Redhumped Oak Worm

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Habits and Control of the ...

REDHUMPED OAK WORM

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The redhumped oak worm, *Symmerista albifrons,* is a native insect which occurs in epidemic numbers at irregular intervals. In 1970, the oak trees on more than 250 square miles in Muskegon, Oceana, Lake, Mason, Newaygo and Manistee counties were completely stripped of their foliage during August and September by a complex of insects, of which the redhumped oak worm was the most numerous (Fig. 1). A smaller outbreak occurred in these same areas during 1956-58 but ended abruptly the next year, presumably from natural agents. The present infestation (some areas defoliated for the second year but most for the first time) is not expected to continue longer than three years. This means that, unless some natural factors cause a drastic reduction in the population, areas defoliated in 1970 will again be defoliated and peripheral areas will be infested with increased intensity in 1971.

PRIMARILY NUISANCE

The primary impact of this insect is the nuisance to residents of afflicted areas by large numbers of migrating larvae (Fig. 2). Trees and shrubs seldom die, even after three years of complete defoliation. Trees defoliated for four years or more may show death of branches in the tops, and occasionally, entire trees. It was noted that no notice-

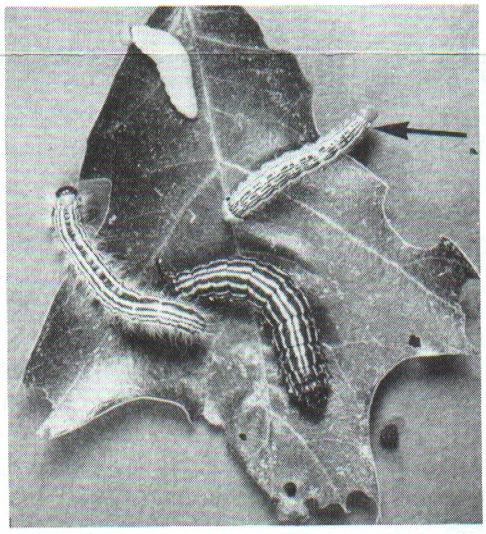

Fig. 1. Redhumped oakworm (arrow) was most numerous in the complex of insects responsible for oak defoliation in 1970.

Fig. 2. Mass of redhumped oakworm larvae. In addition to stripping the foliage from trees and shrubs, larvae become a nuisance in towns and resorts as they wander about in search of food.

able tree mortality occurred following the last siege of this pest. Obviously, such mortality is influenced by age, type and vigor of the trees, soil, site and weather conditions. Foliage removal during late summer tends to have less detrimental effect on trees than early summer defoliation.

Since this insect is more a nuisance than a tree damaging problem, residents of infested areas should consider implementing a protection program as a group. Such programs are most effective when resort, town or property owner associations unite to manage this insect's numbers.

The County Extension Agent should be included as an advisor in planning such an operation. In addition, entomologists at Michigan State University and field personnel of the State Departments of Natural Resources, Agriculture and U.S. Forest Service are available to provide technical assistance.

LIFE CYCLE

The redhumped oak worm overwinters as pupae in white, oval cocoons spun among leaves or duff on the ground. Rodents, such as field mice, feed on these cocoons and, when abundant, can cause significant mortality. The redhumped oak worm adults, ashen gray moths with a wing expanse of 1½ inches, emerge during late June and early July and deposit small egg masses on the undersides of the leaves.

The young larvae feed gregariously at first, with early damage most noticeable in the lower portions of the trees. Later, as they increase in size, they move up and down trees in search of food. The larvae reach maturity during early September, attaining a length of about 1¾ inches. They have a smooth, hairless body with 4 longitudinal yellow stripes separated by 5 black lines along the back and 3 along each side. The head, legs and enlargement of the hump on the eighth abdominal segment are orange-red. It is during the larval stage that they become particularly bothersome, as they wander up and down trees, the sides of houses, and across lawns and roads in search of food. Larvae also congregate in masses on the tree trunks or dwellings when it is too hot or cold to feed. Most larvae pupate during September, however, some can be found feeding until October.

CONTROL

Control of the larvae of this insect can be accomplished with chemicals. However, treatment of commercial forest areas for protection from tree mortality is not recommended. Treatment of resort, private home, park, recreational, or other high-use areas will reduce the nuisance impact of defoliation and larval migration. In addition to the specific area to be protected, a buffer zone of 400 to 500 feet should also be sprayed to prevent invasion by migrating larvae. Aircraft is preferred to ground equipment where large areas or regions inaccessible to ground equipment are to be treated. The aircraft method also insures more uniform, rapid application of a smaller amount of chemical to the infested area.

Selection of the proper insecticide is important since areas to be treated involve people and wildlife. The following chemicals and rates of application will adequately limit larval numbers without endangering humans or wildlife. Trichlorfon (Dylox) or carbaryl (Sevin) applied at the rate of one pound of actual chemical per acre in 2 to 3 gallons of water is the recommended dosage for aircraft application. Use the same amount of chemical but increase the amount of water to 100 gallons when applying these insecticides with ground application equipment. **Carbaryl is Very Toxic to Bees.** Areas adjacent to, or containing, apiaries, should not be sprayed with this chemical. While these chemicals are only slightly toxic to aquatic organisms, care should be taken to avoid direct application to bodies of water.

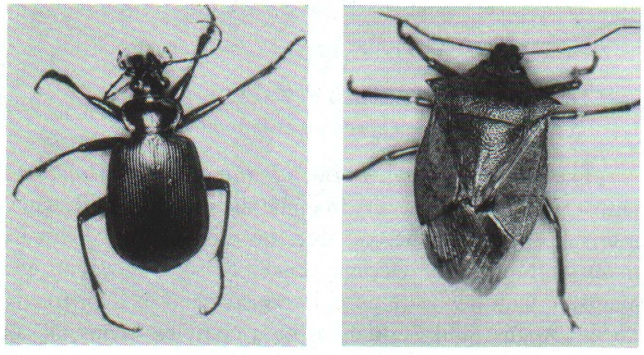

Fig. 3. Adults of the predatory beetle (L) and spined soldier bug (R). These beneficial insects feed upon redhumped oakworm larvae and should help reduce their numbers.

Epidemic numbers of redhumped oak worms seldom last longer than three years. Natural controls such as parasites, predators, disease and starvation usually cause populations to subside. The predatory beetle, *Calasoma scrutator,* and spined soldier bug, *Podisus maculiventris* (Fig. 3), were abundant during 1970 in several locations within the state. Large numbers of dead larvae at the base of trees indicated that starvation, crowding, or perhaps disease, were contributing to larval mortality. Such conditions were most prevalent in areas infested for the second year. The spread and impact of these combined mortality factors should lead to a collapse of the population within the next two years.

Counts of overwintering pupae, adult moth flights and numbers of newly hatching larvae will be made to predict the severity of the infestation. Such information will be made available through your County Extension Office to help you anticipate the necessity of protective sprays.

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