

RECENT LITERATURE.

Stoddard's 'The Bobwhite Quail.'—Some years ago the Committee on Coöperative Quail Investigation began a comprehensive study of the Bobwhite in portions of the Southern States with a view to its possible increase in a natural state and on game farms, so as to insure a supply of the birds for those who enjoy Quail shooting. The work was undertaken in coöperation with the U. S. Biological Survey and Herbert L. Stoddard was placed in charge of the investigation which covered the period from March 17, 1924 to June 30, 1929. Two reports of progress were published in 1924 and 1926, respectively, which were duly noticed in these columns, and now we have the final report,¹ probably as exhaustive a monograph as has ever been prepared on a single species of North American bird.

The stout volume of nearly 600 pages is divided into twenty chapters which seem to cover every phase of Quail history. The types of southeastern Quail territory are first described and it is explained that Mr. Stoddard's intensive studies were mainly limited to the region between Thomasville, Georgia, and Tallahassee, Florida. Under Life History are considered, mating, fighting, nesting, rearing, breeding, feeding, roosting, etc., while separate chapters are devoted to Calls, Plumage, and Development. The well known "Bobwhite" call is in Mr. Stoddard's opinion, and as the result of long and careful study, not the call of the mated bird but "*largely* the call of the unmated cocks, ardent fellows eager to mate but doomed to a summer of loneliness, from lack of physical prowess or an insufficient number of hens to go around."

In the discussion of plumage there is an account of the curious erythristic phase that has developed in the covies of the Ames Plantation at Grand Junction, Tennessee, a bird totally unlike the familiar Bobwhite. The chapter on food of the Bobwhite is contributed by C. O. Handley and Clarence Cottam and is a most valuable analysis. Various small fruited leguminous plants seem to be the favorite sources of the bird's vegetable food, though seeds of pine, oak and sweet gum are also sought, as well as seeds and sprouting seedlings of various weeds.

Movements of the Bobwhites were studied by extensive banding and trapping and it was found that coveys usually consisted of two or three families with some stray or unmated birds and that they numbered from twelve to fourteen individuals on the average, although some contained as many as twenty or even twenty-eight. As the winter advances the neighboring coveys tend to mix but on the whole the Quail of the southeastern States is sedentary and does not move far from the region in which it was

¹ *The Bobwhite Quail, Its Habits, Preservation and Increase.* By Herbert L. Stoddard, Bureau of Biological Survey, United States Department of Agriculture. New York, Charles Scribners' Sons. 1931. Pp. i-xxix + 1-559, 69 plates and 32 text figures. Price \$6.00.

raised. The species is therefore well adapted for increase, if a suitable area is selected where proper food and cover are present.

Out of 600 nests studied 223 or 37% were destroyed by natural enemies, 20% deserted, and 36% were successful. The culprits with number of nests destroyed were as follows: skunks, 65, cur dogs, 19, cats, 13, cotton rats, 21, opossums, 7, Blue Jays, 6, Crows, 5, red ants, 24, negroes 10 and snakes, number not ascertainable as they rarely leave any clues.

As to destruction of young or adult birds, Loggerhead Shrikes proved to be a serious menace on propagation farms. Of the Hawks, Mr. Stoddard finds no case against the Sparrow Hawk, Red-shoulder and Broad-wing while in the case of the Red-tail he says the good they do (in destroying rodents) more than offsets the harm. The Marsh Hawk which is so frequent about Quail country and breeding farms is mainly after cotton rats and out of 1098 pellets of this species examined only one contained remains of a Quail. Mr. Stoddard adds an important item to the history of this Hawk by keeping a captive bird and recording the various foods that it consumed. Every bird and mammal eaten was evident in the pellets thus disposing of the claim that pellet examination is not a true index of the bird's food. The Cooper's and Sharp-shinned Hawks are the only species really dangerous to Quail.

The Owls with the exception of the Great Horned are absolved from blame and are very valuable in destroying rodents.

Our author sums up the matter with the statement "We do not advise the killing on the grounds of Quail preservation of Red-shouldered, Broad-winged, Marsh or Sparrow Hawks or any of the Owls with the possible exception of the Great Horned Owl, for the record of these birds shows that the balance is decidedly in their favor. While some kill an occasional Quail caught at a disadvantage, the occurrence is not frequent, and their destruction of more important Quail enemies makes these birds of decided value." Cannot game farm owners impress these economic facts upon their keepers and save these valuable birds from extinction?

Three chapters of Mr. Stoddard's book are devoted to Quail parasites and diseases, that relating to internal parasites being contributed by Eloise B. Cram, Myrna F. Jones and Ena A. Allen of the U. S. Bureau of Animal Industry.

The latter half of the volume is devoted to Quail preserves and their management in which we learn of the value of rough agriculture on the preserve, and of occasional firing to keep down the broom grass. In the pages devoted to control of the cotton rat, the most destructive rodent in Quail culture, we find the significant statement after explaining the use of poisoned grain: "If for any reason poisoning is considered undesirable cotton rats may readily be trapped although trapping is more cumbersome and expensive." We trust that officials of the Biological Survey may take this statement of one of their own men to heart in considering further poisoning operations in the West.

We have but touched upon the wealth of information contained in this

notable volume and everyone interested in game farms and in wild life conservation should read it in its entirety. The numerous illustrations add greatly to its value. There are several color plates by Kalmbach and some sixty-five halftone plates, beside numerous text figures. Mr. Stoddard and his associates, as well as the Committee which made the investigation and publication possible, deserve the thanks both of ornithologists and sportsmen. Such scientific investigations as this are what we need before policies or regulations can be intelligently formulated. Too often those in charge of game preservation, ignorant of the problem, rush in and destroy valuable wild life for the extermination of which future generations will hold them responsible.—W. S.

Leopold's 'Game Survey of the North-Central States.'—There are several agencies interested today in the preservation of game: the hunters who find in its pursuit sport and recreation; the naturalists who in its species find interesting subjects for scientific study; the conservationists who stand firmly against the extermination of any species; and the firearms and ammunition makers whose business will be wiped out if game disappears or becomes so scarce as not to be worth pursuing.

Until recently the only measures for preventing extermination of game by the constantly increasing horde of gunners have been the close season and the bag limit, enforced by law, and the sale of hunting licenses to secure funds for game law enforcement.

Lately the possibility of breeding game birds and liberating them, primarily on privately owned or leased land, or on reservations, has been recognized and practised with some success, but the difficulty of meeting all of the problems that present themselves has demonstrated the need of far more extensive knowledge of the habits of game, its relation to its environment, and to man's various activities.

Some of the sportsmen have made an important move in this direction in their Quail investigation and Mr. Stoddard's volume on Bobwhite presenting the results of the research has just been reviewed. Unfortunately the majority of hunters have been willing to go ahead with their hunting so long as any game at all is to be found, with little or no thought of the future and with assurance that conditions will improve. The arms manufacturers, to whom game extinction means more in dollars and cents than to any of the other groups, have recently become thoroughly alarmed at the decrease in game. They are fully awake to the situation and have sponsored a careful and exhaustive survey of the whole problem. Their first report,¹ a game survey of the north central states by Aldo Leopold, a well equipped authority on the subject, is now before us.

¹ Report on a Game Survey of the North Central States Made by Aldo Leopold for the Sporting Arms and Ammunition Manufacturers' Institute under direction of its Committee on Restoration and Protection of Game. Madison, Wisconsin, 1931. Pp. 1-299. Price \$1.00 from American Game Association, Investment Bldg., 15th and K Sts., Washington, D. C.