L. McAtee, now under Dr. Tracy I. Storer, has already made a secure place for itself by the high standard of its contents, being, in part, a discharge of the society's responsibility for published results.

In view of the relative novelty of the term "wildlife" (formerly written as two words, now as one), the exact scope of the society's work at times has not been any too clear.

Redington and Higgins point out[2] that in its broadest sense wildlife would include every living organism in a state of nature. As covered by them, however, wildlife conservation embraced largely the vertebrate wild animals, chiefly the fishes, birds and mammals, with incidental mention of the amphibians, reptiles and shellfish. These authors further point out that when the lower forms, including fishes, are not specifically named, wildlife is considered to comprise chiefly birds (game, non-game and insectivorous) and mammals (game, fur-bearing and others) measures for the conservation of which are state-wide, national and international. Shelford's definition[3] regards wildlife as including ". . . all uncultivated plants and undomesticated animals native to our continent. . . ."

While a principal emphasis of the society is quite properly on game and game fish, its interests are by no means exclusive—indeed, if the wildlife specialist is to take proper care of fish and game interests he must, of course, be ecologically minded and must give some attention to all factors of environment which affect these things. Seemingly the founders had this in mind; at least they did not restrict the work of the society to game, apparently thinking of wildlife in a broad sense.

It may be helpful to explore briefly some of the possibly important cooperative relationships (in addition to fish and game conservation work) through which the work of the wildlife specialists impinges upon or is related to the activities of their biological colleagues.

EDUCATION

Emphasis upon more thoroughgoing and adequate *conservation education* looking toward the perpetuation of our basic natural resources (including soils, waters, range forage, forests, fisheries, wildlife and human life) has been marked at recent conventions of the Wildlife Society. Already teachers in the fields of natural history and wildlife management make up a prominent section of the membership. These members are working hard on a more effective public education in reference to the maintenance of those material elements which are so necessary in prosecuting a successful war or in a rehabilitation program following its conclusion.

PUBLIC HEALTH AND SANITATION

A threatening phase of the *public health* situation at the present time is that of bubonic (or pneumonic) plague on the Pacific Coast and in some of the other western states. Typhus fever in the South is also important. These are intimately associated with problems of wild animal life, particularly the brown rat, secondarily, in certain instances, with native rodent populations. The diseases transmissible from wild animals to man are many and numerous, some of them serious. The technical men of the Wildlife Society through cooperation with the medical sciences and public health groups can make a distinct contribution. Nor should malaria be overlooked. The proposed treatments for mosquito control by those with an engineering type of mind affect to such an extent the wildlife resources (including not only fishes and aquatic organisms of many sorts, and ducks and waterfowl, but human welfare as well) that this phase of the public health and sanitation program should not be neglected.

LAND USE AND LAND HEALTH

In many states, from the beginning of the recent "land use planning" movement, members of the Wildlife Society, in cooperation with extension services, the Bureau of Agricultural Economics and other public and private groups and individuals, have participated actively in assisting to work out improved plans for *land management.* This is as it should be. Land use and land health are so intimately related to undomesticated plants and animals, including the protozoa, bacteria, burrowing worms, insects, rodents and the other forms of life, animal and vegetable, within and above the surface of the soil that there is no possibility or desirability of disentanglement. The wildlife specialists have a large and important contribution to make, all in their proper sphere, to the cause of land use and land health.

BIOLOGICAL INTERRELATIONSHIPS

There is often too much of a tendency to specialize or compartmentalize. In reality there are no hard-

[2] In Van Hise and Havemeyer's "Conservation of Our Natural Resources" (Macmillan, 1931, p. 393).

[3] In Parkins and Whitaker's "Our Natural Resources and Their Conservation" (Wiley, 1936, p. 486).

and-fast boundary lines in nature, which is, after all, a single vast system of material and energy. A part of the universal energy circulates at any given moment through our domesticated species of birds, animals and plants, including ourselves. At the same time another part of it pulses through the natural undomesticated species, including all the groups of wild organisms (both plants and animals) which inhabit the earth. The wildlife specialist, who is at heart an ecologist, has some responsibility to assist in the interpretation and application of these principles, which have to do with so many phases of life and living and the basic materials which make existence possible.

CAMOUFLAGE

Military requirements have emphasized the need for effective camouflage. While it is true that representatives of architects, engineers or landscape artists have to a large extent monopolized this field, nevertheless the basic information comes from nature's own devices to conceal activities and operations of animals from their enemies or their prey. Wildlife specialists should be of increasing service to the armed forces and to educational institutions by cooperating aggressively with those who are working out problems in this field.

CONTROL—NATURAL, APPLIED AND CLIMATIC

As one of the most practical of all applications of biological theory, much of the *control* of *organisms* (especially of vertebrates) comes under the ken, interest and work of members of the Wildlife Society. The need is plainly apparent for improved discrimination in planning for control measures and for less wasteful application. While biological control has been utilized in an important way in economic entomology, its possibilities in other fields are only just now being given attention. The rapid and efficient transportation of men and materials over great distances threatens a spread of malaria, yellow fever and some of the other ailments from which, up to the present, remoteness has afforded protection. Already more than 50 biologists have been assigned to the Sanitary Corps of the United States Army.

CONSERVATION

As pointed out by many leading members of this society, the "conservation" in which its members are interested is not alone the protection of some particular game or fish species but proper care for all nature. The interests of man can not be served effectively unless the conservation enterprise addresses itself to all the basic production resources (including minerals, soils, waters, forage on the grazing range, forests, fisheries, wildlife, human life), indeed all those things that go to make up the resources for food, shelter, recreation and human vitality, which are essential for the survival of mankind.

