

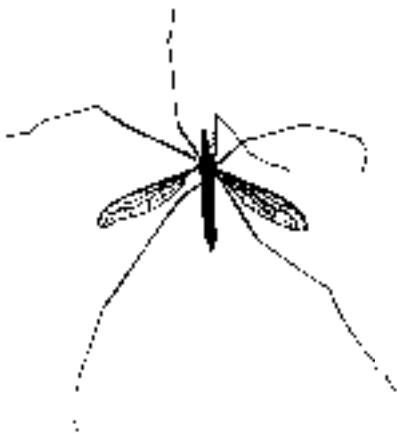
European Crane Fly: Lawn Pest or Bird Food?

by Philip Dickey

It is often said that the European crane fly is the only serious insect pest of lawns in the Maritime Northwest. That's great news! It means that insecticide treatments should not be needed for any other insects on home lawns in our region. More good news is that insecticide treatments are rarely needed for crane flies either. The bad news is that many people don't know about the good news and so they treat the lawn anyway. According to one estimate (<http://whatcom.wsu.edu/cranefly/CFquickfacts.htm>), homeowners in the Puget Sound area spent about \$13 million to buy pesticides for crane fly control in 1999. As we will see, most of them could have saved their money.

The state of knowledge about crane flies has increased over time, and the latest information confirms the idea that crane flies are rarely numerous enough to cause damage meriting insecticide treatment. In recent years crane flies are becoming even less common than in the past. The best protection against damage is simply growing healthy turf. That's a good idea anyway since it also helps reduce moss and other "weeds" while promoting healthy soil, water conservation, and a lawn that is safe for anyone to use.

Why is it then that homeowners complain about their crane fly problems year after year? And spray for crane fly year after year without getting any improvements in the condition of the lawn? There are several possible explanations: a) maybe the problem isn't crane flies at all; b) maybe too much insecticide spraying is just making their problem worse by killing beneficial insects and birds; and c) maybe the lawn is unhealthy for completely different reasons. Clearly knowledge is key, so let's start at the beginning.



Adult European crane flies can be seen in the yard or around your house between about mid-August and mid-October. They do no damage and cannot be controlled with insecticides. Monitoring and treatment decisions should be based on populations of the larvae.

Quick Biology of Crane Flies

Most crane flies in the Pacific Northwest are natives, don't feed on turf, and are beneficials rather than pests. Two European imports can do damage. *Tipula paludosa* has been around for many years and is "the" European crane fly that everyone talks about. Recently, we've been invaded by the common crane fly (*Tipula oleraceae*), which is similar in appearance. This species produces two generations per year instead of only one, but as yet, there is little evidence that it is a serious problem here.

It's the larval stage of the European crane fly that can damage turf by eating the roots. Larvae are present in the top three inches of soil (including thatch and roots) from about October through June. Damage is most likely to occur from January through about the end of April but doesn't become visible until May or June when the grass is growing quickly. This leads to the mistaken impression that pesticides are needed in May, June, or July, but by then the damage has already been done and the culprits are long gone!

The larvae, known as leatherjackets, pupate in mid-summer, and adults are flying, if you can call it that, from mid-August through about mid-October. Adults do no damage, though they may be somewhat alarming in appearance, resembling large, clumsy mosquitoes. Adults mate quickly and the female lays eggs, usually before flying very far. There is absolutely no point in trying to control adult crane flies. If you see a lot of them it makes sense to cut back on watering at this point. It won't matter to the adults, but without water fewer eggs will survive to hatch.

Doing the Numbers

Here's why you should forget about crane flies and find something else to worry about. Scientists have come up with a rough scale of how many crane flies are too many (see table below). Generally 0-25 crane flies per square foot is not a problem unless the lawn is young or not well established. In the range of 25-50, you can probably still ignore them if your lawn is vigorous and healthy. Only when populations exceed 50 per square foot — that's a half million in a 10,000 square foot lawn — might treatment be advised. And even then, scientists have seen no significant damage from up to 80 per square foot on a healthy lawn on good soil. So, now you see the importance of growing a healthy lawn. Think about it: 50 to 80 larvae in a piece of sod only slightly bigger than this piece of paper and still no significant damage on a healthy lawn!

