Recently Discovered Insect Pests of Ornamentals in Indiana[1]

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A number of insect pests of ornamental trees and shrubs have been found in Indiana during the past year which are either new to the state or are causing a type of injury not previously reported. The purpose of this paper is to call attention to these pests and publicize their presence in the state. Several of these insects are capable of causing serious economic damage. These new pests are the birch leaf miner, *Fenusa pusilla* (Lep.); the southern pine engraver, *Ips grandicollis* (Erch.); the strawberry root weevil, *Brachyrhinus ovatus* (L.); the balsam twig aphid, *Mindarus abietinus* Koch; a soft scale, *Pulvinaria ericicola* McConnell; the southern red mite, *Oligonychus ilicis* (McG.); the cyclamen mite, *Steneotarsonemus pallidus* Banks; and the Judas tree leafhopper, *Erythroneura aclys* McAtee.

The birch leaf miner, *Fenusa pusilla* (Lep.), was found infesting native and introduced ornamental birch trees in St. Joseph and Pulaski Counties by the writer. This is the first time the insect has been reported from Indiana although the insect has been reported from the eastern and northern states (7, 8).

The larval stage of this sawfly which is whitish, rather flat with black spots on ventral side of the thorax and abdomen, produces blotch mines in the leaves of birch (figure 3). When the larvae are mature, they drop to the soil and pupate therein over winter. The adults are black. Those of the first generation emerge in early May about the time the leaves are half-developed. There are three generations a year with the larvae infesting newly developed leaves. The first brood is usually the most severe when all of the leaves are new. The second and third generations usually infest the terminal foliage or watersprouts.

The birch leaf miner can be controlled by spraying in May when the adults are laying eggs. Excellent control has been obtained using lindane or malathion (7, 8). A second and third application should be made the first of July and the middle of August for succeeding generations.

The southern pine engraver, *Ips grandicollis* (Erch.) was discovered heavily infesting Scotch pine slash in LaPorte County in August by the writer. The insect has been previously reported from Indiana by B. E. Montgomery, but this infestation was so heavy that it could indicate an incipient outbreak and is worthy of further attention.

The southern pine engraver is a small, reddish brown to black, bark beetle about 3 to 3.8 mm in length. It is easily distinguished from related species by the presence of five teeth on each side of the declivity at the end of the abdomen. This bark beetle usually attacks the trunk of saplings or the upper trunk and limbs of more mature trees and

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may attack any species of pine in its range if they are weakened. Bark beetles are frequently attracted into an area by the odor of freshly cut pine, and then may build up in population and attack healthy pines.

The gallery is of the radiate type with two to five tunnels radiating from a central nuptial chamber. The tunnels may extend for two or three inches. The eggs are laid in niches along the side of the tunnel. A generation may be completed in about 40 days with two to five generations possible per season. They usually winter as adults.

The insects can be controlled in ornamental plantings by cutting down and burning infested trees. Uninfested trees can be protected by spraying the bark surface with BHC or lindane using a strength of ½ to 1 percent of the actual chemical (3).

The strawberry root weevil, *Brachyryinus ovatus* (L.), (figure 1) was found killing branches of Waukegan juniper at West Lafayette by the writer. This insect is present throughout the northern United States where it attacks many different species. The adults are almost black, striated and about ¼ inch long. The larvae are white, legless, curved grubs which live in the soil and feed on the roots. The insect may winter as an adult or as a larva deep in the soil. The most conspicuous injury is caused by the adult's girdling of terminal branches. These branches turn brown and make the plant unsightly.

The insect may be controlled by spraying the soil in mid-June with chlordane, aldrin, heptachlor or dieldrin (9).

The balsam twig aphid, *Mindarus abietinus* Koch, (figure 5) was collected on Douglas fir by Frank L. Madinger of the State Entomologist's Office. This greenish aphid is covered with a whitish wax. In eastern states it is prevalent on young shoots of white and balsam spruce. It also attacks fir. Heavy infestations defoliate the trees and severely injured twigs become stunted, distorted and eventually die. Coccinellid and syrphid larvae prey quite heavily on the aphids.

Both lindane and 40 percent nicotine sulphate are effective against the balsam twig aphid (4).

A soft scale which has no common name, *Pulvinaria ericicola* McConnell, (figure 2) was found infesting an old established planting of rhododendrons at Valparaiso by Palmer Mart of the State Entomologist's Office. It has been collected from the native *Rhododendron nudiflorum*, from Mollis and Kaempferi hybrids and Kurumes in cultivation. The insects usually are found near the base of the plant, but when the infestation is heavy, the presence of the white ovisacs make the plant appear white. The ovisac is ¼ to ⅜ inch in length. There is one generation annually and the scale overwinters as a partially grown fertilized female. The formation of the ovisac and the production of eggs begins in early June.

This scale insect can be controlled by spraying with 2 percent summer oil in mid-July and early August (5).

The Judas tree leafhopper, *Erythroneura aclys* McAtee, was found in large numbers at Columbus and Plymouth in August by the writer and by inspectors of the State Entomologist's Office. Nearly every leaf had turned white from the feeding of both the nymphs and adults.

