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## AGRICULTURAL BIRD PROBLEMS IN THE MIDWEST AND EAST

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We recognized this bird damage problem from an agricultural standpoint around 1950. It seemingly was growing and when we looked into it; it later appeared that this was the case. The problem was quickly resolved to be primarily red-winged blackbirds in corn. We also have problems of damage to fruit crops such as apples, or peaches by starling and other birds, in grapes probably by warblers and most certainly starlings in certain seasons. But, this isn't as consistent and persistent at the corn damage by red-winged blackbirds.

We began about 8 years ago to make a survey and we got the blessing of everybody concerned to run an ecological project. In this ecological project we were going to determine the life history and the ecology, the interrelationships, the behavior of the blackbirds, and we did this and came up with many of the same results that you've heard about today. That is, the previous speakers have practically summed up our findings. They're the same; they're uniform. In some cases we used their findings to come to some of our conclusions. We also formed an interregional agricultural group to determine what could be done. Because the north central agricultural research experiment station directors were not in accord with operating this program in the north-central region, Ohio joined the northeast region and the chairman, Dr. Philip Granett of Rutgers University, of the northeast region is present at this meeting, and I'll probably have him tell you about this a little bit later. I'm a member of the technical committee of the northeast region experiment station groups in which the experiment station people cooperate with the fish and wildlife people, in this common problem of preventing crop depredations by birds.

We can sum up rather quickly the things that we have done under two headings: one under Evaluation and the other under Ecology. First we've evaluated things. We've evaluated exploders in preventing damage. We've evaluated varieties of corn. We've evaluated insects--insect sprays to keep birds out. We've evaluated diversion crops. Evaluated types of soil. Evaluated different habitats. We've evaluated exploders and alarm cries, shocking devices and chemicals.

The second approach is ecological and we've used this more in the life-history-ecological relationships: we've studied the food throughout the season. We've studied their susceptibility to baiting. We've studied the nesting habitat and found out where they come from. This is probably one of the most revealing to understand what the problem is. There is a potential 25 million young produced in Ohio each year in alfalfa fields. These birds find a better nesting habitat in alfalfa than they ever had in the history of North America. We have a million acres of alfalfa in the state of Ohio and this can produce one whale of a lot of trouble for the Lake Erie region and for Canada.

We've studied migrations, not only of the red-winged blackbird, but of the starling and cowbird which also are susceptible to a decoy trap. And, in general, the migrations run into Canada the same season that the birds are hatched in Ohio. They come back through Ohio later in the season and they wind up where Jim Caslick found them along the Gulf coast and the south Atlantic states. We've considered diseases and parasites, and of all these things, I can say that we can come up with several conclusions.

First, the area of damage within the state is increasing. If there is grain there, the birds are going to damage it in many of these areas. There are more birds than ever before. This migration into Canada and back again results in these millions of birds spending their time around our corn fields when corn is most susceptible to attack. Second, we need some tools to get at the birds. The only thing we have now is the exploder, and this we know requires constant attention to keep in operation, and human patrols in addition. We need clues which will make it possible to develop better deterrents which require less maintenance to be effective.

Third, we need an international, interregional cooperative project on blackbird control, so that birds can be followed at all seasons throughout migrations. We in agriculture can go into analyzing cultural practices and even life histories of the blackbirds in looking for clues to control. We've worked this year through the Fish and Wildlife Service with Dick Smith and his group in an action control program. We know a few things about the blackbird, which may give a measure of control and we have tried them out on field tests. However, you've heard of the extent of the range of the bird, you've heard the extent of its generalized behavior pattern--for example, how it can live in a variety of situations--and we're still completely outwitted in our efforts to control it by lethal means. The NE 49 Agriculture Group (Experiment Station Directors) is one that tries to coordinate all of the research that the agricultural people and the fish and wildlife are doing particularly those at Rutgers, and Phil, could you add anything of a general nature? This is Dr. Phil Granett whose home station is Rutgers University.

