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BIRD LIFE IN PORTO RICO.

Needed Protection Suggested by Study of Department of
Agriculture Specialists - Value of Birds as De-
stroyers of Injurious Insects Not Fully Ap-
preciated.

Washington, D. C., Because of the damage done to
the crops of Porto Rico by insect pests, a study of the birds of
that Island has been completed by the U. S. Department of Agricul-
ture, in cooperation with the Porto Rican Government. This study,
the results of which are now published as Department Bulletin 326,
"Birds of Porto Rico," was undertaken for the purpose of determin-
ing the relations of the birds to the insect fauna of the island,
in order that suitable measures might be suggested for the protec-
tion and increase of insectivorous species.

The investigators recorded 162 species and subspecies in
Porto Rico and its dependent islands, while 16 others are included
as hypothetical. Of the bona-fide forms, 94 breed on the island,
63 are visitants during migration, and 5 species, perhaps resident
at one time, may be called accidental. On the average, about 30
species are found in reasonable numbers during summer in almost any
inland locality on Porto Rico, and a few more North American migrants
are added in winter. Near the coast these numbers are augmented
somewhat by water birds. Certain areas are seemingly destitute of
bird life, say the investigators, but to show that birds are more
numerous in Porto Rico than is commonly supposed, two censuses were
taken during the breeding season, in which accurate count was made
of the numbers of species and individuals seen. At Yauco 391 birds
belonging to 35 species were listed in four hours in traversing a
distance of 5 miles. Near Lares 335 individuals of 27 species were
seen on an area approximately the same size.

As a result of examining the stomachs of more than 2,200
birds, the investigators found many varieties which feed upon the
"changa," the sugar-cane root borer, the May beetle, and other de-
structive insect pests. The "changa," or mole cricket, without
doubt one of the most injurious insects in Porto Rico, was found to

be eaten by 21 species of birds. The sugar-cane root borer, known also as the orange leaf-weevil, was included in the dietary of 17 species.

Among the common birds found in Porto Rico, the investigators found none which may be called wholly pernicious. The small bird-eating Accipiter is certainly injurious, and its larger relative, the red-tailed hawk, is troublesome when it acquires a taste for poultry. Certain other species, while to some extent destructive, make up for their damage in other ways. It is asserted that birds do some damage to ripening coffee berries by eating the sweet pulp surrounding the inner berry, but as yet this charge is unsubstantiated. The damage, says the bulletin, is apparently done by rats which, being unseen, are not suspected, the birds getting the blame for the misdeeds of the rodents. Many species of birds, such as woodpeckers, flycatchers, cuckoos, and others, are of great benefit in the coffee plantations. A few birds, the oriole and spindalis, for instance, were seen eating oranges, but in every case they attacked only wild fruit that was dead ripe and beginning to soften. The honey creeper came to sip the juice when the oranges were once broken open. Quail-doves pecked open the rotting sweet oranges for the seeds as they lay on the ground, but no birds were found attacking sound cultivated fruit in the citrus groves. Insectivorous species in feeding about the trees destroy innumerable pests and assist in keeping the trees clean.

HOW TO INCREASE THE BIRDS.

One of the first steps in an attempt to increase bird life in Porto Rico, say the investigators, is to provide adequate legal protection both for the birds and for their nests and to make sure that the laws are properly enforced. As an aid in the enforcement of protective laws no method is of more value, they say, than the education of school children. If they are taught to look on birds as friends and not to disturb them, many a brood of young that otherwise would be destroyed will reach maturity. Courses in nature study have been found interesting and profitable wherever undertaken in elementary schools, and will prove especially so in Porto Rico.

That birds need shelter as well as protection will not be questioned, and owners of plantations should look carefully to providing this if it is not already present. A long level stretch of

cane or tobacco, with not a tree or other obstruction to break its continuity, offers little encouragement to the bird in search of shelter and food. A similar stretch of cultivated land, with lines of symmetrical royal palms or coconuts along the roadways and dense clumps of bamboos adorning the borders of streams, while not losing any of its productiveness, will provide an attractive feeding ground for birds which will more than repay the owner in the great numbers of injurious insects they consume.

The martin, which nests in natural cavities in trees or in crevices about buildings in towns, might be attracted to the country if nesting boxes were provided. A hollowed-out calabash on a pole would be as readily accepted as a more pretentious mansion capable of housing several pairs, but the shelter should in all cases be placed in an open location with a free sweep on all sides and well elevated.

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