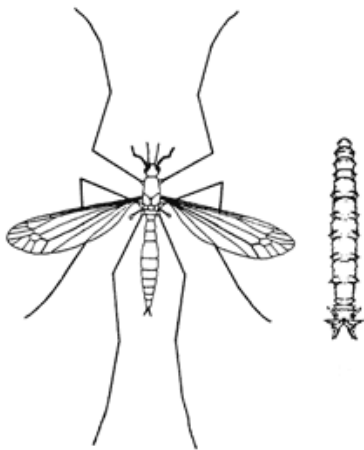


PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

AUGUST 21, 2008



European crane fly adult and larvae

Crane Flies in Turfgrass

Albrecht M. Koppenhöfer, Ph.D., Specialist in Turfgrass Entomology

The larvae of **crane flies**, because of their tough skin also called leather jackets, use their rasping mouthparts to feed on roots, rhizomes, crowns, and leaf blades of grasses and various other plants. There are many native crane fly species of which a few may occasionally cause limited damage to turfgrass. However, two crane fly species, accidentally introduced from Europe, have the potential to cause serious turfgrass damage. The **European crane fly** (*Tipula paludosa*) and the **common crane fly** (*Tipula oleracea*) are already established in the Pacific Northwest from British Columbia south into northern California, and in eastern Canada (Nova Scotia, Quebec, Ontario). Both species were detected in upstate New York in 2004 and have since spread east and southward. The common crane fly was also detected in Nassau and Suffolk counties on Long Island in 2006. While there have been no confirmed records in New Jersey to this date, it is quite likely that these introduced crane fly species will eventually find their way into New Jersey.

Adult crane flies look like giant mosquitoes with extra long legs. The body is brownish-tan and slender about 3/4 to 1" long, with one pair of narrow, smoky-brown wings. The two introduced species have no pigmented areas or pattern on their wings. Wings of the European crane fly also have a narrow dark-colored band along the leading edge of the wing adjacent to a light-colored band. However, definitive species identification will require a specialist. The eggs, which are laid into the soil, are shiny black, elongate-oval, and about 3/64" long. The larvae are worm-like, cylindrical in shape, ranging in color from live-gray to greenish-brown, growing up to 1" in length. The head is small and black-pointed and is withdrawn into the front part of the body when the larva is disturbed. A plate-like structure on the larva's tail end bears two breathing holes and is surrounded by six fleshy, finger-like lobes. Larvae of the European and common crane fly cannot be separated from each but from other crane fly species. The pupa is greenish-brown translucent with developing legs, wing pads, and antennae glued to the sides. Backward-pointing spines on the last five segments enable the pupa to wriggle to the soil surface when the adult is ready to emerge.

Adults of common and European crane fly emerge from late July to September over a period of a few weeks at any given site. After mating the females lay 200-300 eggs at or near the soil surface. Gravid females are poor fliers and lay most of their eggs in one batch within one day

SEE CRANE FLIES ON PAGE 2

INSIDE

| | |
|---|---|
| Crane Flies in Turfgrass..... | 1 |
| Diseases of Turfgrass..... | 3 |
| Turf Management Update | 3 |
| Plant Diagnostic Lab Highlights..... | 4 |
| Bacterial Leaf Scorch of Oak.... | 4 |
| Cream Ridge Nursery Research & Extension Meeting..... | 5 |
| Weekly Weather Summary | 5 |

CRANE FLIES FROM PAGE 1

(European crane fly) or mediocre fliers and lay their eggs over 3-4 days in several batches (common crane fly). Eggs require wet conditions to survive and hatch in 1-2 weeks. Development of the larva through its four stages is also favored under moist conditions. The larvae are found mostly in the top 1¼" of soil feeding on roots and crowns. Larger larvae may emerge to the soil surface on damp, warm nights or on dark, cloudy days to forage on stems and blades. By the time cold temperatures force them to overwinter deeper in the soil, most larvae will have reached the third (European crane fly) or fourth (common crane fly) stage. Most turfgrass damage is caused in spring by the rapidly growing fourth stage that completes its development in spring. Common crane fly larvae will pupate and emerge as adults in spring (late April to mid-May) and go through a second generation during summer. European crane fly larvae will stop feeding in late May, move deeper in the soil (up 3") to be inactive through the summer, and pupate in late summer to complete only one generation per year.

Crane fly larvae attack all cool-season turfgrasses, as well as grasses in pastures and hayfields. They prefer moist, thatchy turf and wet soil high in organic matter. Damaged turf appears sparse, with missing foliage and bare patches. Heavily infested turf may contain 100 or more larvae per ft². On golf course greens the turf may be scalped. In addition, the turf may be disrupted by foraging skunks and peck-holes of birds, especially crows.

