THE BIRD WORK OF THE BIOLOGICAL SURVEY[1]

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MORE than 45 years ago, the efforts of two committees of the American Ornithologists' Union, chosen to study bird migration and the economic relations of the English Sparrow, resulted in the establishment of the organization now known as the Bureau of Biological Survey, with Dr. C. Hart Merriam, then secretary of the Union, as Chief. Some of you will recall that when this work was undertaken under Government auspices, the organization functioned as a section of the Division of Entomology, and its studies included economic ornithology, a phase of the work that was later to be much expanded. Studies of migration from the first included geographic distribution, and the work of the Bureau is apparent in the check lists published by the American Ornithologists' Union in 1886, 1895, 1910, as well as in the one now in preparation. With the 1910 edition was issued a map of North America prepared in the Biological Survey showing in colors the seven life zones with their divisions.

It is scarcely necessary to remind the older members of the Union of the natural-history explorations that the Survey has conducted, mainly in the Western States and Alaska, in Mexico and Central America, and in northern Canada. The earliest important work of this nature was done in the summer of 1889 in the region of San Francisco Mountain in Arizona. The studies there made correlated the broad transcontinental life zones with belts of similar characteristics that encircle lofty mountains. The principle had been published by Humboldt about 1805, as a result of his work in the Andes, and of course was recognized by a few students of geographic distribution to be applicable to North America, but it remained for Merriam to analyze the factors governing the ranges of the characteristic North American species of birds and mammals

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and to map in detail the zones themselves. Other similar studies followed the Arizona work, notably explorations in Idaho and in southern California. In the two decades between 1890 and 1910 this phase of the work was greatly expanded, and the correlation of natural life zones with the production of agricultural crops was elaborated. Extensive explorations in Mexico and Central America, in Alaska, and in northern Canada resulted in a greater accession of data and specimens illustrating the geographic distribution of birds, mammals, and some other classes of vertebrates than had ever before been accumulated during an equal time in this country. The same period and the decades that followed were marked by great activity of other workers along related lines, and by extensive publication of results. All these efforts enabled the Survey to make notable additions to the wealth of knowledge that has been accumulating since its inauguration.

The maintenance of Federal bird reservations by the Biological Survey began in 1903, and this feature of the work has grown in volume until these reservations now number 86, including several primarily devoted to big-game animals, but on which birds also are protected. This work is in the early stages of a great expansion under the provisions of the Migratory Bird Conservation Act, passed early in 1929.

The conservation measure generally referred to as the Audubon Law, now a part of the protective statutes of many states, was first enacted through the efforts of a Committee of the Union about 1886, and later sponsored by the National Association of Audubon Societies. With the exception of several of the Rocky Mountain and Great Basin States, it has now been operative for some years in most of the country. The group classification of birds in this law was incorporated in the Federal Migratory Bird Law, in the Migratory Bird Treaty, and later in the Migratory Bird Treaty Act.

In the work of the Survey that may be classed as conservational, research in the food habits of birds, and to a less extent in similar habits of mammals and of reptiles and amphibians, has played an important part. From the beginning the Bureau has had the services of some of the most eminent students of economic zoology that the country afforded, and it early built up unsurpassed

facilities for the study of the food habits of our wild life. The Bureau's long lists of publications on this subject have exerted a very great influence on bird protection based on economic grounds.

Studies of bird migration, one of the twins whose budding activity had given rise to the Survey, were supplemented in 1920 by the taking over of bird banding, a means of investigation that had been carried on by the American Bird Banding Association and by individuals in a somewhat sporadic fashion for more than 15 years. With official espousal of this cause a decided impetus was given to the study of migration, for in place of data that, at best, recorded only mass movements, it substituted knowledge of the movements of individual birds. Bird banding is of special practical importance in these days of the intensive pursuit of many species of migratory birds as game. It affords knowledge of actual routes of individual birds and concentration areas of species, and this knowledge can be applied to protect birds, especially because it reveals the facts on both the breeding and the wintering localities most frequented by certain species.

The Migratory Bird Treaty with Great Britain (acting for Canada), which was the result of efforts exerted during a period of several years preceding its ratification in 1916, is probably the most important conservation measure ever put in operation in this country. In the United States it is being carried into effect by the Migratory Bird Treaty Act of 1918 and the Migratory Bird Conservation (or Refuge) Act of 1929; and in Canada by the Migratory Birds Convention Act of 1917. The beneficent results that have come from this international agreement are too well known to require elaboration. Despite the fact that our force of game protectors is very limited, the regulations under the treaty act meet with a gratifying measure of approval, and in general State laws on the subject are formulated in accordance with the Federal regulations. It is needless to say that the arm of the Biological Survey will be strengthened in proportion as the Bureau is enabled to put into the field an adequate bird-protective force. Under the provisions of the treaty act, protective measures have been extended to practically all species of migratory birds. It authorizes the killing, within limits, of birds of species that at certain times and places become unduly destructive of products of agriculture or a

menace to other species. Doubt as to the wisdom of some of these permissive orders is sometimes expressed, but it is our practice to scrutinize carefully each application for permission to kill birds alleged to be destructive, and to grant such permits only upon convincing proof of their necessity. The same rule of procedure is followed in the formulation of seasons for the taking of migratory game birds.

