

LEATHERJACKETS:

New Pest for Golf Greens

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One of the most common and damaging turf pests of northwestern Europe could become a serious pest in the well-cared-for turf of golf courses, especially in cool, coastal areas. During the past three years the leatherjackets, or larvae of the European marsh crane fly, *Tipula paludosa* Mg., caused severe damage in lawns, boulevards, pastures, and golf courses near Vancouver, British Columbia.

Occurring in Nova Scotia since 1955, its known distribution in the Pacific Northwest is from Vancouver to about 65 miles east and 25 miles south near Blaine, Washington.

The European marsh crane fly has one generation a year. The adult crane flies emerge from the soil at night during August and September, peaking about September 1. They are harmless themselves; only the larvae are damaging. Adults are light brown to reddish brown with the body about 1 inch long. The

narrow wings have a span of about 1½ inches and the legs are about 2 inches long and very delicate.

They mate within a few hours after emerging and begin laying eggs immediately on or near the surface. Each female is capable of laying about 280 eggs. The eggs are black, shiny and very small. They hatch in 11 to 15 days. Fortunately the eggs and newly-hatched larvae have very high moisture requirements; without moisture in these stages, mortality is very high.

The larvae have no legs and are greenish grey. The new larvae start feeding the first day and will continue to feed through the winter during mild periods. Feeding and damage is heaviest during March, April and early May by which time the larvae are 1½ inches long.

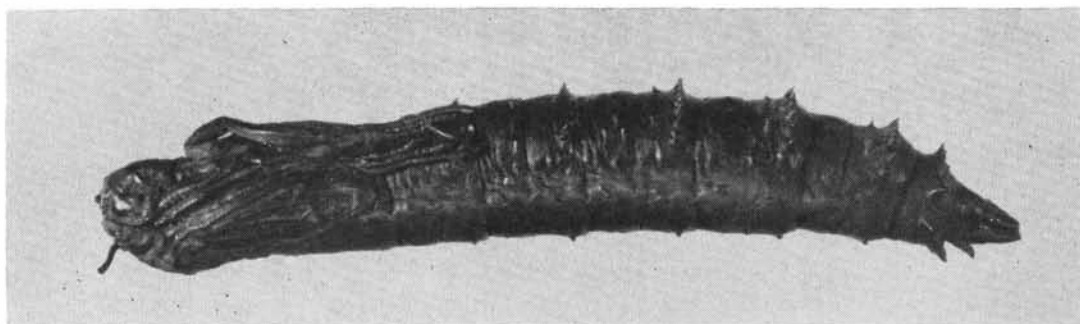
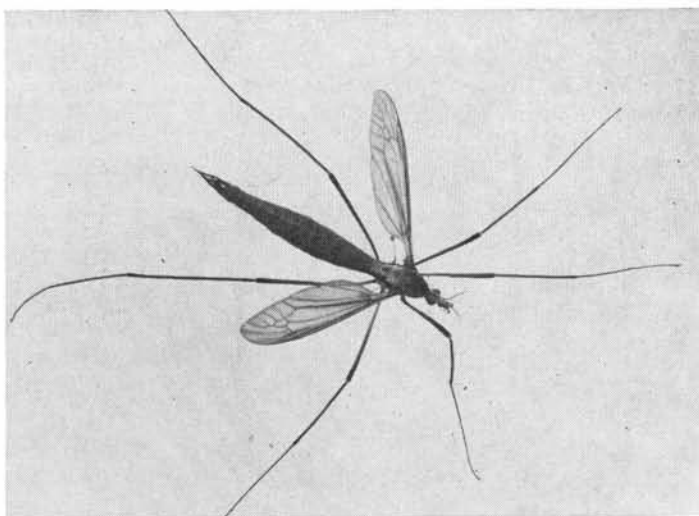
The leatherjackets feed on all parts of the plant and on dark, warm days and warm evenings they can be seen feeding on the blades and

FIGURE 1 — Mature 3rd-instar larvae of *T. paludosa*.



Right: FIGURE 2 — Pupa of *paludosa*.

Below: FIGURE 3 — Marsh crane flies, *Tipula paludosa* in copula.



crowns of the grass. In heavy infestations the valuable grass appears not to be growing, although weeds and coarser grasses continue to grow. In heavy infestations bare patches appear.

The larvae stop feeding about mid-May and move down in the soil to a depth of about 3 inches where they remain until they pupate in late July and August, then emerge as adults to complete the life cycle. The empty pupal cases may be seen at this time protruding one-half inch from the soil surface.

Because the pest has only one generation per year it can quite easily be controlled with one treatment either in fall or early spring. Currently DDT or aldrin at about 3 pounds of toxicant per acre are recommended and these have given excellent control on lawns, golf greens and boulevards around Vancouver. At the present time there is no approved control for this pest on pastures or forage crops that are to be fed to livestock.

Suspected infestations can be confirmed by pouring about one-half cup of gasoline on six square inches of sod. Gasoline irritates the

leatherjackets and they come to the surface where they can be counted. Gasoline also kills the grass, so it should be used sparingly, and where damage will not show.

In Europe, workers consider that 10 per square foot would cause serious injury to grass, and 20 per square foot to be a heavy infestation. Lawns and pastures in the Vancouver area have had more than 100 leatherjackets per square foot. There appears to be little natural control in the way of parasites, predators or disease, but dry weather effectively reduces the population, especially during the egg laying and hatching periods.

If leatherjackets are found outside the known areas of infestation they should be identified by an entomologist. We have many native species that are fairly similar in appearance, but they do not build up like the European species and they cause no damage. Do not use insecticides unless necessary and treatments should be made in late fall or early spring when the least damage will be done to bird and animal life.