Monitoring for crane flies can be done in several ways. Because gravid European crane flies are such poor fliers and move not far, sites with abundant adults, larvae, or pupal cases protruding from the soil (in low-mown turf), should be monitored as they are likely areas for egg deposit. Irritant solutions (dish soap or dilute pyrethroid solutions) don't seem to be very effective and are likely to underestimate populations. More accurate estimates can be obtained by going through soil/thatch samples taken to about 3" depth. Samples can be taken with a golf hole cup cutter, a flat blade spade, or similar tools. Suggested damage thresholds range from 15 to 50 larvae per ft². Generally, vigorous turf can tolerate high larval densities. Mild winters, cool summers, and wet, poorly drained turf should favor crane flies.

In chronically infested areas, improving drainage and withholding irrigation during egg-laying (especially in late August and September) may reduce survival of eggs and young larvae. Maintaining a vigorous turf stand will increase the turf's tolerance to larval feeding. In localized infestations raking up larvae when they come to the surface to feed can alleviate the problem.

A recent study in upstate New York investigated the efficacy of numerous products against the European crane fly. For preventive applications against the first and second stage larvae in early to mid-October, bifenthrin (Talstar), carbaryl (Sevin), chlorantraniliprole (Acelepryn), clothianidin (Arena), and trichlorfon (Dylox) provided the best and most consistent control (Table 1). For curative applications against the third and fourth larval stage in mid-May, clothianidin (Arena) provided the best and most consistent control (> 70%). It can be assumed that similar efficacies apply to common crane fly larvae in fall. In spring, however, the common crane fly larvae would have to be targeted before they pupate (before late April) which may make curative application difficult and probably also less effective.

LAB HIGHLIGHTS FROM PAGE 4

sex, and a tulip tree sample from Hunterdon also had a ton of two spotted mites. **Southern red mites** were found on *Skimmia* from a Union County site and **spruce spider mites** hammered a juniper from Middlesex. **Eriophyiid mites** caused galls on the leaves of a river birch. As for diseases, **Verticillium wilt** killed a Magnolia that was sent from a landscape in Pennsylvania. We are also getting a steady supply of oaks with **bacterial leaf scorch**.

By the way - home gardeners watch your tomatoes. We are seeing lots of back yard tomato plantings loaded with the two spotted mites. The leaves lose their color and overall the plants look dirty or dusty. Check the undersides of the leaves with a hand lens to diagnose. Insecticidal soap is a good option for bearing plants at this time. □

Table 1. Efficacy of insecticidal products for preventive (October) and curative (May) control of European crane fly larvae.

| Timing | Acceptable (> 70%) | Variable | Unacceptable (< 50%) |
|-------------------|--------------------|------------|----------------------|
| Preventive | Talstar | Ornazin | Gnatrol |
| | Sevin | BotaniGard | |
| | Acelepryn | Tempo | |
| | Arena | Merit | |
| | Dylox | Allectus | |
| | | Provaunt | |
| Curative | Arena | Merit | Allectus |
| | | Provaunt | |
| | | Dylox | |

Diseases of Turfgrass

Bruce B. Clarke, Ph.D., Specialist in Turfgrass Pathology

General

Dollar spot, **copper spot** and **gray leaf spot** are apparent on golf and landscape turf. Expect these diseases to continue to be a problem through October. **Summer patch**, **fairy ring**, **slime mold** and **anthracnose** are also active at this time. **Pythium** and **brown patch** can still be troublesome if the hot, humid weather returns so maintain preventive sprays. Refer to recent issues of this newsletter for further disease control information.

Fairy Ring

This disease, caused by a group of fungi known as *basidiomycetes*, is visible on many golf greens and home lawns at this time. Symptoms typically appear as continuous or interrupted rings of dark-green turf. Mushrooms, which are often associated with fairy ring, usually develop in the spring and fall. Although fungicides are not effective against all species of the fungi that cause fairy ring, Bayleton, Headway, Heritage, Insignia and Prostar have provided good control in many university tests. For best results, maintain adequate soil moisture and fertility to mask symptom expression. Spike affected turf prior to irrigation and the application of fungicides to enhance water movement into the soil profile. The use of surfactants may enhance fungicide efficacy and aid in symptom suppression.

Gray Leaf Spot

Gray leaf spot, caused by the fungus *Pyricularia oryzae*, is really starting to intensify on susceptible perennial ryegrass overseedings. Fungicide studies have shown that Armada, Compass, ConSyst, Disarm, Headway, Heritage, Insignia, Spectro, Tartan, and thiophanate-methyl have been most effective when applied on a preventive basis every 14 to 28 days from mid-July to late-September. Chlorothalonil (e.g., Daconil) and the DMI (sterol-inhibiting) fungicides (e.g., Banner or Bayleton) may provide effective control when disease pressure is low to moderate. Isolates of *P. oryzae* resistant to the QoI (Strobilurin) fungicides, and strains with reduced sensitivity to the DMIs, have been reported in New Jersey so alternate fungicide chemistries whenever possible to reduce the potential for fungicide resistance. For a list of gray leaf spot resistant cultivars, access the Rutgers Cooperative Extension Fact Sheet #1048 at www.turf.rutgers.edu/outreach/rcepublications.html.

