

IN THE GARDEN – NOVEMBER

(6 – legs, the insects)

[Part III](#) of the December 2020 Micscape Magazine article; same method, same samples. The collection method was heat/drying extraction using a Berlese Funnel and collecting the critters in alcohol.

Moths

Three **moth caterpillars** were unexpected 'finds'. One caterpillar was a looper (Family: Geometridae), here seen in lateral view (Fig. 1 top). It retains the six true-legs but has 'lost' most of the body's false legs retaining only the last two pairs. When walking the caterpillar anchors its front legs and brings the back 'legs' forward to meet the front legs resulting in a looping motion. Another caterpillar was a leafroller (Family: Tortricidae) shown in dorsal view (Fig. 1 bottom). Both of these are tree-leaf feeders, possibly on the maple and birch trees in the garden, and were overwintering in the leaf litter.



Fig. 1. A looper caterpillar (top) and a leafroller caterpillar (bottom) from a leaf litter sample.

A third, presumably moth, caterpillar was one that lived permanently in the leaf litter feeding on dead leaves. As with all caterpillars it had a relatively large head (Fig. 2) that was completely filled with muscles involved in feeding. Under polarized light they show as yellow bands in the head capsule (Fig. 3).



Fig. 2. A small leaf-litter-feeding caterpillar.



Fig. 3. Head capsule of caterpillar under polarized light showing large muscles, yellow, involved in feeding. The black triangle bottom right, is the mandible (toothed jaw) and the small black dots above it are light-sensitive ocelli ('eyes'). Yellow and blue muscles show up in the first and second true legs.

A fourth larva had a tough leathery body with diamond-shaped markings on the first three segments (Fig. 4 left). Apart from an earwig, it was the largest insect in the leaf litter sample. I suspect it to be a **beetle** (Order: Coleoptera) larva and with the large mandibles (Fig. 4 right) it appears to be a predator.

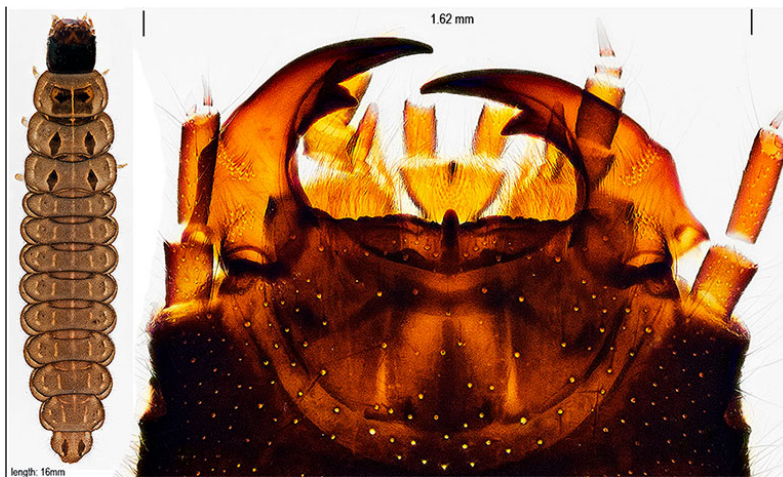


Fig. 4. Beetle larva from leaf litter; mandibles enlarged, right

Another unexpected 'find' was a small **moth**, much too worn to identify. However, a start could be made by examining its wing shape and genitalia. The genitalia (Fig. 5 left) have some of the characteristics seen in species of casebearer moths (Family: Coleophoridae) and the long pointed wings with a large area of fringe hairs on the hind wing (Fig. 5 right, likely lost on the forewing) is consistent with a casebearer moth. These moths are named from the larvae which build and live in tubes or cases.



Fig. 5. Genitalia, left, and wings, right, of a small moth from the leaf litter

Three species of ants are common in the garden in warmer months. Two of these overwinter deeply underground below the frost line. The third, a carpenter ant, overwinters deep inside rotten wood. One specimen of a species, before never seen in the garden as it never ventures above the ground, was collected from the leaf litter – **The Little Hairless Ant** (*Brachymyrex depilis*) (Fig. 6).



Fig. 6. The Little Hairless Ant, from a leaf litter sample in November

Three other Hymenoptera species were found (ants are also Hymenoptera). These are all **parasitic wasps**, as larvae, on other insects. Because the larvae kill their host they are best called parasitoids. The largest wasp, right, was 2.4mm long; the smallest, center, was just 0.74 mm (Fig. 7).

