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THE CRANBERRY GROWER'S INTEREST IN BIRDS

By
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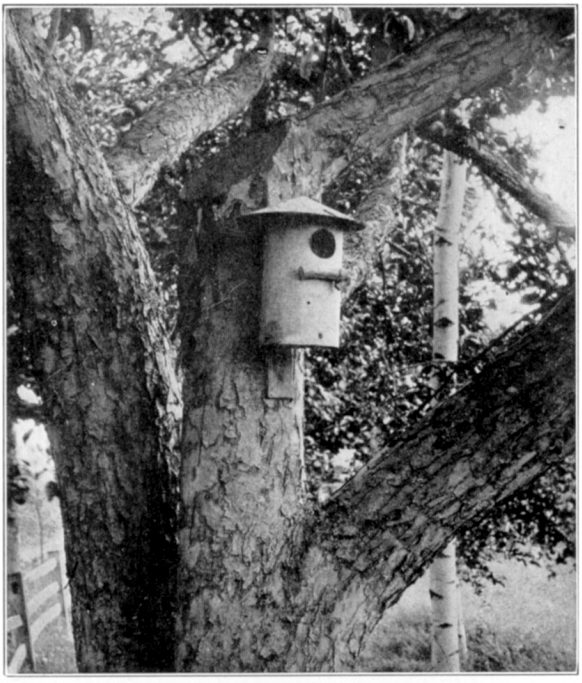


A Nesting Box of Roofing Paper

Boxes with thin walls like this should not be placed in too sunny a location. Designed by Mr. Winthrop Packard, Canton, Massachusetts. (Photograph by E. H. Forbush.)

"Wellesley" Bird Box

An inexpensive but very satisfactory type. Made of rough wood stained brown, with easily removable top covered with roofing felt, and metal squirrel guard at entrance. (Photograph by John C. Lee, Wellesley, Massachusetts.)

THE CRANBERRY GROWER'S INTEREST IN BIRDS

By John B. May

The sunny swamps of southeastern Massachusetts are favorite haunts of the native wild cranberry, *Vaccinium macrocarpon*. As a result, this region is now the greatest commercial cranberry producing area in the world. About 15,000 acres are devoted to cranberry culture in this state. In money value the cranberry crop is second only to the hay crop among agricultural products in Massachusetts.

Like most of our garden and farm crops, the cranberry is afflicted by a multitude of insect enemies. The fruit worm, black-headed and yellow-headed fireworms, gypsy moth, cranberry girdler, green and brown spanworms, false army worm and cranberry tip worm are among the most destructive of these insect pests. The blunt-nosed leafhopper, otherwise unimportant, has been demonstrated to be a carrier of the false blossom disease, the most serious infection attacking cultivated cranberries. The mosquitoes which breed in the bog reservoirs and ditches and in the nearby salt marshes make life miserable for the workers in the bogs throughout the growing season.

The wise cranberry grower will be alert to enlist every agency which may even in small measure assist him in his unending warfare for the protection of his vines against insect pests. Flooding and poisoning are the usual methods employed, but they do not completely control all the insects. Flooding has but little effect, for example, upon the cranberry tip worm, whose minute maggots will survive longer flowage in summer than will the growing vines, and whose hibernating pupae are not seriously affected by ordinary holding of the winter flowage. The flying adults, however, tiny though they are, probably are devoured in numbers by Swallows, Chimney Swifts, Martins, Phoebes and other flycatching birds.

Evidence that Birds destroy Cranberry Insects

The late Edward Howe Forbush, for many years State Ornithologist of the Massachusetts Department of Agriculture, in his Eighth Annual Report, gives the following personal testimony as to the value of birds in the cranberry bog. He states: "In 1914, on a portion of three sections of a cranberry bog on my place in Wareham, nearly every plant was killed by the white grub of a May beetle (*Lachnosterna*), which destroyed all the roots. As this insect, which remains for several years in the soil, is difficult to control in a cranberry bog, it was concluded to reset the tract with new vines in 1915 and see what happened. The vines were set and almost immediately numbers of Robins were seen at work upon the tract. They dug into the sand with their beaks and pulled out the grubs. In a few cases the roots of the vines were cut off by the grubs, and these vines the Robins pulled up, discarded and dug out the grubs. A few which had come to maturity emerged from the sand as beetles and disappeared, but apparently the birds got all the rest, and as a result the vines set this year nearly all survived. No other bird except the Robin was seen to attack these grubs.

though others may have done so." (Other birds which are known to feed upon the white grub or its adult form, the May beetle, include such visitors about cranberry bogs as Crows, Blackbirds, Starlings, Meadowlarks, Blue Jays, Kingbirds, Phoebes, Towhees, Thrashers, Catbirds and Bob-whites or Quail.)