The so-called Lacey Act, originally passed in 1900, added bird protection (particularly the protection of game birds) to the duties of the Survey, and included supervision of the importation of birds and mammals and regulation of interstate commerce in game. Administrative supervision by the Survey of the importation of foreign birds and mammals is an activity that has yielded results of great value. An example that has greatly benefited conservation efforts was the practical prevention of the importation of the mongoose. The experience of Jamaica and other countries where this destructive animal has gained a foothold indicates the dangers that we have thus far avoided by keeping this enemy of bird life out of continental United States.

Prohibition of the entry of plumage of wild birds was included in the Tariff Act of 1913, and was substantially strengthened by the Act of 1922. This stopped the introduction of Bird of Paradise and Heron aigrettes, formerly extensively used in millinery. The Tariff Act of 1930 in substance extends the principle of the Lacey Act to foreign countries by the inclusion of a provision to the effect that when a foreign country gives special protection to any species of bird or mammal, such species can not be imported into the United States without a certificate from the United States consul at the port of export that proper authority has been obtained for capture and shipment. Without this certificate the shipment is subject to seizure and disposal by the customs authorities.

The passage in 1929 of the Norbeck-Andresen Migratory Bird Refuge Bill, authorizing the establishment of numerous sanctuaries for migrant birds, presents great possibilities in the conservation of our wild fowl and some other species.

Another Congressional authorization that promises results of fundamental and far-reaching value is the inauguration of work under the McSweeney-McNary Act, which provides for intensive

studies of birds and other forest fauna. In a forest community each inhabitant, whether animal or plant, has very definite relations to its environment and is interrelated in its activities with all other forest habitants. We now know in part some of these relations, but others in great numbers remain to be determined. Several investigators are now inaugurating these studies and the work will grow as added support is afforded.

The Biological Survey has in its possession a greater fund of information relative to the wild life of North America than has ever been gathered by any other agency. Much of it reflects conditions that have been greatly altered because of the many changes that began when this country was first settled by Europeans. These changes are exerting more and more influence on the wild creatures as the years go by. It is our goal, though one that is naturally impossible of perfect attainment, to keep our information current and abreast of present conditions. The data on birds in our files are placed freely at the disposal of students and are frequently utilized. Their influence is apparent in several of our State and regional lists of birds and in hundreds of articles in our ornithological serials. Thousands of persons have made use of our facilities for the identification or specimens, and our data have aided materially in the preparation of several works of wider scope, such as Bent's and Ridgway's monumental works.

The present-day civilization is making serious demands on the remaining stocks of wild life and their haunts, on the part of many classes interested in the pursuit of game birds or in activities that act as checks on their increase or are even detrimental to their welfare. To counteract these varied destructive factors we need all possible support from agencies interested in helping the bird or other creature to live. An influence that has exerted all too little force is the appeal of the bird itself. We are making an honest effort to learn what are the needs of the bird, and so to shape our course that so far as possible these needs shall be met.

Often we are met in our proposals to establish game refuges with the active opposition of hunters. Many sportsmen are for waterfowl refuges in the abstract, but when it comes to the placement of a sanctuary where it will take away from them the good hunting to which they have been accustomed they want it placed elsewhere.

There are many hundreds of gun clubs in existence throughout the United States where water and food are available to the birds that visit these club areas. Because these constitute perhaps the bulk of the areas available for feeding and resting places, the average hunter comes to the conclusion that there has been no diminution in the numbers of ducks. The picture thus reflected to him is limited and local, and he can not know the general situation throughout the North American Continent.

The situation in regard to waterfowl is disheartening indeed. Personal investigation and reports of observers throughout the United States, and from the prairie Provinces of Alberta, Saskatchewan, and Manitoba, Canada, point to the fact that there are fewer ducks this year than before. Further curtailment in hunting waterfowl is not a remote possibility. The responsibility of the Biological Survey to this resource is clear. If the ducks and geese need further safeguards thrown about them, and it is apparent that they do, we shall not hesitate to recommend such measures as may be found necessary to give them further protection. Our responsibility is not to human kind primarily, but to the myriads of migratory song, insectivorous, and game birds.

We have not hesitated to place restrictions on hunting when it was apparent that further measures were necessary to reduce the killing of our valuable birds, particularly the waterfowl. We have continued the protection given the shorebirds. We have reduced the take and seasonal limit on woodcock despite much opposition. As many of you are aware, the bag limit for ducks and geese has been reduced this year from 25 and 8 to 15 and 4 and a possession limit of two-days' bag prescribed.

You have a committee on bird protection, and we desire the counsel of this committee at all times. We shall deeply appreciate any aid that members of this committee may render in Congress or elsewhere when measures for the better protection of bird life are being considered. Whenever it comes to a matter of giving these migrant birds better and more adequate protection I promise you that the Biological Survey will not be found wanting. To give the bird the benefit of the doubt in all cases where there is difference of opinion is our desire and our plain duty. In these efforts I bespeak for the Biological Survey the continued support of the American Ornithologists' Union.