Master Gardeners in Whatcom County have been engaged in a volunteer crane fly monitoring program for several years, and their results confirm that lawns rarely require treatment. In 2001, of 45 lawns surveyed, 65% had no crane fly larvae at all, and 30% had only 1-10 per square foot. Five percent had 20-25 crane flies. These populations don't even come close to recommended treatment thresholds. Since then, the populations have steadily declined each year, and in 2004 not a single crane fly was found in any lawn monitored. Whether it's temporary or not, we seem to be in a definite crane fly vacuum.

Crane Fly Treatment Decisions. Adapted from "European and Common Crane Fly" by Sharon Collman (<http://whatcom.wsu.edu/cranefly/articles/Collman-CFintro.htm>)

Crane flies/sq ft	Crane flies/10,000 sq ft	Decision
0 to 25	0 to 250,000	Do nothing; fertilize appropriately. May need to treat if turf is young, not well established, or with poor root structure.
25 to 50	250,000 to 500,000	If lawn is vigorous and healthy, do nothing. Decisions are based on the health of the turf, your personal standards, location, and use of the turf.
50 to 80	500,000 to 800,000	Treat crane fly problem. Look towards long-term solutions, such as replacing problem areas with alternative groundcovers.

How to Monitor

How do you know how many crane flies you have? Dig up a measured square of sod (either a one-foot by one-foot square, or several smaller ones) ideally in February or March. Break apart the roots, thatch, and soil over a piece of light-colored paper or cardboard, and count the blunt-ended, grayish-brown larvae (shown in the photo at the right). Divide by the number of square feet in your sample. Consult the table to make your decision. Visit the website (<http://whatcom.wsu.edu/cranefly/CFsampling.htm>) for more details on monitoring.

While you're out there in the lawn, look at all the other things that might be causing brown, dead patches. Topping the list is dog damage: burn caused by the nitrogen in dog urine. (It turns out that female dogs are more likely than male dogs to cause brown spots in the lawn because of different urination behaviors.) Other conditions that may be confused with crane fly damage include herbicide damage (e.g. spraying dandelions with a non-selective herbicide like Round-Up™ or vinegar), scalping due to mowing too closely on a lumpy soil surface, fertilizer burn from uneven distribution, poor drainage, or poor soil conditions.

Crane Fly Larvae



Natural Controls

Crane flies have many natural enemies that keep them in check and prevent serious damage. Birds love a juicy crane fly meal! Starlings and robins are particularly effective. Bats, yellowjackets, nematodes, frogs, and various microorganisms also pitch in. If we keep insecticides out of the picture, these natural controls can do their job.

Growing a Healthy Landscape

This is really the key to preventing crane fly and other lawn problems. Don't think of it as a control strategy so much as just common sense gardening.

Reduce turf area to what you really need. Consider other ground covers or a mixture of perennials, shrubs, and trees for areas in the landscape. Put each kind of plant where it will get the amount of water and light that it needs.

The additional steps summarized below are taken from the Natural Lawn Care website (<http://www.govlink.org/hazwaste/house/yard/lawn/>). They are appropriate for lawns in our area. If you live elsewhere, consult local sources.

- ❖ Mow high (two inches or so), mow regularly, and leave the clippings on the lawn to provide nutrients and moisture. (No, they don't cause thatch.)
- ❖ Fertilize moderately in September, the most important time, and again in May if you like. Use a natural, organic fertilizer or a slow-release fertilizer. Do not exceed label application rates.
- ❖ Water deeply but infrequently in summer if you want the lawn to stay green. Typically, a total of one inch of water a week (including any rain that falls) is enough. Don't water every day; try for only once or twice a week to apply the one inch of water. If you let your lawn go dormant in the summer, consider watering at least once a month. The lawn will come back more quickly once the fall rains start.
- ❖ Cut back watering if you see lots of adult crane flies in late summer/early fall. Fewer eggs will survive in dry soil.
- ❖ Avoid using "weed and feed" products that contain herbicide plus fertilizer. Accept some weeds, but remove invasive weeds by hand.
- ❖ Aerate, thatch, overseed, and top dress with compost as needed. Aerating will actually kill quite a few crane flies while it punches holes to allow water, nutrients, and air to penetrate. Re-seed and over-seed in areas of the lawn where you have crane fly problems. Although it is not the ideal time to seed, re-seed later in the spring (May-June) when grubs are not feeding intensely. Seed again in fall for problem areas if needed. In fact, this is what some golf courses do to deal with crane fly problems without using insecticides.