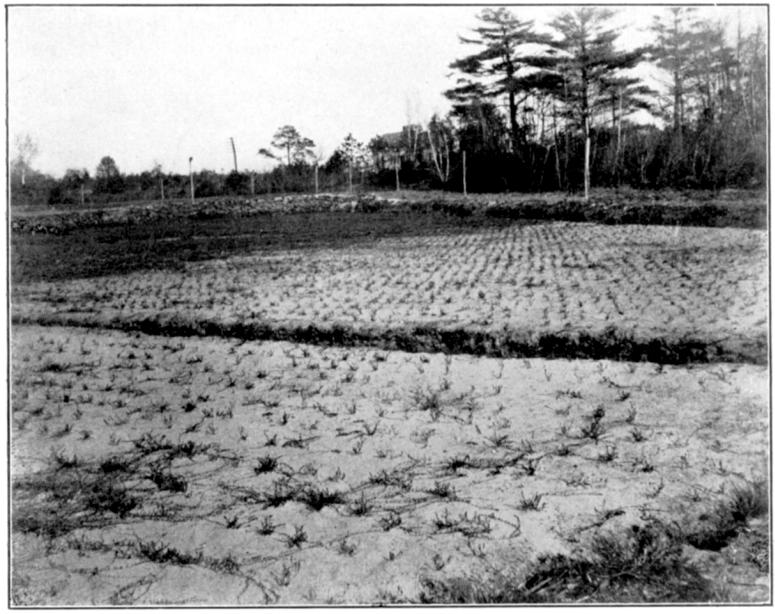
A cranberry grower in Plymouth County, who is also an observer of wild life, told me recently that he formerly used in the neighborhood of a ton of poison annually on his bogs. Then one summer he noticed many Tree Swallows hawking back and forth across his bogs, apparently catching small moths of some kind. He had a few bird houses built and placed upon poles upon his bogs, and some of these were being inspected by eager Swallows even before all could be erected. The birds proved so assiduous in their warfare against the insects that he made more and more houses until he had about two hundred in position and practically all were soon occupied by Tree Swallows. He assured me that since establishing his Swallow colony he has spent no money on chemical poisons, though he still continues to flood his bog at certain times as before. Flooding acts as his major control and the birds apparently clean up the few pests which appear from time to time or from other localities.

Similar testimony on the value of birds as an auxiliary force is found in Bulletin No. 411 of the New Jersey Agricultural Experiment Stations, where Charles S. Beckwith reports on his successful experiments on "Control of the Cranberry Girdler by Submergence in Water." Mr. Beckwith states, after describing four tests which controlled 95% to 100% of the girdlers, that "It would seem that the floating of the larvae of the cranberry girdler would not be sufficient to control it as completely as the results indicate, but it must be remembered that the natural enemies are very numerous and the moving of the larvae to an unnatural position gives the enemies an opportunity to destroy them. *Probably the most important destructive agents in this case were the birds.* During the flooding reported, several thousand birds, attracted to the scene, were very active working on the surface of the water and about the edges of the pond formed. Inasmuch as their activity about the water was greatest during the period when the girdler worms were floating, it was assumed that they were eating them." (The italics are mine.)

In a recent letter Mr. Beckwith writes: "The Red-winged Blackbird is a common species working on the bogs when they are not flooded. It is often possible to locate severe infestations of certain worms such as the blossom worm by the unusual activity of blackbirds in that section. The growers watch the activity of such birds with much interest in New Jersey."

