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Our chairman has wisely asked that we not spend all of our time here telling each other about our bird problems. In the Southeast, our difficulties with blackbirds are based upon the same bird habits that cause trouble elsewhere: they flock, they roost and they eat, generally taking advantage of the readily available handouts that today's agricultural practices provide. Those of us on the receiving end of these depredations of course think that damage in our own particular area must be far the worst, anywhere. Because of the location of our meeting place today, perhaps it is worthwhile to point out that a report prepared by our Bureau's Washington office this year outlined the problem of blackbird damage to corn in the Middle Atlantic States, the Great Lakes Region and in Florida, and then followed with this statement--"An equally serious problem occurs in rice and grain sorghum fields of Arkansas, Mississippi, Texas and Louisiana." The report also mentions that the largest winter concentrations of blackbirds are found in the lower Mississippi Valley. Our 1963-64 blackbird-starling survey showed 43 principal roosts totaling approximately 100 million of these birds in Virginia, the Carolinas, Georgia, Alabama, Tennessee and Kentucky. We have our own birds during the summer plus the "tourist" birds from up here and elsewhere during the winter, and all of these birds must eat, so suffice it to say that we, too, have some bird problems in the Southeast.

I'm sure you're more interested in what we're doing about them. To keep this in perspective also, please bear in mind that against the magnitude of these problems, our blackbird control research staff at Gainesville consists of 3 biologists, 1 biochemist and one technician. And unfortunately, none of us happens to be a miracle worker. I think, though, we have made great progress toward solving the bird problems in the Southeast for the man-hours that have been expended in this research. My only suggestion to those who are impatient about not having more answers is that they examine the budget that has been set up for this work. Only then could we intelligently discuss what might be expected as a reasonable rate of research progress. When I think about

what we have accomplished in a short span of time, with very small expenditure, I can assure you that I am very proud of our small research crew at Gainesville--and I say this quite sincerely.

At the Gainesville station, we work under two general research approaches to the bird damage problem. These projects have been assigned to us. The first is research on management of birds, particularly blackbirds and starlings destructive to crops or in feedlots, and, secondly, the development and the adaptation of those chemical compounds found to be toxic to birds but relatively safe to mammals. These approaches both require laboratory and field work that is further subdivided into several specific research projects. Without describing the details of these now, I want to mention some of our recent results. From the results, I'm sure you will gather the general objectives and some of the procedures used.

We have an active project on the identification and seasonal distribution of redwing populations that damage sweetcorn in south Florida during the winter months. This is now largely a project of systematically collecting redwings, by shooting, according to a pre-determined sampling plan. We have about 1,000 birds collected now, most of which have been made into standard museum study specimens with the usual data plus habitat and other information individually cataloged for each bird. This information may be helpful in management. We are supposedly dealing with four subspecies of redwings in Florida and we want to know the degree to which each of these populations may be involved in sweetcorn depredations. This information may well affect just what can be done and how to go about it.

We continue to feel that blackbirds and starlings are more vulnerable to lethal control when roosting in large concentrations than during any other phase of their daily and seasonal activities. As I mentioned, most of these large winter roosts are in the Southeast. At Gainesville we are continuing our research in this area by evaluating some candidate contact poisons, using 1/1,000 acre cages that enclose natural roost vegetative types and known numbers of blackbirds. Some spray treatments are made at very low concentrations and are repeated on subsequent nights or at weekly intervals. Because many Southeastern roosts are otherwise inaccessible, we are trying various types of aircraft and airborne spraying systems. And we're learning. Early this year, for example, in southern Georgia, we learned that at least under some circumstances, it is possible to air-drop a solution directly upon roosting blackbirds. Using a C-123 plane, a load of approximately 1,000 gallons of a wetting agent solution was test-dropped on roosting birds at daybreak before they left the roost. Using larger capacity planes, we are planning to continue this investigation this winter, possibly field testing new wetting agents that may prove to have lower toxicities for fish and mammals.

Another recent project at a bird roost in Georgia was our attempt

to exhaust a small roost through repeated light-trapping. On successive nights, we trapped nearly 74,000 blackbirds, representing about 10 percent of the roost. Only about 5,000 birds returned the fourth night and although the trap was not operated again, the roost continued to diminish and failed to build up again the following winter. Incidentally, we captured 30 banded birds in this operation from 13 banding stations widely distributed between Ohio, New England, Florida and Louisiana.

Our principal laboratory project is to evaluate selected chemicals as blackbird and starling poisons. To do this, we ordinarily determine their relative oral, dermal or respiratory toxicities to blackbirds, using bait materials or techniques that we feel may be most effective in the Southeast. Some preliminary judgments are then made about the probable safety in use of promising materials, and, if possible, techniques are worked out to make them safer for use. The materials tested are aimed for eventual incorporation in grain baits or for use when applied to bird roosts.

A recently completed laboratory project was the determination of the primary and secondary effects of a promising starling toxicant, on swine. In secondary poisoning studies, we fed some pigs for long periods on poisoned bait and fed others on birds that had been poisoned with bait. In other words, we fed the pigs a ration of poisoned starlingburgers. Various age classes and sexes of swine were subjected to both of these treatments, then the pigs were sacrificed, and tissue samples were taken for residue analysis and histological examination.