DR. GRANETT: My home station is New Jersey so I would know the most about that. All I can say is that we, too, are following up the same lines as the rest of these people, and we have tried to do a lot of the same type of evaluation with what is handy at the moment, or we thought was handy at the moment, and come up with the same frustrating result that nothing really works. It seems as if about three or four years ago this all seemed to come to a head in various areas around the country with the push of one of the groups that isn't represented here except by one person, the farmers, and the one person from the Farm Bureau. They, I think, demanded that something be done through their various representatives with the result that the U.S. Department of Agriculture through its research group did establish a regional, a northeast regional group to try to coordinate, I say, try, advisedly, because we are not coordinating. We are still working more or less as individuals and meet once a year to exchange information. Well, this is not coordination and eventually, I think, we will get to some sort of coordination with our work and try to do this with the Fish and Wildlife Service and with our own experiment station resources. This northeast regional group, which is represented actively now only by Massachusetts--and this is mostly the fish and wildlife group there involving its experimental station--includes Connecticut, New York state, Delaware and again, mostly Fish and Wildlife Service there, and Maryland. We have some ties of course, with Ohio which isn't in the northeast region. We also have interest from Virginia, West Virginia, Georgia, Alabama; this is just interest. They are interested in our reports. Occasionally we will get some people up to a meeting. We know that California is doing a tremendous amount of work and hopefully they will come out to our meeting, and of course, Mel Dyer and his group from Canada. The area we are drawing on is national and the problem is national as you've heard. So that we are pushing out the same type of research, the same type of applied work as the rest of the group here, and eventually with all of these brains working, perhaps we will overcome that bird brain. Essentially, the work we are doing to combat the time interval is a relatively short one as I see it. The crops are picked up by the birds over a relatively short time, perhaps two, three, four weeks, at most, for each of the crops that we are concerned with, and it seems strange that with all of our facilities, theories, chemicals, and equipment that we can't overcome this activity over that short period. We, as you see, haven't up to this point, at least for most crops. Now the universal answer--and it's beginning to appear that there is no one universal answer--for this problem is that we will need to apply various types of control perhaps at the major roost in the winter time, perhaps at the breeding ground during the summer. At any rate, we are in the process of trying to develop those and hopefully, eventually, something will come of this. Most of us are rather pessimistic, but as far as some of the possibilities this thing is going on, the activities that have been going on

have been told for hundreds of years, thousands of years as far as man's records show--birds have been acting in man's crops and, through all of these eons of time, no one has come up with something that is useful. We will try to, of course, but it is a tough one and a very frustrating one, and one that we need all the help that we can get. Mostly we need more basic information as I see it. We've gone through the superficial types of possibilities; we need to get back to obtaining more of the type of information that Mel Dyer, Jim Caslick, and Don Balser, have mentioned here.

We've got to get back to some basics, to some physiology and structure of the bird--what it's doing, where it is as far as patterns of flight are concerned--and eventually I think we will have some answers for you.

One other thing that I might mention is that in addition to this type of cooperation that we're getting, the states themselves are beginning to recognize and there are appropriations, small amounts of money. In New Jersey this past year the legislature in its wisdom appropriated \$20,000 for a control of blackbirds. Mr. Bob Fringer, who is present here with one of his men, was assigned to this job. He turned to research for answers and, of course, we had none really. So, he is cooperating with us and trying to develop some of these and mostly a trouble-shooting activity at the moment.

DR. GILTZ: Thank you, Phil. I'd like to add that I have two mimeographs on the red-winged blackbird: one is the life cycle of the redwings, which is basic to understanding the ideas of trapping and baiting; the other is "The Control of Blackbird Depredations in Crops at the North Central Branch of the Ohio Agricultural Research and Development Center." This is the farm of OARDC where we have the agricultural operation of raising corn. We also have marshland under our control to manipulate the water level and use. We have in Ohio this year \$25,000 that went to the OARDC for research control into the bird problem and research education to tell the farmers that there isn't any answer today, that they must use scaring devices. If they grow corn, they are going to have to protect it or they will lose it to birds.

We can sum up our positive accomplishments in two phases. One development, the decoy trap, gives us a bird in our hand. For the first time we get enough of them to experiment with, to study, and to follow their migrations.

The other development is that alarm cries and exploders do keep the birds out if supplemented with another scaring device and patrols. This must be persistent. On the farmers' behalf I want to say, when they are operating a scaring device and patrolling their field, they can't go to lunch, nor to the county fair, nor state fair, they can't take a vacation, nor get sick, nor even die, if their crop is to be saved. They must work fulltime or the birds are going to be there. When the

farmers stop any deterrent practice, the birds will wipe out their crops in a short time, with the same pattern of attack in Ohio as Mel Dyer will tell you about in Ontario.

R. SMITH: Thank you. I'll only add that I transferred from South Carolina to Ohio this past year. After this summer I'm ready to go somewhere else. (Laughter) Any questions?

L. STEVENS: This million acres of alfalfa was mentioned a minute ago. Entomologists in the state have predicted that in the next three to five years, practically every acre will have been treated with insecticides for control of the alfalfa weevil. Do you, Dr. Giltz, anticipate any effect on the nesting habits due to those treatments?

DR. GILTZ: Yes, I think that there will be great effects. I think that they will be in our favor, against the birds.

