

the size of Iowa, this species would consume about 800 tons of seeds annually.

It is important to point out, however, that the weed-destroying power of graminivorous birds may be exaggerated if the question is not investigated with great thoroughness, for while the powerful gizzards of some birds may grind up the hardest coated seeds, in other cases seeds may be capable of germination after passing through the digestive tract, as Collinge has shown in a number of cases in English birds. In such instances the birds would act as disseminators of weed seeds. Then again, in the case of insectivorous birds, besides destroying noxious insects, they will destroy various kinds of insects which are useful by reason of their parasitic habits upon noxious insects. These facts indicate that the question of the economic status of a bird is not always an easy matter to determine and demands thorough investigation in each case.

In certain instances useful birds eat grain or fruit. The Horned Larks occasionally eat grain, vegetable food constituting about 80 per cent. of their total food. Six-sevenths of this total amount of vegetable food consists of the seeds of such weeds as foxtail, amaranth, ragweed, and bindweed. It surely is not too much to ask that, in view of the good they effect, a little injury shall be overlooked, especially as they make no charges for the good work they accomplish. It has sometimes seemed to me that in the case of those useful birds which sometimes take to fruit eating, it is cheaper to protect the fruit from the birds than from the insects. As insecticides, birds are the cheapest and most generally efficient that can be found.

The feeding habits of a few of our common species of birds which should be protected may now be considered. The Robin (*Planesticus migratorius*) probably comes first. Early in the year it feeds extensively on cutworms, those insidious enemies of our garden plants and crops; in March they constitute over a third of the robin's food. It is accused of fruit eating, and yet of all the vegetable matter it consumes a large proportion consists of wild fruits; 330 stomachs contained 58 per cent. vegetable matter, of which 47 per cent. consisted of wild fruits and 4 per cent. cultivated fruits.* The Bluebird (*Sialia sialis*) is not so common as formerly in the Ottawa district, having probably been driven away by the encroachments of man. Charming in its habits it responds readily to encouragement, building in hollow trunks and cavities. Insects such as grasshoppers, beetles and caterpillars constitute about 68 per cent. of its food.

*Except where it is specifically stated otherwise, these analyses of stomach contents are taken from the publications of the Biological Survey of the U. S. Department of Agriculture, to which the reader is referred for further details.