Our most recently completed laboratory study determined the effective life of an organophosphate contact poison, when sprayed on birds. We wanted to know how long a sprayed bird might continue to be a hazard. Within the past year, we have been able to round up enough laboratory equipment that we were able to do this residue analysis ourselves. This is the first time that we have been so equipped.

At Gainesville this summer, we also did the initial work with blackbirds on a new sleep-producing drug and were successful in picking up sleeping redwings in feedlots after they had fed on treated grain. A material of this kind has obvious advantages where desirable birds are also frequenting problem areas--you can sort out the "good" from the "bad" sleepers. This new drug has an extremely rapid onset of anesthesia for redwings (roughly 1-3 minutes) and the affected birds often sleep soundly for a couple of hours. The drug appears to be easy to handle and is favorably accepted by redwings, but had a comparatively low order of mammalian susceptibility. There are several other good features, so we are continuing to work with it.

At least some of you here know that three of our five men have been working this summer here in Ohio, making further field tests on the product "Avitrol." Just prior to coming here, these men worked in Maryland, testing the new design of shellcracker called "Teleshot." None of these men have been home in two months, so their data has not

been run through the calculator. In fact they haven't been at a desk even long enough to spread out their test sheets and take a good look at them so it's still too early to report on their results today.

Our immediate plans for this winter include a continuation of an attempt to adapt the experimental starling toxicant DRC-1339 to our blackbird problems in the Southeast. In preparation for this, hundreds of captive redwings, cowbirds and grackles have been either force-fed or offered free choices of scratch grain, brown rice, sorghum, or sweet corn ears treated with this compound at several levels between 0.1 and 10 per cent. In these laboratory tests, varying the ratios of treated to untreated grain did not greatly reduce survival time or apparently affect bait acceptance. Aging the baits for as long as 30 days did not appreciably reduce toxicity except at the very lowest concentrations. Our tests with various locally-wild Southeastern small mammals support the finding that DRC-1339 is more toxic to birds than to mammals.

At Gainesville, then, we are working on a variety of projects, many of which are directly concerned with learning how best to kill blackbirds.

Yesterday we heard some very interesting views on animal population dynamics. At Gainesville, we don't spend much work time debating the fine points of these theories or just how they <u>might</u> apply to lethal control of blackbirds. I'm confident that expert advice on this point is being given careful consideration by others in our organization. In the meantime, we are in the business of exploring <u>how</u>, <u>when</u> and <u>where</u> blackbirds can best be killed. And in this, we are working to the full capacity of our very small crew.

Now, I wonder if we could have the lights down and have just a few slides. I thought you might like to see our new research station in Gainesville.

Our facility has been in operation about two years, going on three, and we have 25 acres--a little elbow room for the first time in history. This slide also shows the newly completed aviary structure. In fact, this is so new that when this picture was taken we were just moving in our first cages. This thing is now loaded with cages of birds. We have lights, water; we're up working out of the sand for the first time for us. Conditions for standardizing some of our tests are much better than they were previously.

This is a grackle that has been subjected to some of the wetting-agent spray, with about the amount of plumage which we might expect of a roosting bird. Here you see an early pipe gas chamber, poor-man Fish and Wildlife Service gas chamber, we've had to work with, and a good many birds have been run through this in a search for something that could be used along this line.

Wetting agents are applied to outdoor situations. Some of the toxicants, of course, have to be used outdoors. This is a 1,000 cu. ft. cage, standard type that we use. The vegetation has been removed and

we are maintaining these birds to see how they fare after treatment.

Here is sweet corn in south Florida grown on good black muck soil. This particular test, setting out a treated and an untreated piece of sweet corn. All right, we can see what the acceptance of this stuff is. Unlike your corn here in the Midwest, it is easy to get through these fields because every 12th or 15th row is left as a travel-way and every day or so, sometimes many times a day, spray booms run down these travel-ways and they really take care of this corn. This is a picture of treated on the left and untreated ears on the right. We hope the red dot on the end of the treated ear doesn't make any difference, but we do have to be able to identify what is going on. In a situation like this, this is a typical ear to be compared because we are having fairly successful results on acceptance.

Haven't heard of buzzing of birds with aircraft up here. Perhaps you do it. It is a common practice in south Florida in sweet corn to get out when the birds are there and run over the fields with small planes. Herd them around.

Some of you who attended the airport session last night heard us mention that we had to use a special vehicle to get back into one of the air bases at which we were working experimentally. This is a Chrysler Corporation marsh buggy, the only way we can get into that swampy kind of terrain. This thing turns around and propels itself. It can go up on land, over cypress knees and through the water with ease.

There is another type of roost that we have had to contend with--open willow, on sand bars. You don't need a lot of vegetation for the birds to sit up. The stuff on the ground is bird manure and this particular shot shows that we are trying to assess population by using cards on which droppings have been deposited. Here is a test area. Again, look and see how open it is throughout here, and this roost is really inhabited by a number of birds every night.

Here are birds sitting around after a field trial of an organic phosphate. This is one of the serious problems with some of these things--a lot of sick birds, as was mentioned yesterday in relation to hawks and owls. And this is a problem: A hawk that has picked up a treated bird. We're very concerned about this.

Well, this is just thrown in to show you, if you haven't seen, the size of some of the nets that we use. Here we're marking a few birds with plastic markers. This is part of the light trap operation to determine distribution and I did want to throw that in to show that we do get into old clothes once in a while and don't spend all of our time at conferences. Thank you.

[Discussion on page 101.]