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## THE MEANING OF BIRD CONTROL

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The reasons for bird control, the methods used, and the results obtained are subjects upon which most ornithologists are poorly informed. Any destruction of birds is anathema to some bird lovers, or so at first impulse, they will surely assert. How many of them, however, can honestly say that they never yearned to suppress some kind of bird? It may have been perhaps a gang of English Sparrows that were mobbing favorite Bluebirds, or possibly some of that other imported species, the Starling, because of its elbowing Flickers out of house and home.

Such are reasons for bird control which the most ardent bird lover may find himself driven to accept. In that position he should appreciate that other folks may have other reasons for keeping birds in check and perfectly valid ones at that. Even a very good bird protectionist may have his patience strained to the breaking point by Robins taking all of his early sweet cherries, or by Catbirds harvesting the whole crop of a highly prized patch of raspberries.

With many of us the production of such fruits is entirely a side issue, that does not affect our livelihood. In the case of many others, on the contrary, the production of small fruits or other crops, and protecting them from serious pilfering by depredators of all kinds are essentials upon which an important share or even the whole of income depends. In such cases it is only natural that demands for control should arise. Losses exist in every degree, from those of trifling consequence, which although of almost universal occurrence are equally widely condoned, to those that can be estimated only in very large sums, or are even so serious as to compel the abandonment of industries in areas that aside from the presence of crop pests may be particularly suited to them.

The writer has had Wood Thrushes, Catbirds, and Robins take all of the strawberries from a garden patch in Virginia and never even

said "shoo" to them. He liked the birds, the berry crop was not essential to him, so he could ignore the damage. But many cases can not be so lightly dismissed. Consider the case of Mr. and Mrs. Olaf Dahl, of Tulare County, California, an old couple dependent to a large degree on income from an eight-acre orchard of almond trees. California linnets, or house finches, picked off about all of the buds on these trees in the season of 1926-1927. In 1927-1928, by tramping up and down the rows and clapping shingles together all day long throughout the period from November to January inclusive, the owners were able to save the crop. In 1928-1929 they were both sick at the time of bird attack, so no patrolling could be done. In consequence the linnets stripped the orchard of buds to the extent that it produced less than 200 pounds of nuts; the loss was about \$1,500, a staggering one under the circumstances.

Those engaged in commercial orcharding on a larger scale also suffer losses in proportion. We illustrate with an instance from the eastern states, one investigated in 1919 by L. L. Gardner, then an employe of the Biological Survey, now a captain surgeon in the U. S. Army. On the property of W. Ten Brock, Chairman of Supervisors of Columbia County, Hudson, New York, where sweet cherries were grown on a large scale, he observed Robins and Starlings in great numbers busily eating the fruit. The tops of practically all the trees were stripped and the ground under every tree in the large orchard was strewn with cherry pits. Cherries were bringing \$1.50 per four-quart basket that year, and the estimate of loss on the entire crop was fifty per cent; on that basis the damage in this single orchard was not less than \$4,000.

In 1918 the writer investigated damage by ricebirds, chiefly Bobolinks, in South Atlantic states. The rice industry, long in a decline, was then experiencing a degree of revival due to war-time conditions, and the depredations of the ricebirds were keenly felt. To cite only one instance of several observed: On the Marrington Plantation, near Charleston, S. C., September 21 to 23, immense numbers of ricebirds were present, at least from twenty to twenty-five thousand. The birds had come unprecedentedly early—August—and had been destroying rice ever since. The crop on about twenty-five acres was so badly damaged that it was not harvested and the loss for the whole plantation was about sixty per cent of the normal yield. Sixty-one Bobolinks and one Red-winged Blackbird were collected here and all had been feeding on rice. Quoting from my field report I note that "To the planter, the number of ricebirds present on this plantation must seem myriads and

the hope for his crop almost nothing. I observed the immense flocks of ricebirds and went over all the fields seeing the damage done. It is very serious and no bird doing such work should be protected."

There is no doubt that the depredations of ricebirds have been one of a number of causes leading to the abandonment of the rice industry on the South Atlantic Coast. In comparatively recent years, business men of Wilmington, N. C., besought the Biological Survey for an effective and economical method of minimizing ricebird damage. They desired to restore to rice-growing the large acreage in their region formerly devoted to the purpose, but recognized that control of ricebirds was essential to success.