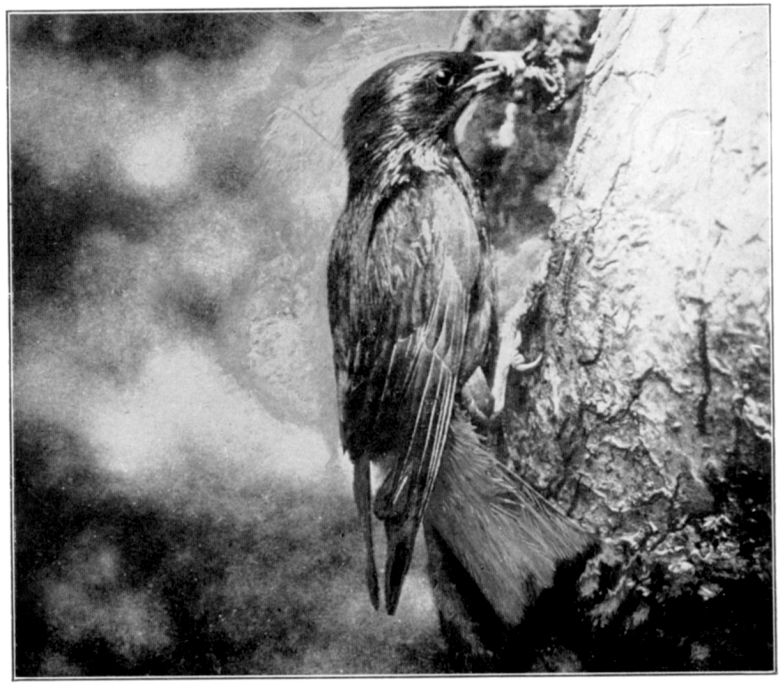
During the summer of 1931 I spent considerable time studying the feeding habits of birds about cranberry bogs. Near the Massachusetts State Experiment Station at East Wareham is a pine grove containing a good sized colony of Grackles or Crow Blackbirds. A very large part of the food carried to the young in the nests was collected by the parents on the station bogs, the birds making trips back and forth at frequent intervals. With a glass, the birds were watched as they filled their beaks with green caterpillars, which were definitely identified in several cases as green cranberry spanworms and false army worms, both of which were common on the bogs, as was demonstrated by sweeping with a net. Robins, Red-winged Blackbirds, Cowbirds, Starlings, Kingbirds and Song Sparrows were also busy collecting insects on the bogs at the same time.

At a bog in Duxbury I watched for a long time a group of young Bluebirds, their speckled breasts and small amount of blue showing them to be but recently out of the nest. The birds spent much of their time perched on telephone wires beside the road, from which vantage point they intently watched the nearby bog. At frequent intervals one or another would fly



ROBINS SAVED THESE CRANBERRY VINES

The vines in the foreground were set to replace ones destroyed by white grubs and Robins destroyed practically all the grubs in the new planting. (Photograph by E. H. Forbush.)



A STARLING AT ITS NESTING HOLE

While considered a pest for many reasons, the Starling is a useful destroyer of insects about the cranberry bog. (Photograph by E. H. Forbush.)

down to the matted vines, pause a moment, then fly back to the wires, turning as it alighted so that it again faced the bog. At times five birds could be seen on the wires, but often two or three would fly away for a while and at intervals passing autos would send the entire group away together. In spite of these interruptions, however, this little group of Bluebirds made a total of 156 visits to the bog in one hour, an average of five visits every two minutes for the group, or of 31 visits per hour for each bird. One of the birds was later collected in the interests of the study, and its stomach was found to contain the remains of eleven black-headed fireworms and of six green cranberry spanworms. The stomach of a second bird held several spanworms and fireworms, as well as remnants of red-legged grasshoppers and one or two beetles. These are probably quite typical of the feeding habits of these delightfully attractive birds when reared in the vicinity of cranberry bogs.

Dr. Henry J. Franklin of the Massachusetts Cranberry Experiment Station has long been interested in the relation of birds to the cranberry industry and has collected some valuable data on the subject. The writer is greatly indebted to Dr. Franklin for his advice and assistance in the past and for the promise of co-operation in the continuance of the study.

Increasing Our Bird Population

If we grant that birds may be useful about cranberry bogs, the next step consists of devising means of encouraging and protecting these little creatures. Birds require few necessities,—food, water, shelter from enemies, and places where they may rear their young being the principal needs. Supply these few requirements and the bird population should prosper and increase.

Few birds suffer from lack of food during the warmer weather, in all probability, though winter feeding may be of great importance. Occasionally during a prolonged rainy period, some of our insect eaters, especially the Swallows and Martins, may be seriously affected, but unfortunately there is very little we can do in such cases. Water is usually ample about cranberry bogs, in the reservoirs and ditches, so drinking places need not be supplied especially for the birds. Oiling, sometimes applied in mosquito control, may pollute the water so that the birds suffer, but it is an uneconomical treatment and seldom desirable, Cats and human beings are probably our wild birds' greatest enemies. The former can be trapped and killed, for those found about cranberry bogs are usually semi-wild, abandoned stragglers and are extremely destructive to birds. The humans must be educated, and restrained by means of "No Shooting" signs. If a bog owner wishes to allow hunting upon his property, he should at least insist that the laws regarding protected species and closed seasons be obeyed.

