

FIRE ANT ERADICATION AND WILDLIFE *

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The fire ant "eradication" program started in Texas early this year with widespread publicity and outstanding public support. One large block and many smaller areas were treated with heptachlor.

This Fall, some 700,000 acres still contain imported fire ants and the program is slowing down. Few of the major timber owners are concerned enough about the ants to pay for their share of the costs. Also, some public doubt has developed about the validity of claims of ant damage and the wisdom of widespread distribution of insecticides.

The effects on wildlife of aerial application of two pounds per acre of technical heptachlor were studied on the 2500-acre Fralise ranch in Hardin County, Texas. This is a rice and cattle ranch with interspersed pine-hardwood woodland.

All of the north 1400 acres was treated *March 3* when the soil was fairly moist and standing water was present in numerous spots. The remaining fields on the south side were treated *May 13* when the soil was dry and cracked. No woodland or water was treated in May.

DEAD FOUND

With only 43 man-hours of searching, 114 dead birds of 19 species were found in March. Peak of the kill occurred the ninth and tenth days when 6 birds were found per hour. Most species present were killed—including quail, doves, and snipe.

Dead mammals found included cottontails, armadillos, raccoons, opossums, nutria, cotton rats and rice rats. All of the 41 specimens analyzed contained lethal amounts of heptachlor. Dead fish, frogs, and crawfish were present in all treated water. About 50 species of dead insects were identified.

That this heavy kill in March did not result from treatment when the soil was wet was shown by results in May when the soil was dry. Dead dickcissels, meadowlarks, blackbirds, and doves were found—the common species present in the treated fields.

No practicable method was found to determine the kill per acre. The problems of searching for dead were: (1) there was no way to tell how many dead or dying animals had been removed already by scavengers or predators; (2) the width of the strip searched could not be determined because a meadowlark with its yellow breast up could be seen much further than one with its back up; (3) there was no way to estimate the number of birds that would fall on a given plot after a search; (4) and there was no way to tell how many specimens moved before falling. Rank cover prevented practicable searching in May.

However, I am confident that several thousand birds died on Fralise.

BIRD COUNTS

Counts of birds along three ranch roads before treatment were 10, 7 and 11 birds per mile. In two weeks after treatment these counts dropped 94 to 97 percent. In four weeks they were down 73 to 95 percent. Four months after treatment they were 67 to 90 percent below the pre-treatment counts.

Counts of birds on 45 acre-plots showed similar trends. In fields before the treatment they averaged 2.9 and 2.0 birds per acre; two weeks later they were 0 and 0.3. In woodland on the edge of the March-treated area the count dropped from 8 to 3.6 in two weeks. Thus the loss of birds appears to have been between two and four per acre.

NESTING SUCCESS

Before treatment in May, 139 nests were found: 87 on the May-treated area, 15 on the March-treated area, and 37 on a check area.

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Fifty-four of 71 with eggs were redwing blackbird nests. At the end of four weeks the number which had hatched or was incubating normally was: 13 of 20 on the check area, three of 10 on the March area, and none of 24 on the May area. This indicates blackbird nesting success was reduced 50 percent on the areas treated in March and 100 percent on the areas treated in May.

Abandonment of nests with eggs was 5 percent on the check area, 50 percent on the March area, and 87 percent on the May area. Nest loss to predation showed an inverse relationship: 30 percent on the check area, 20 percent on the March area, and 5 percent on the May area.

The remaining nests with eggs were those of 12 dickcissels, 3 meadowlarks, one dove, and one night hawk—all on the May area. Of these, the night hawk was the only successful one.

Dead blackbirds, dickcissels, and meadowlarks were found at the nests.

NOTES ON CATTLE

Information of possible significance to the deer on the area was obtained from the cattle. There was an unexplained loss of 11 calves and four bulls, out of 70 and 8.

All animals but one bull died suddenly. Three of the bulls died one afternoon in July after having been worked through pens and sprayed. They were observed feeding and serving cows that morning. One typical calf had to be chased 10 minutes before it could be roped, then it died in 7 minutes. Disease would be expected to dampen normal appetites and running strength more than a few minutes or hours before death. One case of blackleg did develop and this was the first loss of cattle to any disease on the Fralise ranch in a number of years.