The region which first gave competition to the southeastern rice growers was the central rice-growing district, and here again birds, chiefly blackbirds, proved pests of first rank. W. E. Lea, former manager of the Cameron Farms Company, Orange, Texas, in a letter of May 18, 1928, remarks that the average loss due to them in that region was ten per cent of the yield and adds, "When there was no rice other than that grown on my farm for a radius of say six miles, the loss would run between twenty-five and fifty per cent. This statement can be substantiated by many reputable rice farmers, some of whom actually went out of business because of losses from ricebirds." Corroborative testimony from O. J. Wintermann, Eagle Lake, Texas (May 5, 1928), is as follows: "We have two tracts of land in this locality which are no longer farmed because the birds destroy almost the entire crop each fall when rice is grown thereon. These tracts are near the water, which attracts the birds and they seem each year to ruin the crop."

As a further instance of birds causing the abandonment of agricultural endeavor in certain areas, we quote from a report (November, 1930) relating to Horned Larks in California by S. E. Piper, one of the most experienced field men of the Biological Survey: "Wherever in the state," he says, "commercial production of vegetables and of beans touches upon habitats of the Horned Lark, attack by this bird on the young plants is swiftly devastating. I have observed cases in which the birds in large numbers have completely destroyed plantings of beans, carrots, lettuce, and peas on areas of from twenty to fifty acres within the short period in which the plants are subject to attack. Most damage is sustained by bean-growers on the non-irrigated slopes and mesas of the Coastal Strip from Monterey and San Benito Counties to the Mexican boundary. This damage is decidedly localized, and recurs year after year in the same situations, with the effect that

bean-growing on certain areas, adapted almost solely to this purpose, has been abandoned."

Thus we see that bird damage runs the gamut from the insignificant to the unendurable. In his relations with destructive birds, man's position may be one in which the attacks are of no consequence, or on the contrary it may be one wherein, despite all efforts, he is defeated and driven out of certain areas.

While accounts of destruction by birds could be continued at great length, it does not seem necessary to give more than the preceding illustrative examples to convince even the most steadfast bird lover that mankind often is confronted with the necessity of bird control.

That necessity admitted, the question of methods of accomplishing control comes to the fore. All of us prefer measures of the preventive type that do not involve death to the birds and while sometimes such methods are feasible, at others they are not. As a rule frightening devices (scarecrows and their ilk) are effective only when novel, and familiarity with them soon breeds contempt. Such methods as tarring seed grain, planting it too deeply to be readily dug out by birds, covering a few trees or small berry patches with bird-excluding netting, choosing early or late maturing varieties with relation to their susceptibility to bird damage, harvesting early, or otherwise varying farm practice to minimize depredations, are examples of preventive methods.

Often none of these devices will avail, and aggressive measures are in demand. "Bird-minding", or the patrolling of areas and shooting at the birds or otherwise frightening them, usually with only a slight amount of actual killing, is a method long in use, but one that is expensive and often not very effective. Shooting at birds destroying small fruits involves perhaps the next greater degree of killing; some species, as Robins, are unwary and must be practically shot out, while others, as Starlings, are wary and soon avoid the dangerous area. Shooting is expensive both in labor and materials. Trapping has been little employed except against birds of prey and English Sparrows, and its possibilities are hardly known in the case of destructive birds in general. It is clear, however, that the methods so far mentioned are impracticable or prohibitively expensive for use where large areas are involved. This means that they will not be used on any extensive scale. Poisoning is the next resort and this method has the advantages of relative cheapness and of greater possibilities of economical application to large areas.

Often control measures are uneconomic, hence are not attempted. There may be other reasons also which render bird control impracticable. In illustration we may record that only recently (November, 1931) investigations of Crow depredations in Oklahoma (by E. R. Kalmbach and S. E. Aldous, of the Biological Survey) while confirming reports of vast numbers of Crows and of serious damage by them, revealed so great an abundance of food in unharvested crops, shocked cereals, and pastured grain fields, that all concerned agreed that an effective control campaign was impossible and that recourse must be had to alterations in farm practice.

This brings us back to the fact that in his competition with birds man is not always the victor. The Oklahoma grain growers must raise enough for the Crows as well as for themselves, as it is simply impracticable to cure the situation. In other cases, as previously noted, man can not do even that well; he must surrender to the birds. Such instances are parallel to the warfare with insects of which we read so much, for in many cases without a doubt there is a struggle for existence between birds and man, a favorable outcome of which from man's point of view is by no means assured.