RECREATION

England early found that her workers could not produce at the highest rate if they became over-tired. Needed is maximum production of all sorts of war materials (including food), not maximum exhaustion of all the workers. Emphasis upon outdoors living, camping, photographing, hiking, hunting and fishing in the intervals between work is important in wartime as well as in time of peace, for relaxation, rehabilitation and the building of morale.

COURSES ON OUTDOOR LIVING

Millions of American boys are now going to the ends of the earth, and many will be more or less dependent on living on the land. The success of camp life depends to a great degree on the extent to which individuals and groups can cooperate with nature, adapt themselves to unfamiliar environments, and win through to security. Fortunately courses in outdoor living are growing in number. The University of Michigan, Cornell University, Syracuse University, Iowa State College, the University of Missouri and several others are already giving these courses, which help to answer such questions as: How proceed when lost in an unfamiliar country? What is available for food? How about poisonous vegetation and animal life? How assure the maximum comfort and efficiency in living under unfamiliar conditions? How protect oneself against pests and diseases?

PRODUCTION OF FOOD AND SHELTER

The problems of food, clothing and shelter have recently received an increasing amount of attention. A new importance is attached to the hides of fur animals, the down from certain waterfowl, the skins of deer, elk and many other wild animals. Many of the materials derivable from the wild natural animal and plant kingdom are well known to the wildlife specialist, who is sometimes in a favorable position to be helpful to civilian and military establishments.

It has been emphasized that as sources of protein requirements of our people, the fishes of the sea are exceeded in value and importance only by pork and beef. Perhaps shark livers as sources of vitamins have received undue attention, but the millions of pounds of marine resources which may now be developed if the pinch becomes severe enough and if a program can be properly balanced have been little attended to or appreciated.

An immense amount of research and other work needs to be done in discovering, developing and using the expanding resources from "ocean pastures."

"Wildlife" should certainly be thought of as including marine and fresh-water fisheries as well as the terrestrial vertebrates; but some do not so understand it. In any case, the leadership of the brilliant group of technical and administrative men who have accomplished so much in the field of the commercial fisheries is appreciated. They deserve much credit from the public. The Fisheries Coordination Office, in placing a large number of trained men in the field and in Washington, dealing directly with the commercial production of fish and fish products, is entitled to the utmost support and cooperation.

Even the fresh-water ponds which are so conspicuous a feature of the work of some of the state conservation departments, extension services, the Soil Conservation Service and Agricultural Adjustment Agency activities in many parts of the United States are not to be depreciated. The figures are large as to potential production of a supplemental food supply from these farm ponds. Whether or not actual advance is made along these lines depends to a considerable extent upon the activities and leadership of technical men who are interested in inland fisheries and upon the provision of funds with which they can work. Their success in this field, supported by an intelligent government and an enlightened public opinion, may mean an appreciable contribution to the nation's food.

MILITARY NATURAL HISTORY

E. L. Palmer and others have emphasized the place of the military naturalist at this particular period—the man who knows something about the birds, mammals, reptiles, amphibians, fishes, worms and insects, as well as the plants of the numerous war fronts on which United Nations' soldiers are fighting. Some of the wildlife specialists are unusually well qualified to assist the Army, Navy and other branches in the preparation of manuals, instructions and directions for protection from inimical plants and animals and utilization of those which can be put to use.

In this connection it is of interest that nature is not unfriendly to those who know something about her. Even the arctic environment was pleasurable and livable to Stefansson. The terrible winter climate of continental Europe was friendly to the Russians, who understood it and used it, but inimical to the Germans, who did not understand it so well. The Japanese, by adapting themselves to their environment, were able to survive and conquer in the Malayan Peninsula. The war work of biologists is already extensive. The Special Services Branches of Army and Navy, the Desert, Arctic and Tropical Services of the Army Air Corps, the Sanitary Corps of the Army, the Quartermaster Corps, the Signal Corps, the Naval Research Laboratories and many others are using biologically trained men. But the work done and human resources in use are only a beginning.

POST-WAR ADJUSTMENTS

Truly, among the wildlife and conservation problems which will arise after the war will be many dealing with fish and game, but others also will require attention and specialized information. Wildlife specialists should cooperate in the outlining of post-war plans. Among these are included collaboration, through appropriate governmental departments and otherwise, in the authorship and administration of treaties for the protection and proper management of international wildlife and fisheries resources, including the products of the sea (whales, marine fishes, fur seals, etc.), wild birds and mammals.

In these considerations there is no thought of encroachment by this society on the work of others but rather the need for expansion of our understanding of what is meant by conservation, and for more thoroughgoing cooperation between biologists.

Paraphrasing, in general conservation terms, a recent statement by Shirley,[4] it may be confidently asserted that the basic production resources, including minerals, soils, waters, range forage, forests, fisheries, wildlife and human life, are indispensable, whether in peace or war. Sustained yield management of all the renewable natural resources to meet not only our own needs but those of other countries is one of the essentials for the establishment of an enduring people's peace. This will require some measure of public control (in which local communities as well as higher levels of government should participate), technical skill and recognition of the economic and ecological interdependence of the nations of the world. An immense field of service lies before conservation specialists, including wildlife workers and many others, who will be available and trained for leadership in organizing and manning the division of natural resources of a great world economic federation.

VITAMINS IN EDIBLE SOYBEANS

By Dr. PAUL R. BURKHOLDER

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PRESENT world events forebode a general scarcity sooner or later of foods of animal origin, such as milk, cheese, eggs and meat, which are important in our diet because of their proteins and vitamins. In the future it may become necessary for us to rely

[4] *Journal of Forestry*, 41: 83, February, 1943.