This leaves nesting sites to be provided. Fortunately, many of the most desirable birds from the cranberry grower's point of view are birds which normally nest in holes of some sort and which, therefore, may be attracted by artificial nesting places. Among these are the Bluebird, Tree Swallow, Crested Flycatcher, Purple Martin, Chimney Swift (which nested in hollow trees before chimneys were built in America), Sparrow Hawk, Wood Duck and that alien, the Starling. Several other species often nest about buildings or under some kind of shelter which can be easily supplied or adapted for their use, including the Barn Swallow, Cliff or Eave Swallow, Robin, Catbird, Phoebe or Bridge Bird, and a few others. Still other birds, which nest in trees, shrubs or on the ground, only ask that their enemies be kept away from their chosen haunts.

As a hollow trunk or limb of a tree or a deserted woodpecker's nest is the usual site occupied by hole-nesting birds of several species, in trying to attract such birds we should employ material which imitates to some extent such natural cavities. A section of a tree containing an old woodpecker's nest (see Fig. 1) may be transported to the bog and set up on a pole, or a hollow limb may be sawed into sections eight to twelve inches long, the lower end of each section plugged and the upper end covered with an overhanging piece of old board and a hole bored in the side for an entrance.

FIG. 1.—Hollow limb.

FIG. 2.—Slab box.

It is much better to attach bird houses to poles rather than nail them to trees, as the nails may later be overgrown and become dangerous obstacles for axe or saw when the tree is cut up for lumber or firewood. The houses should be where they can readily be observed, where cats and similar enemies may be controlled, and where the boxes may be easily cleaned after occupation.

Very successful nesting boxes have been made from old shingles, pieces of packing boxes, and similar material. A saw, hammer, jackknife and a few nails are all the tools necessary and a box can be assembled in a few minutes. Boxes made of weathered wood and of slabs with the bark on (see Figs. 2 and 3) seem most popular with the birds, but boxes made of new material may be stained a neutral color or erected in the fall and allowed to weather. However, birds are sometimes attracted by the brightest and most gaily tinted of domiciles. Houses made of cheap material may be burned at the end of the nesting season, instead of being cleaned and renovated.

FIG. 3.—Shingle nesting box.

Different birds prefer different sizes and types of houses. Directions for making several types follow.

Bluebird. Interior dimensions about 4¼ by 4¼ by 8 to 10 inches. Entrance hole near top of one side, 1½ inches in diameter. (The entrance hole is the most important dimension; Bluebirds will not enter a hole 1¼ inches in diameter, and Starlings are likely to drive them away from a box with an entrance over 1¾ inches in diameter.) Long axis of box should be vertical (see Fig. 4). Place in light shade among trees or on the edge of the bog.

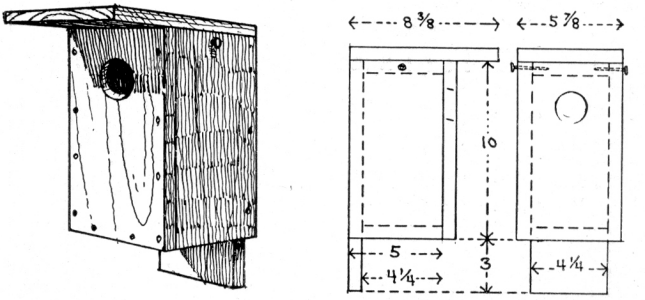
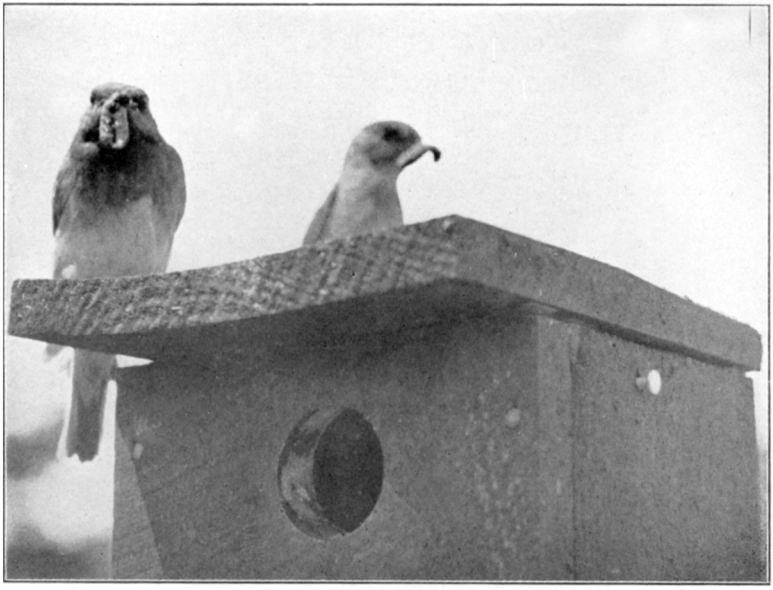


