

SUMMARY

Experimental studies were conducted on a New Jersey salt marsh during the summers of 1949 and 1950 to determine the hazards to wildlife from mosquito control involving use of DDT. Four plots were established and treated by plane at dosages ranging from 0.2 to 1.6 pounds of DDT per acre. Each plot was sprayed two or three times each year at approximately monthly intervals, except the 1.6 area, treated only in 1949. Studies were conducted before and after each treatment to determine the effects of spraying upon populations of the principal wildlife species and upon invertebrates which serve as food for wildlife.

Birds apparently suffered little direct harm although a one-week old clapper rail died from acute DDT poisoning on the 0.25 area. Local movements of swallows and gulls were noted in response to depletion or increased availability of food but these were only temporary and no mortality was evident. No changes resulting from sprayings were observed in numbers of song birds after the breeding season and they, along with rails, appeared to find sufficient food.

Killifish proved susceptible to DDT spray with heavy kills occurring at the 1.6 and 0.8 pounds per acre applications. Visible effects of spraying continued up to five days after treatment. Only light kills were observed at dosages below 0.5 pound

per acre. However, cage experiments at these same levels indicated considerably higher mortalities to confined fish. Ponds generally sustained greater losses than did creeks and ditches. Repopulation of waterways by fish from outside the areas occurred rapidly except in the case of ponds not affected by daily tide flows.

DDT applications were very toxic to blue crabs. Dosages of 0.8 pound per acre and above resulted in complete or nearly complete kills of the crabs. Such areas remained toxic for two weeks. Lower dosage levels showed population reductions ranging from 20 to 80 per cent over a seven-day period following spraying. Time required for repopulation varied from a few days (0.25 area) to 2 weeks (0.5 area) after mortality ceased. As with fish, crab losses in ponds were higher than those in creeks and ditches.

In common with other crustaceans, fiddler crabs were readily affected by DDT treatments. Losses of 10 to 20 per cent occurred in the 0.25 area and 20 to 40 per cent in the 0.5 area. Somewhat greater mortality resulted at higher dosages. Small fiddlers less than 0.5 inch wide were most susceptible.

Other small invertebrates were variously affected. Amphipods, sowbugs and bait shrimp incurred very heavy losses while insects, spiders and worms were somewhat more resistant. Little or no apparent harm resulted to red mites, snails and mussels.

STORING ADULT MOSQUITOES

Because mold was destroying so many adult specimens of mosquitoes during a recent stay in India, the following methods for storing were developed: 1. Flat wooden storage boxes were built by local carpenters. 2. Beeswax, to serve as a substitute for cork, was purchased in the bazaar. 3. The following mixture was melted and poured into the bottom of the box, and allowed to cool, $\frac{2}{3}$ (by volume) beeswax, $\frac{1}{3}$ naphthalene flakes. 4. Any cracks which formed in the cooling process were pressed out. 5. After white paper was glued on the bottom, the box was ready for use.

For the storage of unpinned mosquitoes, metal ointment boxes were used as follows: 1. One quarter inch of flakes was placed on the bottom. 2. The flakes were melted by holding the box over an alcohol lamp and allowed to cool. 3. A small amount of cotton was pressed down over the naphthalene. 4. The heating process was repeated allowing the naphthalene to vaporize through the cotton. Occasionally it was necessary to press down the cotton afterward but only after it was thoroughly cooled.—CHARLES O. MASTERS.