It is possible that other calves had blackleg although the Texas Livestock Sanitary Commission tested one as negative for blackleg and anthrax. However, after the fourteenth calf died in seven weeks and the diagnosis of one case as blackleg, the herd was vaccinated and the losses stopped.

The three bulls died after the whole herd had been vaccinated for anthrax, given phenothiazine, and sprayed with DDT and BHC. The fourth bull died after six weeks of stall-feeding. Tests on it for anaplasmosis were positive by the U.S.D.A. and negative by Texas A. and M. College. Frat from this bull contained 1.5 p.p.m. of heptachlor epoxide despite its having been off of treated pastures for six weeks.

Many other circumstances about the cattle losses could be discussed. The only fair conclusion seems to be that heptachlor may be suspected as the cause of at least some of the losses; however, this has not been proven.

One deer was found too late for analysis. If the cattle loss was caused by heptachlor, similar losses might be expected among the deer.

NOTES ON DURATION OF EFFECTS

Heptachlor is said to remain in the soil at least three years in such strength as to prevent reestablishment of ants.

After 5 to 7 months on Fralise the bird and mammal population remains sub-normal. Counts are continuing and another nest study will be made next spring. The ranch foreman reported about 30 dead raccoons were found in July and August. Although some raccoons appeared to survive the treatment, many of these have been new arrivals on the area.

Repopulating of birds has begun in the fields and is well-advanced in the woodland edges. The only ill-effect observed on the new arrivals was the reduction of nesting success by 50 percent for blackbirds in May on the area treated in March.

An unexpected observation was the presence of large numbers of grasshoppers during the summer on the March area.

The size of the treated area has obvious importance in the matter of duration of effects. The larger the area, the further new stock has to move to repopulate it.

Notes on small areas (10 to 50 acres) are especially questionable. Such areas have few birds which spend all of their time exposed to the poison. The edge

population is only partially exposed. Likewise, replacements have to move only short distances to take over vacated territories. These two factors, coupled with the difficulty of finding dead birds and mammals, could explain the conflicting reports about wildlife losses. In my personal experience the findings of heavy losses on the 2500-acre area have been disputed in local papers. Substantial citizens have reported that they treated 10- or 30-acre field and saw no dead birds and still see live ones.

Some mention also should be made of the immeasurable effects of sublethal amounts of insecticide. One example: a number of birds have been found before death by hearing them squawk in unnatural notes or by seeing them make ineffectual efforts to fly. One such mockingbird was penned over-night and flew away apparently normal the next morning. In the wild its actions would have attracted predators and the sublethal dose probably would have led to its death.

CONCLUSIONS

Heavy loss of wildlife results from the application of two pounds per acre of heptachlor.

There is considerable doubt about the validity of claims of economic damage caused by the ants. Health hazards of the ant have been exaggerated. Little is known about the economic and health losses caused by the large-scale application of insecticides. Neither is much known about the beneficial relations of fire ants to other insects or the harmful results of killing large numbers of other insects with insecticides.

The present so-called "eradication" program is in fact a spot control program. Until more facts are available, I question the wisdom of the program.

STUDIES ON THE EFFECT OF THE IMPORTED FIRE ANT CONTROL PROGRAM ON WILDLIFE IN LOUISIANA

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The effect the imported fire ant control program (mainly treatment with 2 pounds of active heptachlor per acre) is having on wildlife in Louisiana is being studied by the Agricultural Experiment Station through the Forestry School. The investigation is carried out under a contract with the United States Fish and Wildlife Service. Other fire ant studies at the University are being conducted by the Entomological Division of the Agricultural Experiment Station. Personnel of the Louisiana Wild Life and Fisheries Commission are also investigating the effects of the program on wildlife.

The study reported on in this manuscript has been under way since February, 1958. It is incomplete, therefore few conclusions can be made.

ACADIA—ST. LANDRY PARISHES AREA

Location and Description

This study area is located on the prairie terrace in south-central Louisiana. The soil which is light to dark brown silty loam has an impervious clay sub-soil a few inches below the surface. During rainy weather water remains in most depressions. Major land uses are the production of pasture, rice, sweet potatoes, and cotton. Farms are small and intensively utilized. Little cover is available to wildlife.

Size and Treatment

A 6,000 acre block of land was treated largely from the air but some fields were treated with ground equipment. All applications were at the rate of 2 pounds of active heptachlor per acre.