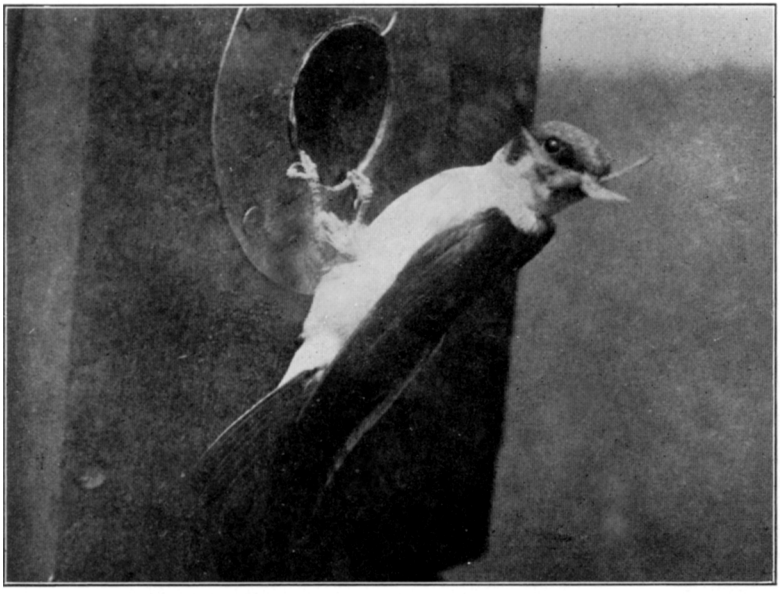
FIG. 4.—Bluebird box and details.

(Boxes such as these and the following may be made very inexpensively in quantity by giving the dimensions of each piece of wood to a sawmill or box factory which will cut the pieces and the houses may be assembled later at the bog, stained and erected. Unplaned wood should be used.)



A Pair of Bluebirds on Nest Box

These birds are carrying army worms to their young in the box. (Photograph by E. H. Forbush.)



A Tree Swallow at Nest Box

Its throat is stuffed with insects and it has a moth in its bill. (Photograph by E. H. Forbush.)

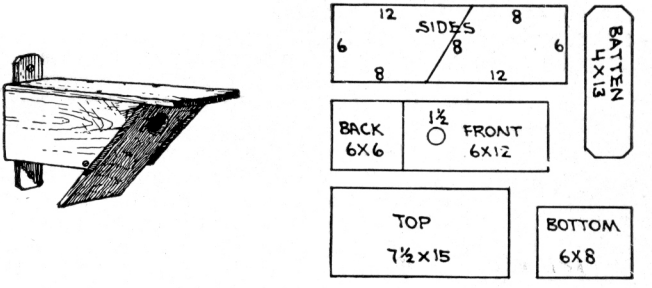


FIG. 5.—Swallow box and details of construction.

Tree Swallow. This bird will use almost anything which a Bluebird might use, but may use a box slightly smaller than the measurements given for the Bluebird. Boxes may be placed on poles anywhere in a bog or about a reservoir. Long axis vertical or horizontal (see Fig. 5).

Crested Flycatcher. Requires a slightly larger box. Interior dimensions about 6 by 6 by 8 to 10 inches. Entrance hole 2 to 2½ inches in diameter. Long axis horizontal. Prefers partial shade.

FIG. 6.—Martin barrel.

