

Crane Fly–European (*Tipula paludosa*)

Host/Site

Larval stage (“leatherjackets”) mainly feed on root crowns of grasses and clover, especially in fall and during March and April, but may emerge earlier in a warm spring or later in a cold one. Turf damage consists of irregular brown or light-colored patches that may be confused with dog damage.

Identification/appearance

Adults: body about 1/2” long, with long legs and resembling a large mosquito.

Larvae: small, gray-brown wormlike grubs with a tough skin and prominent veins visible through the skin.

Life Cycle

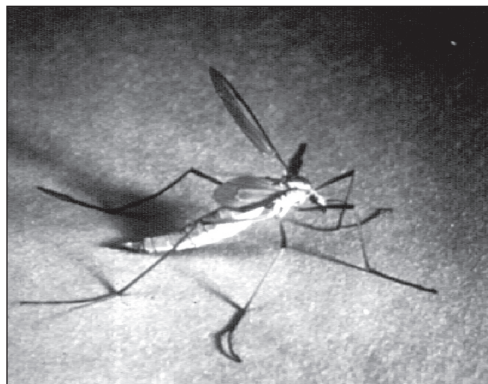
Adults emerge from soil between mid-August and mid-September. Females mate and lay eggs in the grass within 24 hours. Adults die without damaging grass. Eggs hatch into larvae (“leatherjackets”), which feed in the fall and again in spring until about mid-May. During June through August, larvae go just below the soil surface, stop eating, and pupate.

Natural Enemies

Birds, especially starlings, robins, and flickers. Predatory nematodes (described under biological controls) are not present naturally in our soils. Microorganisms also attack larvae.

Monitoring

Monitoring should be done in early spring because young larvae present in the fall are hard to detect and because the fall populations are often reduced by birds and weather. Survey in March (or earlier if weather warms) to see if larvae are numerous enough to require treatment. If there is turf damage and you suspect crane fly, select 4 to 5 one-foot-square patches in the lawn, remove the top 1 to 2 inch layer of sod, turn it over, and count the larvae. A less invasive though less exact way to measure larval populations is to mow the lawn, then douse the one square foot sections of sod with very warm water. This causes larvae to wriggle to the surface where they can be counted. If less than 25 grubs per square foot are found, the lawn should recover



European crane fly adult



European crane fly larvae

if kept watered and fertilized on a regular schedule. See <http://whatcom.wsu.edu/cranefly> for a photo guide to monitoring.

Action Threshold

For typical home lawns, a population of 25 to 30 grubs per square foot is a reasonable action level. Healthy lawns on good soil have tolerated 60 to 80 grubs per square foot with little damage. Populations below this level are generally controlled by natural enemies and normal lawn growth.

Controls

Cultural/Physical Controls: Maintaining proper irrigation, fertilization, and turf health helps the grass outgrow crane fly damage. If population levels near the action level are found, review and adjust cultural practices if needed. Aeration and dethatching in spring may help to reduce populations mechanically. Fall fertilization is very important. Optimum timing varies with fertilizer type: organic fertilizers need to be applied earlier and synthetic slow-re-

lease fertilizers later. Consult WSU bulletins for details.

Biological Controls: Beneficial nematodes sold commercially have been shown to be effective in substantially reducing larval populations and may drop them far enough below the action threshold so that chemicals are not needed. Apply as directed in spring once soil temperatures have warmed to 55 degrees F. or greater. Turf must be kept irrigated to support the nematodes.

Chemical Controls: Dealing with crane flies without chemicals is environmentally preferred. EPA action in 2000 has severely limited chemical options for crane fly control. Chlorpyrifos is no longer allowed except on golf courses. Diazinon is illegal on golf courses and sod farms and other outdoor uses are being phased out. Diazinon is highly toxic to fish and to birds that help control crane fly. Since many birds help to control crane fly, applying diazinon is likely to be counterproductive in the long term. New chemicals are being evaluated for efficacy on crane fly.



The Green Gardening Program is sponsored by Seattle Public Utilities to promote alternatives to lawn and garden chemicals. Funded by the Local Hazardous Waste Management Program in King County.

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