The fears entertained by some, therefore, that efforts at control are endangering our bird population certainly in many respects are unfounded. Concluding that all bird killing tends toward extermination also is not justifiable. The thing that does seriously threaten local avifaunas is man's increasingly intensified occupation of the land. This is an inevitable accompaniment of population increase, and bird control operations along the way if a factor at all in the final result, are only incidental.

Bird control we must conclude is a self-limited activity. On a small scale it is unnecessary, on a large one it is impossible. In the intermediate categories, economics in the long run will rule, and in a high proportion of cases, so far as we can now foresee, control will be prohibitively expensive.

Ordinarily, furthermore, bird control does not affect the species that are favorites with bird lovers. There is no control of wrens or bluebirds, chickadees or warblers, swallows or phoebes. Most of the familiar species that the ornithophile has in mind when he thinks birds are never involved in control operations. The only notable exception to this statement is the Robin, and its universal abundance shows that it has not been injured by control operations.

In its entire history the Biological Survey has found it desirable to publish instructions for control of only certain hawks and owls,

crows, magpies, pinyon jays, starlings, blackbirds, and English Sparrows, and the whole list of birds involved in control operations anywhere in the United States is scarcely as long again.

For the interest it may have to readers, the policy of the Biological Survey in relation to bird control is here succinctly stated. The general policy of the Bureau is to hold bird control work to a minimum. In each case study of the situation in the field, development preferably of preventive methods, or, if necessary and possible, of control measures, with subsequent dissemination of information on the results obtained, are held to fulfill the Bureau's obligations. Large-scale control campaigns and far-reaching extension projects are not contemplated. The underlying principle recognized is that economic problems involving wild life are characteristically local and that means of adjusting them must vary with, and should be confined to, the localities where needed. In making adjustments of wild-life relationships for economic reasons, we should do whatever is required but no more than is necessary.

The charges of wholesale destruction of birds in control campaigns in most cases are entirely unfounded, and as for indiscriminate slaughter of birds of all kinds, there are practically no instances of it.

A little reflection should reveal that there is small cause for unease as to the results of bird-control operations in general. This is true not only because of the various limiting factors already discussed here, but further because bird control in the last analysis almost always is strictly local action against abundant and usually also widespread species. It is the very factor of overabundance of birds that brings on damage and the ensuing efforts at control. The insignificant effect of these efforts upon the bird population is evident on every hand.

These remarks apply to the general run of control activities against highly vegetarian species, the repression of which is undertaken for economic reasons. They do not apply to bounty systems, side hunts, and other organized onslaughts against the larger predatory birds. These constitute warfare, not control, and due to its long-continued intensity and to the smaller numbers of the birds against which it has been directed, the results in some cases have been disastrous.

Such has not been the case, however, with any of the species of either seasonally, or almost totally, vegetarian-feeding habits. Consider for instance the linnet, or house finch, which was the most destructive bird in California in the 'seventies and 'eighties, when horti-

culture was just getting established there. The Pacific Rural Press of those years teems with references to the destructiveness of this bird. It was shot, poisoned, destroyed in every way that occurred to the growers, and it has been fought ever since. Today, after more than sixty years of such treatment, it is still the most destructive bird of the state. What is more, the aggressive actions against it so far as known have not depleted any associated species.

The Crow in the east has been fought for more than 200 years. Since colonial times it has been outlawed, and shot, and poisoned at every opportunity. Nevertheless it has maintained its numbers and steadily extended westward its area of abundance. It has accompanied its enemy man, persisted despite him, and increased with his increase. To take one glance at similar phenomena of the Old World we see Rooks and House Sparrows still abundant there, although persecuted for ages.

The story of the Bobolink, or ricebird, most nearly epitomizes that of "control" of abundant species of largely vegetarian proclivities. The rice industry that developed on the South Atlantic Coast was located exactly in the migration path of Bobolinks, through which the birds funnelled from a range almost continental in width. In myriads they took enthusiastically to the rice, and for more than a hundred years they were fought unceasingly in every imaginable way. Now the rice industry of that region is gone, but the birds remain. The Bobolinks traverse their accustomed migration path, as did their ancestors for ages before them, serenely unaware that there ever was such a thing as bird control.

Efforts at bird control are exceptional indeed if they succeed enough to justify their name; and seldom do they develop into threats against the existence of species. So long as suitable range exists for a widely distributed bird, local action against it is not to be feared, and bird control practically always means local action against abundant species. If suitable range ceases to exist, through human occupation or through destruction of necessary environmental factors, nothing can save the species affected. Only to this trouble, largely an incurable one, and not to bird control, can be properly traced certain of the regrettable cases of impairment of our avifauna.

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