
A SUBTERRANEAN ROOT—INFESTING FULGORID
(Myndus radicis n. sp.)

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On May 10th of the present year (1903), I found a specimen of Fulgorid in the larval stage occurring upon the roots of several different kinds of plants, Impatiens, nettles and some grasses, in a river bed near the Olentangy river. The insects occurred in galleries and cavities usually connected with open cracks and about ½ to 1½ inches below the surface, in some cases and on later days, individuals were found attached to roots of plants above ground, but always where they were well protected by drooping or dead leaves or underrubbish of the surface. Frequently two or three larvae were found in the same cavity, but seldom more than this, and the cavity was lined with a cottony fibre secreted from the posterior abdominal segment of the body of the insect. The insects were found only in one small area, but during the two or three weeks in which the specimens were found, adults and nymphs of different stages were taken in some numbers, so that it has been possible to trace a part of the life history. The adults were evidently all derived from larvae developed in the preceding weeks, and it seems quite certain that the larvae must hatch in early May either from eggs deposited in the spring by hibernating adults or, what is less probable, in the preceding autumn. So far all efforts to find adults or nymphs during the autumn have failed and the status of the insect during that period can only be surmized. There would seem to be abundant time for two broods, that is, for a second generation resulting from the eggs deposited in June, the individuals of which are usually matured by late summer, but no proof of this has been secured. Actual knowledge of the life history is, therefore, confined to the development of nymphs during May and the occurrence of imagos during the latter part of this month and early June.

As the life habits of related species of Myndus are unknown, it seems quite possible that others may prove to be subterranean and the rarity of these forms in collections readily accounted for by this protected habit.

What appears to be the larva or a pre-pupa stage has a length of two and sixty hundredths mm. and a width of one mm. It is pallid greenish, sutural lines appearing white, and the cottony secretion of the posterior segment of the abdomen scant; the beak extends just beyond the second coxae. The mature nymph or pupa stage has a length of four mm., or, including the cottony secretion, four and one-half mm. and a width of one three-tenths mm. It is mostly of a pale yellow or whitish color; some individuals appear more decidedly greenish and some dusky or dirt color. There is a well marked median dorsal stripe and fainter lines laterally, marking the margins of the wing pads. The three terminal segments with the projecting cottony filaments extend one-third the length of the abdomen and when fully extended appear as a wide tuft. The tuft, however, is easily shed and when the abdomen is denuded only very narrow margins of white thread appear around the terminal borders of the segments. The surface of the thorax and abdomen is faintly dusky, contrasting with the white sutural lines. The eyes are red. The body of the segments are dusky with broad sutures yellow, a dusky patch on the thorax and another on the posterior border of the hinder wing pad. The legs are whitish, the beak reaches to the base of the third coxae.

THE IMAGO is pallid yellowish green, the front above and on lower border with black. Length, male, 3.5, mm., to tip of elytra 5 mm.; female, 4 mm., to tip of elytra, 5.5 mm.

Head wider than long, vertex one and one-half times longer than wide, tapering to apex which is broadly rounded, margins slightly raised, disk slightly raised towards apex. Front much widened towards apex. Lateral keels thin, broad, median keel weaker. Clypeus triangular, keels obtuse. Pronotum short, posterior margin deeply concave. Posterior angles scarcely rounded. Scutellum longer than head and pronotum together acutely angled behind. Keels slightly divergent. Elytral nervures strong and set with minute hairs, slightly setigerous.

Color greenish or pallid, the vertex unmarked, but the front bears the black spots just beneath the apex of vertex and a band across its apex, either yellowish or infuscated, in some specimens distinctly blackish. The scutellum outside the lateral carinae, and in some cases in posterior portion of intercarinal spaces infuscated, appearing as obscure longitudinal stripes. Elytra hyaline with veins infuscated, a faint stigmal and post-claval spot and the apical portion of whole elytron sometimes slightly smoky. Ovipositor of female black.

Male pygofers nearly truncate, a minute median process, the styles broadly expanded apically, curving outward but their inner borders touching.

Described from numerous specimens of both sexes collected at Columbus, Ohio, in 1903.

This species resembles *viridis* Ball, but is larger, with more pronounced coloring, especially the black spots of the front. The vertex is less elongate and genitalia different.

While the root inhabiting habit is unusual in this family there are, of course, abundant instances in other homopterous families, as Aphidæ. Membracidæ and Cercopidæ.