

A. Urner; of ducking on the Susquehanna flats by J. Fletcher Street; a series of data on the nesting of the Hummingbird for fourteen years, often several nests a year, at Fairville, Pa.; and the usual migration report now continued for a period of thirty years; also the abstract of proceedings of the Delaware Valley Ornithological Club and a bibliography. The activity of the Club is evidenced by the fact that in the two years covered by this number there were thirty-two meetings with an average attendance of thirty-six.—W. S.

Illinois Audubon Bulletin, 1932.—This attractive publication maintains its high standard and interest. The present number² contains among other articles an excellent illustrated account of "Flashlights of Birds," by Tappan Gregory; "Island Bird Life," by W. I. Lyon, describing the terns of Lake Michigan; "Gathering Field Notes for Bird Paintings," by Walter A. Weber; together with local reports and many good illustrations. There is so much real ornithology in these "Bulletins" that they should be in every ornithological library.—W. S.

Economic Ornithology in Recent Entomological Publications.—Entries suitable for this heading seem scarcer than formerly, and only the four following have come to notice in the last two years.

Sugar-beet weevil (*Bothynoderes punctiventris*).—This insect described as the most dangerous pest of sugar beets in the Balkan region of Europe has been carefully investigated in Czechoslovakia. The study of its natural enemies reveals birds as the most important among predators. Stomach analyses done by Dr. O. Farsky showed that crows, jackdaws, jays, magpies, gulls, starlings, partridges, and pheasants are the most effective destroyers of the pest.²

Lesser migratory grasshopper (*Melanoplus atlantis*).—This is the species principally concerned in destructive grasshopper outbreaks in Montana and North Dakota, but one which is injurious also in many parts of a very extensive range. Like all grasshoppers it is freely eaten by predators. The following is said³ of its bird foes: "The most important predatory enemies of this insect in Montana are the Lark Bunting (*Calospiza melanocorys*), Western Meadowlark (*Sturnella neglecta*), Sparrow Hawk (*Falco sparverius*), Sage Hen (*Centrocercus urophasianus*), Sharp-tailed Grouse (*Pedioecetes phasianellus*), and domestic turkeys and chickens. Of these the most important is the Lark Bunting, which is very abundant on the prairie lands. Swarms of grasshoppers can often be located by the presence of large numbers of these buntings. The Bureau of Biological Survey has found specimens of this locust in the stomachs of 24 species of birds."

¹ The Audubon Bulletin. No. 22, 1932. Pp. 1-64. Illinois Audubon Society. c/o Chicago Acad. Sci., Clark and Center Sts., Chicago.

² Rozsypal, Jan., The Sugar-beet pest, *Bothynoderes punctiventris* Germ. and its natural enemies, Bul. l'Ecole Sup. d'Agron., Brno, C, 16, 1930, p. 89.

³ Shotwell, R. L., A study of the lesser migratory grasshopper, Tech. Bul. 190, U. S. Dept. Agr., July 1930, p. 27.

Great Basin wireworm (*Ludius pruininus* var. *noxius*).—This insect consistently causes losses to the wheat crop of the Pacific Northwest running into several millions of dollars annually. The natural enemies appear to be few and among them: "Birds are fairly effective enemies of the beetles of this wireworm during its emergence period in the spring. Examination of the stomach contents of birds collected during the period of adult emergence has revealed remnants of great numbers of beetles. Any means of protecting and increasing the abundance of bird life in the dry-farming areas is to be highly commended, especially in the case of the Columbian Horned Lark (*Otocoris alpestris*), commonly called 'wheat bird' or 'dust bird.' This native bird is found over nearly the same range as the Great Basin wireworm, and nearly all of the stomach contents of these birds examined during the spring emergence of the wireworm adults showed that they contained remnants of from 1 to 30 of these beetles. The Bureau of Biological Survey reports that 40 species of birds are known to feed on species of the genus *Ludius*, to which the Great Basin wireworm belongs, and that in general birds prey freely upon wireworms and their parent click beetles."¹

White-pine weevil (*Pissodes strobi*).—This weevil has become increasingly injurious as plantings, especially exclusive plantings, of white pine have been made. It has numerous parasites and predators and among the latter birds get very honorable mention. "The value of birds as an aid in preventing the increase of the white-pine weevil through destruction of the larvae was shown very strongly during the summers of 1926 and 1927. In every place visited the writer found that large numbers of leaders had had the bark stripped from the wood by birds, and the larvae contained therein had been eaten by them or had dropped to the ground to die or to be eaten by the various ground-feeding species of birds and rodents which are numerous in the stands. In practically all the leaders examined (several hundred) all the larvae which had been feeding at the time the bark was stripped had been destroyed. Many of the pupae, in addition, had been picked out of their chambers. The birds observed were the White-breasted Nuthatch, Downy Woodpecker, Chickadee, Rose-breasted Grosbeak, and certain unidentified warblers. McAtee reports that the Bureau of Biological Survey has records of the Yellow-billed Cuckoo, English Sparrow, and Bluebird feeding on this pest. Hopkins reported the Downy Woodpecker in 1907, and Felt reported this same species in 1913. Forbush in 1913 also reported this species and the Chickadee. Taylor states that 17 or 18 per cent of the larvae in 3,009 infested shoots were destroyed by birds and that the birds were 'about 29 per cent effective in attacked shoots.' Graham reported the partial check of the weevil in one plantation in New York by allowing chickens to run among the trees, and suggested the possibility of destruction of the weevils by ground-feeding birds."²—W. L. M.

¹ Lane, M. C., The Great Basin wireworm in the Pacific Northwest, Farmers' Bul. 1657, U. S. Dept. Agr., Feb. 1931, pp. 5-6.

² MacAloney, H. J., The white-pine weevil, Circ. 221, U. S. Dept. Agr., May 1932, p. 19.