Purple Martin. Our only native bird which will use a many-compartment house without driving neighbors away. The separate nesting compartments should be about 6 by 6 inches square and 7 inches high, with an entrance of about 2½ inches diameter. The style may vary with the ingenuity of the maker, but a suitable house may be made from a strong barrel, divided into rooms by partitions, and set on a pole 10 to 20 feet high (see Fig. 6). The entrance holes should always be well above the floor of the nest compartment.

Starling. This introduced species has become very abundant and is considered a nuisance for many reasons, chief being its fondness for cereals and small fruits, and its propensity to fight with our native birds like Bluebirds, which might covet the same nesting place. However, it must be admitted that about cranberry bogs the latter is the only complaint which can be made, for the Starling is not known to eat cranberries, and it destroys a tremendous quantity of injurious insects. It can be kept out of houses built for Bluebirds and Tree Swallows if the entrance hole is less than 1¾ inches in diameter, but may occupy any house made for a Crested Flycatcher or Purple Martin.

Wood Duck. This beautiful little duck is a destroyer of mosquitoes and other aquatic insects and should be encouraged wherever bog reservoirs furnish suitable surroundings. Nest boxes are sometimes constructed by cutting a hole in the side of a nail keg and fastening the keg to a tree in woods near the water or in a dead tree standing in the pond. The inside measurements of a box should be about 10 by 10 by 18 to 24 inches, and the entrance should be about 4 inches wide by 5 or 6 inches high (see Fig. 7).

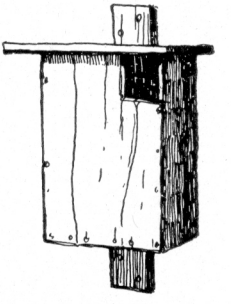


FIG. 7.—Wood Duck box.

Some birds which do not nest in holes may be attracted by other simple devices.

Robin. This bird uses mud in nest construction and so appreciates shelter from rains. Robins often build on projections under the eaves of a house or shed, or under a bridge or overhanging bank. Shallow open wooden boxes about 6 by 6 inches square (see Fig. 8) may be fastened under some protec-

tion like eaves, or an open nesting place can be made of two pieces of boards about 6 or 7 inches square, one forming a floor and the other a roof, separated by four corner posts about 7 inches long. Unless the roof slants, however, the Robins may try to build on top of the box instead of inside it.

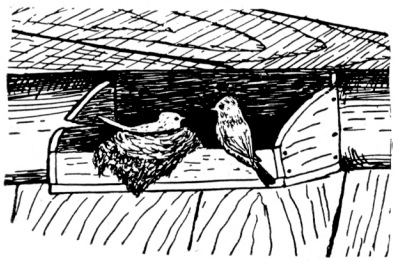


FIG. 8.—Phoebes' nest in box.

Phoebe. Most of the remarks regarding the Robin apply to this bird, but the Phoebe is slightly smaller (see Fig. 8). It seldom builds far from water.

Barn Swallow. Boxes similar to those used for the Phoebe and Robin may be placed inside barns or other sheds, or a short cleat can be nailed to a rafter or a lath nailed across two rafters with its ends projecting, or sufficient foundation for the mud structure may be supplied by two nails driven partly into a beam or rafter. There should be a permanent opening into every barn so that swallows can enter freely.

Cliff or Eave Swallow. These birds nest outside barns instead of inside, like the preceding species. A long, narrow strip of board nailed about a foot below the junction of the side wall and roof will give the needed support for their interesting retort-shaped nests of mud, which will not stick to a smooth painted surface.

Bank Swallow or Sand Martin. These little birds, which dig burrows in the vertical face of sand banks, are very useful as destroyers of mosquitoes and all small flying insects such as the adult forms of many cranberry pests. If a colony is found in the bank where sand for the bogs is obtained, they should be encouraged whenever possible, and their nests unmolested.

Song Sparrows, Thrashers, Towhees, etc. Many birds will nest about the bogs and help in the fight on insect pests, if suitable nesting sites may be found. If occasionally a small clump of bushes is left in the cleared area customary about bogs, the birds will repay the attention. Even birds ordinarily classed as seed-eaters usually feed their nestlings almost entirely upon insect food.

Additional information regarding methods of attracting birds may be found in Department Publication No. 112, Bird Houses and Nesting Boxes, and in No. 116, Food, Feeding and Drinking Appliances, and Nesting Material to Attract Birds, published by the Massachusetts Department of Agriculture.