L. STEVENS: Has there been any study made of it yet?

DR. GILTZ: Only very roughly. There is one paper out which I can't give you the details on. [See R. Graber, S. Wunderle, and W. Bruce. *Wilson Bull.* 77(2): 168-174, 1965. Ed.] It gives the effect of spraying on the birds in the alfalfa field. We studied it before this came up, and we couldn't find any residue in the birds or in the eggs. We had then a nice little control area in northern Ohio where they didn't need any insecticide for the alfalfa weevil. We ran a few tests then and found nothing there, nor in the fields we sprayed in northern Ohio. However, the alfalfa weevil dries up these fields. It's going to mean that the redwing isn't going to have it so well. Birds need a moist field. The alfalfa gives them the moisture they need to build and maintain a nest. Without this moisture, the redwing won't like alfalfa as well as it does now.

[The two mimeographs referred to by Dr. Giltz are here reprinted. Ed.]

The Control of Blackbird Depredations in Crops  
at the OARDC North Central Branch

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The North Central Farm and Marshes are ideally located for research on the problem of depredations of corn by blackbirds because it

is situated on a major flyway in North America and contains 110 acres of cattail marshes and the "School Lands" where the blackbirds often roost in the millions. In 1957 the marshes were added to the farmland deeded to the Ohio Agricultural Research and Development Center by the late W. E. Levis. At this time it was evident that the blackbirds, especially the red-winged blackbird, could not be controlled in soft field corn or sweet corn when the maturation of the corn coincided with large roosts of birds in our cattail marshes. An ecological study begun here determined the nature and extent of the damage to corn in Ohio by blackbirds and discovered the source of this exploding population to be due to the nesting success of red-winged blackbirds in alfalfa fields. Additional data justifies the conclusion that the damage done by the redwing is done by birds on their annual migrations which carries them across Lake Erie into Kent County, Ontario and Upper Michigan; and so far south as the Gulf of Mexico and the South Atlantic States.

Areas of damage have increased to over 50 counties in Ohio and our research on the numbers of redwings nesting in alfalfa and studies on migrations with banded birds indicates that the number of birds is still increasing.

From July through the time the corn is damaged (August through September) there are many millions of birds changing from field to field, county to county, state to state and country to country. In order to eliminate the redwings they must be attacked throughout the year from Canada to the Gulf of Mexico.

It was found on this farm that constant operation of scaring devices at two minute intervals or less and the operation of previously recorded distress cries will prevent much damage. Here, as well as in other parts of the State, human patrols must be added if damage prevention is complete.

Control research is being done here and at other branches as well as Federal and State Refuges to find a way to control blackbirds and to find clues to control which will manage the great population of birds and not endanger other forms of life.

Until redwings can be managed corn growers in this area must protect their crop or stop growing corn. One program operating on this farm, this year, is to show how well a field of corn can be protected with exploders operated during all daylight hours during the time the corn is soft. In addition, the operation of a decoy trap will demonstrate and improve on methods of trapping. The decoy trap is not a tool for control. It will not protect crops. It enables scientists to learn more about the birds and it is hoped this will prevent needless expenditures of monies and energies and the findings may lead to clues to control.

## Life Cycle of the Red-Winged Blackbird

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1. Red-winged blackbirds or redwings return to Ohio from their wintering grounds in Alabama, Florida and the Carolinas in late February or early March.
2. They quickly spread evenly into their nesting territories in marshes and alfalfa fields throughout the state.
3. They may go to Canada and then return to Ohio where they set up their nesting territories. In the Midwest they eat grain left in the field from the previous year's harvest.
4. The end of March and early April males and females are on their nesting territories during the day and return to common roosts each night. The ratio is approximately one male for each three females.
5. Nests are built by the female the first week in May. She lays one egg per day until four are laid and begins incubation on the second day.
6. The eggs hatch in eleven days. The young are brooded by the female for approximately ten days and may successfully leave the nest as early as seven days after hatching.
7. During brooding and fledging the redwings eat mainly insects and their larva. The first brood comes off the nest the last week in May.
8. The young are fledged around the eleventh day and are tended on the ground in wheat, oats, hay, weeds or marshes for approximately two weeks.
9. They gather in flocks beginning in late June and early July and migrate northward just before sunset and just after sunrise.
10. They eat soft seeds during their migration from July through December.
11. Huge flocks gather to roost and feed, being decoyed by others who have found good feeding.
12. Those passing through areas of soft corn spend their days in any field not protected as well as in weeds, oats and wheat stubble.
13. During their migrations when marshes are not available the birds gather in deciduous trees, generally in cities.
14. When corn is not available they eat soft seeds.



15. When the birds arrive in "the south" for the winter they congregate often in thickets, numbering in the millions of individuals, and live on weed seeds and food in cattle feedlots.

16. They move out of the roost each day to feed and return again each evening.

[Discussion on page 101.]