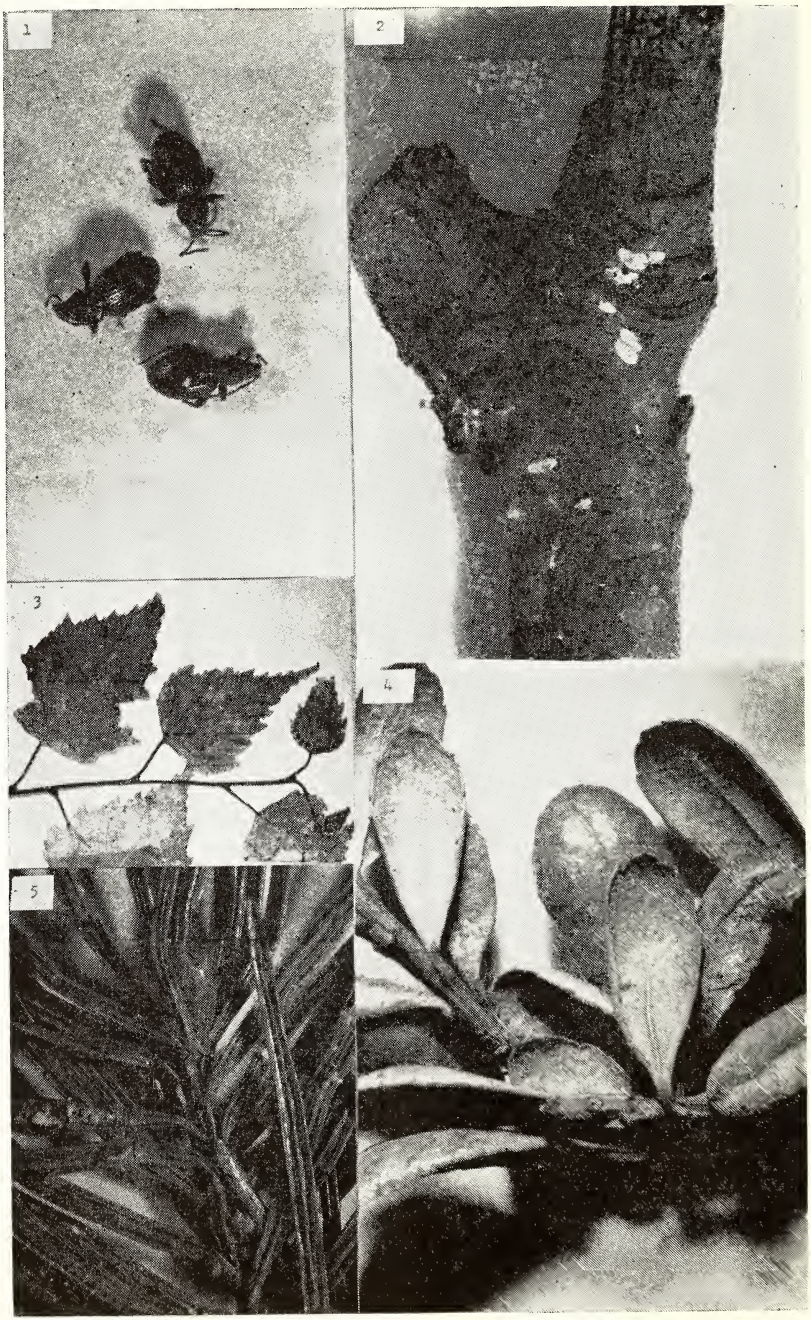

Figure. 1. The strawberry root weevil adult, 2½ times larger than normal size.

The insect overwinters as an adult. The eggs are laid in the tissue of the lower leaf surface. There are five nymphal stages. Nymphs and adults are present on the foliage through mid-September (6).

DDT sprays are effective against leafhoppers and probably would work against this species.

The southern red mite, *Oligonychus ilicis* (McG.), (figure 4) a severe pest of hollies in the southern United States has been found infesting *Ilex crenata* f. *convexa.* This variety and *I. opaca* are both very susceptible to attack by this mite. The mites injure the plant by sucking out the plant juices. This feeding causes grayish-green spots on the foliage and the entire plant appears gray when heavily infested. Heavy infestation also reduces the size of the leaves and shortens the growth.

The mites are about 1/50th of an inch long, oval and dark red in color. The younger mites are a brighter red. The eggs are round, slightly flattened and red in color. Overwintering eggs appear slightly striated and bear a slender stalk on the top. They are located on the underneath side of the leaf. Hatching begins in early spring, about the time growth commences. Development is slow and the mites migrate to new growth in late May and early June. There are five or six generations annually.

Commercial miticides such as Aramite, Ovex, Chlorobenzilate and Dimite, are effective against this mite. Delayed dormant sprays of a superior type dormant oil in 2 to 5 percent concentrations as a mist application have been highly effective in commercial holly orchards (2).

The cyclamen mite, *Steneotarsonemus pallidus* Banks, was found distorting the foliage of myrtle at Lafayette and was determined to species by Earle A. Cross. This mite is common in greenhouses and homes on African violets, but has not been reported causing damage to myrtle out of doors in Indiana.

The young cyclamen mite, too small to be seen with the naked eye, is glossy white, while the adults are a pale brown. This is a cool weather mite and is most troublesome in early spring and late fall, but seldom causes damage in the heat of mid-summer.

Sprays of Dimite or Endrin started early in the spring should be effective (1).

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Figure 2. A soft scale, *Pulvinaria ericicola* McConnell, which infests rhododendrons, 2½ times larger than normal size.

Figure 3. Blotch mines in birch foliage caused by the birch leaf miner, *Fenusa pusilla* (Lep.), ½ normal size.

Figure 4. Injury to holly by the southern red mite, *Oligonychus ilicis* (McG). Note the egg cases on the ventral side of the leaves, three times normal size.

Figure 5. Balsam twig aphid, *Mindarus abietinus* Koch, on the leaves of Douglas fir, 2½ times normal size.

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