

● ALTERNATIVES

COPING WITH CRANE FLIES IN YOUR LAWN

By CAROLINE COX

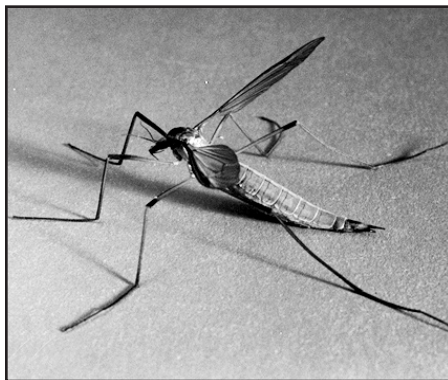
Crane flies are a multi-million dollar lawn pest in the Pacific Northwest. Not that they cause that much damage, but that's the estimate of what Northwest residents spend on pesticides to kill crane flies in their lawns.¹ However this insect rarely causes significant damage to lawns, and these pesticides are unnecessary. This article tells you how to find out if you have crane fly problems and, if you do, how to deal with them without using pesticides.

What Is a Crane Fly?

If you live in wet parts of the Pacific Northwest, you've probably seen crane flies. They resemble overgrown mosquitoes, but don't bite.² Most crane flies live in wet places near streams and lakes and cause no problems for people or lawns. Adult crane flies have long fragile legs, and do not feed. Immature crane flies are large legless maggots with thick gray skin and are often called leatherjackets. Leatherjackets can be up to 1 1/2 inches long. They feed on the roots of plants. In the Pacific Northwest there are two species of crane fly that have come here from Europe that thrive in lawns and occasionally damage them.³ Techniques for dealing with these two kinds of crane flies are similar, so you don't need to decide which kind you have.

When and Where Are Crane Flies a Problem?

Crane flies have to be really abundant before they will cause significant damage to a lawn. Researchers suggest that up to 25 leatherjackets per square foot can be tolerated by a healthy lawn.⁴ (If your lawn is what extension agents call "generally unthrifty" smaller



Crane fly adult (above) and immature crane fly, often called a leatherjacket (below).

numbers of leatherjackets, between 10 and 15 per square foot, can cause damage.²) Large numbers of crane flies are not common. For example, master gardeners in Whatcom County (Washington) have surveyed hundreds of lawns and not found any that had more than 25 leatherjackets per square foot. Only a few lawns had more than 10.¹

In the Pacific Northwest, introduced crane flies are found from Vancouver, British Columbia to northern California. They are generally not a problem in warmer, inland areas, but have been found both east and west of the Cascade mountains.⁵

Preventing Crane Fly Problems

"Plants have a remarkable ability to compensate for minor root damage,"⁴ said Oregon State University Extension Service entomologist Jack DeAngelis.

Other experts agree: "A vigorously growing, well-maintained turfgrass can easily recover from the feeding of crane fly larvae."⁶

It's not complicated to prevent crane fly problems by keeping your lawn healthy. In general you need to give your lawn adequate fertilizer and water. Growing grasses that like sun in shady areas can lead to crane fly problems. If your lawn has shady areas think about planting a shade-loving grass or another ground cover. Dethatch your lawn as necessary, because thatch is a perfect place for leatherjackets to grow. Also aerate your lawn when necessary to stimulate the roots to grow and allow water and fertilizer to move easily into the soil.⁶ (For more information about growing a healthy lawn, see "Taking Care of Your Lawn without Using Pesticides," <http://www.pesticide.org/lawns.html>.)

Counting Crane Flies

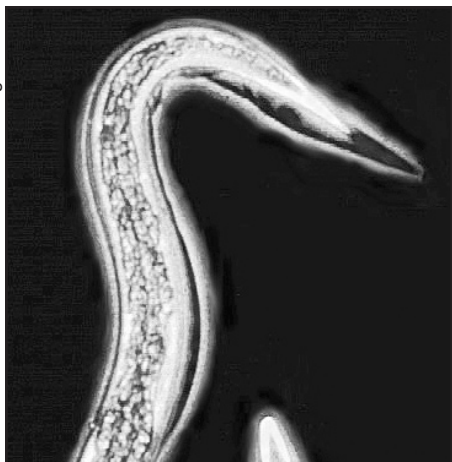
If you think you might have a crane fly problem in your lawn, the first step you'll want to take is to count how many leatherjackets are living there. Here's how to get an accurate count:

- Count leatherjackets in the early spring (February or March), when the weather has warmed up.^{2,6}
- Dig up a square of lawn, six inches on a side. You'll want an inch or two of soil attached to it. Don't dig in bare areas of your lawn, as the leatherjackets will have moved to areas with live grass.⁶
- Pull apart the square of turf. Leatherjackets will be at the base of the thatch or in the soil just beneath the plants. Count the number of leatherjackets and multiply by four. (This will give you the number per square foot). Take three or four samples from different places in your lawn and average them.⁶
- If you have less than 25 leatherjackets you don't need to do any crane fly treatments. If you have more than 25 leatherjackets per foot, you can

Ken Gray/Oregon State Univ.

Caroline Cox is NCAP's former editor.

Rutgers Univ.