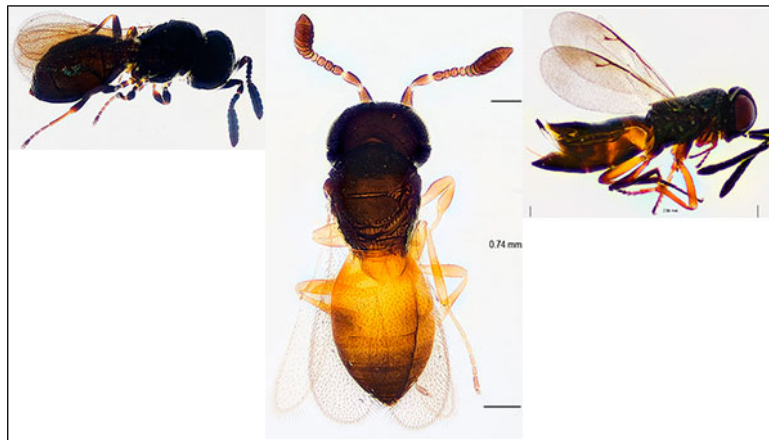


Fig. 7. Parasitoid wasps from the leaf litter

A few cicada-looking insects were found. They were much smaller, body length about 3 mm, than the tree-living true cicadas and appear to members of the Order: Psocodea – **Barklice** and Booklice. When photographed dry they were covered in a white wax; photographing them in alcohol allowed the body colours to show (Fig. 8).



Fig. 8. A small barklouse from the leaf litter; top left and right photographed dry, bottom left in alcohol

An even smaller barklouse (length 0.82 mm) was also in the litter (Fig. 9; this one looks very to a larva of *Ectopsosus* on BugGuide).



Fig. 9. Barklouse larva from litter

One insect that behaved ‘in reverse’ was a nymph (i.e., immature) **Assassin Bug** – *Zeus luridus* (Fig. 10). By ‘in reverse’ I mean that all the other critters in the leaf litter samples moved down away from the light bulb and finally left the sample at its lowest point. This bright green **True Bug** (Order: **Hemiptera**) moved UP from the leaf litter and sat on top close to the lamp. All assassin bugs are predators that attack other insects and suck out their body contents.



Fig. 10. Assassin Bug nymph; head with piercing mouthparts, right.

Other true bugs behaved 'normally' and moved down through the litter away from the heat, light and dryness such as this similar-shaped **Stilt Bug** (Family: Berytidae, *Neoneides muticus*) which is a plant-feeder (Fig. 11); and this sample of other true bugs (Fig. 12).



Fig. 11. A Stilt Bug; the large expanded tip of the antenna is characteristic for the Family: Berytidae.

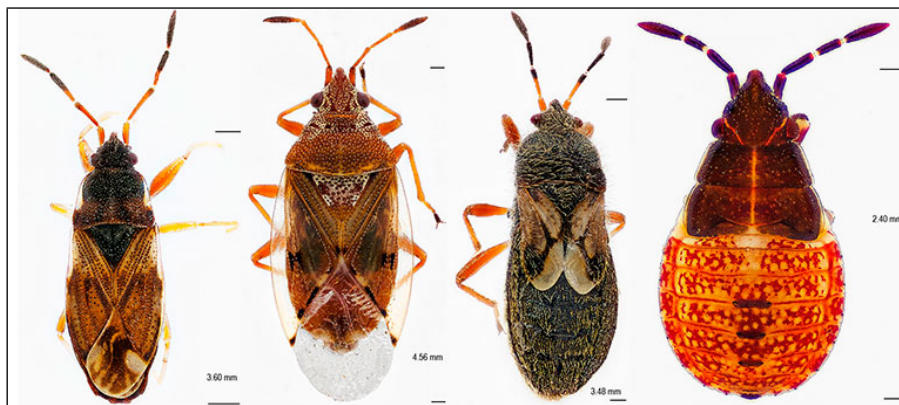


Fig. 12. A selection of true bugs (Hemiptera) from the leaf litter

An attractive **Leafhopper** (Order: Hemiptera , Family: Cicadellidae, Genus: *Erythroneura*) was another inhabitant of the leaf litter (Fig. 13).