Crane Fly Treatment

If you've read this far, you know that chemical treatment will probably be beneficial on only a small percentage of lawns. Even then, if you have a serious crane fly problem, consider replacing your lawn with a turf alternative that would grow better than turf on that site. Diazinon and chlorpyrifos (Dursban™), the chemicals that have been registered for crane fly control in the past, have been found at harmful levels in streams. Both of these chemicals pose risks to salmon and other aquatic species. They are no longer registered for use on home lawns because of health and environmental concerns.

The replacement chemicals are carbaryl and several pyrethroids such as bifenthrin, permethrin, and esfenvalerate. Before using any of these chemicals, however, consider the following. Carbaryl is particularly toxic to bees and to earthworms. Pyrethroids are extremely toxic to fish. All registered products can be harmful to beneficial insects such as the predaceous ground beetle. Besides, by the time crane fly damage is visible, the crane flies have already stopped feeding for the year. Any spray motivated by seeing damage will not reduce the damage and is needlessly adding chemicals to your lawn. For these reasons, we cannot recommend the use of any insecticides on home lawns.

In addition to the techniques used to grow a healthy lawn, there is an organic control method that can sometimes reduce crane fly numbers below damaging levels. Live

beneficial nematodes can be purchased and applied to lawns once soil temperatures reach about 55 degrees. These tiny worms attack the crane fly larvae and kill many of them. They require moist conditions and sufficient (but not excessive) temperatures. In a warm spring, they can be effective enough to reduce crane fly numbers below damaging levels. If the weather stays too cold or too wet, however, they may not provide much control. In the cool Northwest springs nematodes cannot always be counted on to work well but it may be worth a try if crane fly monitoring indicates potential problems.

Conclusion

The science-based approach described in this fact sheet should eliminate the need for insecticide treatments in most cases, while promoting a healthy and attractive lawn. For more information, visit the excellent websites listed in the box entitled "To Learn More." ■

To Learn More

Crane fly website hosted by WSU Extension (<http://whatcom.wsu.edu/cranefly/index.htm>)

David McDonald. *Ecologically Sound Lawn Care for the Pacific Northwest. Natural Lawn Care.* (<http://www.metrokc.gov/dnrp/swd/naturallawn/lawncare.asp>)

Natural Lawn Care website hosted by the Local Hazardous Waste Management Program in King County. (<http://www.govlink.org/hazwaste/house/yard/lawn/>)

Washington Toxics Coalition's Home Safe Home fact sheets. Visit our website at www.watoxics.org and click on "Publications."

The Washington Toxics Coalition is a non-profit organization dedicated to protecting public health and the environment by preventing pollution. Please write or phone for information: WTC, 4649 Sunnyside Ave N, Suite 540, Seattle, WA 98103. Phone: 206-632-1545. Visit our Internet Web site at www.watoxics.org.

Summary

- ❖ Practice Natural Lawn Care
- ❖ Monitor in February or March
- ❖ Reduce watering in late summer if many adults are visible.
- ❖ Reseed damaged areas
- ❖ Consider beneficial nematodes as possible control if needed.

Disposal of Pesticides

If you have old lawn insecticides such as diazinon or Dursban, or other pesticides that you won't use, take them to your household hazardous waste (HHW) disposal site. To find out how to dispose of HHW in your community, go to the Earth 911 website at <http://www.earth911.org/master.asp>. Click Household Hazardous Waste in the left column, then enter your zip code when prompted. You can also phone Earth911 at 1-877-EARTH911.

In Washington state, call the recycling hotline at 1-800-RECYCLE or visit their website at <http://1800recycle.wa.gov/> for information on programs in any county.

In the Seattle/King County area, call the Hazards Line at 206-296-4692 or go to <http://www.govlink.org/hazwaste/index.cfm> on the Internet.

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