Beneficial nematodes and starlings can effectively reduce the number of crane flies in your lawn. Nematodes are microscopic; this photograph is highly magnified.

either use beneficial nematodes (see below) or renovate your lawn. The renovation process will usually kill the leatherjackets.⁴

Nematodes

Nematodes are microscopic roundworms. Some kinds of nematodes attack a variety of insects; one of these (*Steinernema*) attacks leatherjackets. The juvenile nematodes penetrate inside the leatherjacket and release a bacteria that causes rapid death of the insect. The nematode then feeds on the bacteria and the dead insect.⁷ Nematodes that prey on leatherjackets can be purchased from a number of commercial suppliers. (See http://www2.oardc.ohio-state.edu/nematodes/nematode_suppliers.htm for a list of suppliers.) Check with local experts (your extension agent, for example) about which species of nematode will work best in your area.

To make a nematode application effective, take the following steps:

- Apply nematodes in the fall. The temperature needs to be above 55 degrees for the nematodes to be successful.⁸
- Since they are killed by sunlight, apply nematodes in the early morning or late evening.⁹
- Make sure soil is moist. If dry, irrigate with 1/4 inch of water before applying the nematodes.⁹
- Mix nematodes with water when applying them so they don't dry out. Between two and five gallons



U.S. Fish and Wildlife Service

per thousand square feet of lawn works well.⁹

- Irrigate with 1/4 inch of water after application. Do the watering within 30 minutes if the weather is warm and dry, or within two hours if the weather is cool and moist.⁹

Starlings

Starlings may not be your favorite bird, but they may be useful to you in dealing with crane flies. Here's the perspective of the Washington Department of Fish and Wildlife: "Starlings forage on lawns and other areas of short grass such as pastures, golf courses, turf farms, and similar places. One of their very favorite foods is the large larva of the leatherjacket."¹⁰ If you're worried about crane flies don't scare starlings away from your lawn. Put your cat, if you have one, inside, and let the starlings feast.

Beetles and Hornets

Ground beetles are thought to be good predators of leatherjackets.⁶ If you see them in your lawn, let them alone so they can eat more.

Another insect that preys on crane flies is the bald-faced hornet. This is not a management technique for everyone, but some may share the perspective of Whatcom County (Washington) master gardener Faye Agner: "Bald-faced hornets are beneficial. These are the bees that make paper wasp nests in trees and shrubs like rhododendrons. They are large black (white spots on the

head and rump) yellow jackets and eat lots of plant eating bugs. For fun, watch them hover just above the lawn looking for crane flies. The crane fly hides in the grass waiting for a chance to lay her eggs. If she is spotted by a bald-faced hornet as she is taking off, the hornet will swoop down and bite the crane fly's head off in mid air. Next to be bitten off are the wings and the legs. The remainder of the crane fly is then taken back to the nest. Put up warning signs and barricades to make sure the kids and the dog don't go near the nest."¹¹

Conclusion

Crane flies are rarely serious lawn pests. Most of the time they are not abundant enough to cause permanent damage to healthy grass. If crane fly numbers in your lawn are too high (over 25 leatherjackets per square foot) treatments with beneficial nematodes can reduce their numbers. ♣

References

1. Washington State Univ. Cooperative Extension Whatcom County, Whatcom County Integrated Pest Management, Washington State Dept. of Agriculture, U.S. EPA. Undated. Crane fly pests of the Pacific Northwest: Lake Whatcom crane fly survey. <http://www.whatcom.wsu.edu/cranefly/surveyresults.htm>.
2. Washington State Univ. Extension. 1998. Insect answers: European crane fly: A lawn and Garden pest. EB0856. <http://cru.cahe.wsu.edu/CEPublications/eb0856/eb0856.html>.
3. DeAngelis, J.D. Undated. European crane fly workshop: Living with crane flies. <http://www.livingwithbugs.com/cranefly.html>.
4. Oregon State Univ. Extension Service. 1995-2006. Garden hints: Crane fly - Are leatherjackets munching your lawn? http://extension.oregonstate.edu/news/story.php?S_No=182&storyType=garden.
5. Univ. of Idaho, Univ. of Oregon, and Washington State Univ. 2005. 2005 PNW insect management handbook: Commercial turfgrass pests. <http://pnwpest.org/pnw/insects>.
6. Univ. of California Statewide Integrated Pest Management Program. 2005. UC pest management guidelines: Turfgrass - crane fly. <http://www.ipm.ucdavis.edu/PMG/r785301411.html>.
7. Ohio State Univ. 2005. Insect parasitic nematodes: Biology & ecology. <http://www.oardc.ohio-state.edu/nematodes/biologyecology.htm>.
8. Oregon State Univ. Extension Service. 1995-2006. Garden hints: Nematodes to the rescue. http://extension.oregonstate.edu/news/story.php?S_No=18&storyType=garden.
9. Ohio State Univ. 2005. Insect parasitic nematodes for turfgrass pest management. http://www.oardc.ohio-state.edu/nematodes/turfgrass_pest_management.htm.
10. Washington Dept. of Fish and Wildlife. 2004. Living with wildlife: Starlings. <http://wdfw.wa.gov/wlm/living/starlings.htm>.
11. Washington State Univ. Whatcom County Extension. Master Gardener Program. 2005. Tis the season: August 2005. http://whatcom.wsu.edu/mastergardener/tistheseason/2005_08.htm.