Fig. 13. A *Erythroneura* leafhopper

A few small beetles were found. There were two species of **Rove Beetle** (Family: Staphylinidae), elongate beetles which, unlike most beetles, had most of the body NOT protected by hardened forewings (elytra) (Fig. 14).



Fig. 14. Two Rove Beetles from the leaf litter; note the exposed abdomens.

More **typical beetles** with hard elytra were also collected (Fig. 15).

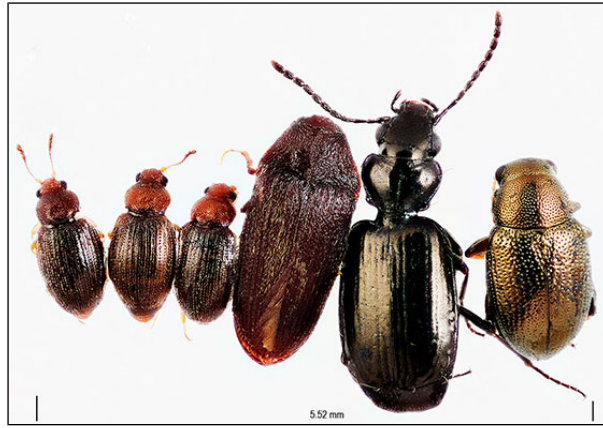


Fig. 15. A selection of 'normal' beetles from the leaf litter

The garden leaf litter is mainly from Birch and Maple trees, and not surprisingly there was a birch-feeding weevil in the samples: **Birch Catkin Weevil** (*Betulapion simile*), a black weevil with silver hairs (Fig. 16).

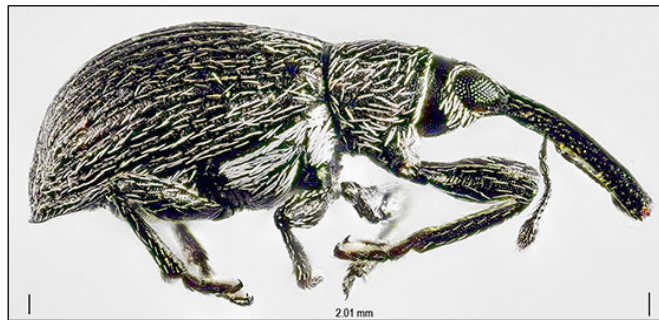


Fig. 16. Birch Catkin Weevil

Finally, a few **Thrips** (singular also thrips) Order: Thysanoptera were present in the samples (Fig. 17.)

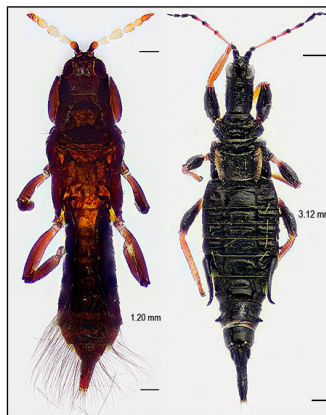


Fig. 17. Thrips. The wings can be very narrow but have long fringes of hairs which show in the left image. The larger species, right, appears to be wingless; it has two 'spur' on the 5th(?) abdominal segment and two lateral on the 8th – function of either unknown. Both species seem to belong to the family of **Tube-tailed Thrips**

Close-ups

One of my beetle books describes 11 principal forms of beetle antennae; these can be helpful when trying to identify a beetle. A few of the beetles in the litter samples had **Filiform Antennae**, i.e., threadlike with antennomeres ("segments") uniformly cylindrical or nearly so;

Clavate Antennae, i.e., outermost 'segments' gradually enlarged to form a club; others had **Capitate Antennae**, i.e., outermost 'segments' abruptly enlarged to form a club (Fig. 18).



Fig. 18. Filiform, left, Clavate, center, and Capitate, right, antenna of beetles from the leaf litter.

Several of the true bugs have intricate patterns of pits on the head each with a hair (Fig. 19). These are likely some type of sensory organ.



Fig. 19. Head of a true bug showing many sensory hairs in pits.

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Quote – Holmes on 'Entomology'

"I suppose you are an entomologist ? "

" Not quite so ambitious as that, sir. I should like to put my eyes on the individual entitled to that name.

No man can be truly called an entomologist,

sir; the subject is too vast for any single human intelligence to grasp."

Oliver Wendell Holmes, Sr The Poet at the Breakfast Table.

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