Green Industry Expo

This year's Green Industry Expo will be held at the Trump Taj Mahal Casino/Resort on December 9-11, 2008. This is an excellent opportunity to receive the latest turf management information from nationally renowned speakers. For additional information, please contact Cece Peabody (973) 812-6467 or e-mail execdirector@njturfgrass.org or Marlene Karasik (732) 932-9400 ext. 339 or e-mail mkarasik@aesop.rutgers.edu. □

Turf Management Update

James Murphy, Ph.D., Specialist in Turf Management

We have been observing a considerable amount of dying annual bluegrass in higher mown turfs (lawns, sports fields and golf course surrounds and roughs) during last few weeks. This isn't uncommon for this time of year, especially where limited to no plant protectants have been applied. Timing and symptoms suggest that summer patch disease is the culprit, but other pests could be involved as well. Regardless of the cause, these damaged areas would probably benefit from overseeding with a more desirable species at this time. See Renovating Turf fact sheet FS108 for details on renovating turf (available at <http://njaes.rutgers.edu/pubs/publication.asp?pid=FS108>).

Note for golf courses and sod farms - Mesotrione (Tenacity) is a recently registered herbicide that can be useful for seeding/overseeding turf areas infested with annual bluegrass and creeping bentgrass. Dr. Stephen Hart's work shows good to excellent safety on Kentucky bluegrass seedlings and good suppression of annual bluegrass seedlings. A lower herbicide rate is important for perennial ryegrass and fine fescue turfs. You can find more details on the label at <http://www.greencastonline.com/HerbicideTenacity/PDF/TenacityLabel.pdf>. □

Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Director, Soil Testing and Plant Diagnostic Services

Turf

The dog days of August brings the usual slow down in turf submissions. We are still seeing a handful of plugs every day, but many of you are already looking forward to renovations and the fall schedule. **Anthracnose** is the primary problem in golf turf at this time. At this point in the season much of the grass is wearing down from daily mowing and heavy play. The fungus that causes anthracnose, *Colletrichum cereale*, will often move in and take advantage of the situation. This week the samples came from several locations in New Jersey, Pennsylvania, Connecticut, and New York. Most of the other summer diseases keep popping up too, albeit less frequently. The short list includes **summer patch**, **brown patch**, **dollar spot**, **fairy ring**, **take all**, and **pythium root dysfunction/root rot**.

Ornamentals

As the turfgrass samples begin to wane in late summer, we often see an increase in plant material from nurseries and landscape plantings. Scale and mite problems have been dominating the samples in recent days. **Juniper scale** and **elongate hemlock scale** were identified on juniper and hemlock from two Middlesex County landscapes. **Maskell scale** (aka: pine oystershell scale) was found on black pine samples from Ocean County. Another black pine, which was submitted from Somerset County, had a huge population of **pine needle scale**. Kind of hard to miss those! **Greedy scale** was on a sample of rhododendron from Ocean County and a **white prunicola scale** infestation was diagnosed on samples of *Viburnum* and cherry from the same Somerset County landscape. **Two spotted spider mites** were identified on *Kirengeshoma palmata* (what?) from Hunterdon. *Euonymus* samples from Es-

SEE LAB HIGHLIGHTS ON PAGE 2

Bacterial Leaf Scorch of Oak

Ann B. Gould, Ph.D., Specialist in Plant Pathology

Symptoms of **bacterial leaf scorch (BLS)** of oak become more apparent as the late summer days pass by. Many trees we know to be infected are still asymptomatic; we expect that symptoms will appear on these trees within the next few weeks.

BLS, caused by the xylem-limited bacterium *Xylella fastidiosa*, affects populations of oaks in the red oak group throughout the New Jersey landscape. The disease is most troublesome in certain communities in Burlington, Camden, Gloucester, Salem, Mercer, and Middlesex Counties. Although BLS affects other shade tree species, incidence in New Jersey is extremely rare. As its name suggests, *Xylella fastidiosa* colonizes the xylem and is spread from host to host by xylem-feeding insects such as sharpshooter leafhoppers.

Symptoms

The primary symptom associated with BLS is a marginal scorch of affected leaves on one or more branches in the canopy. This symptom appears later in the growing season (mid-August through October). The scorching is often irregular in shape; affected leaves may curl and drop prematurely, leaving much of the canopy relatively transparent. As the infection progresses over several years, branches die and the tree declines. Affected trees eventually decline to the point where they must be removed. The process of tree decline may occur quickly or slowly depending on the tree or the environment. What is interesting about this disease is that it may appear randomly around the canopy of a tree, or within a planting, may affect individual trees in a random pattern.

Diagnosis

Symptoms of BLS are very similar to those caused by agents such as moisture stress and excessive salt. It is not surprising, therefore, that the disease is frequently misdiagnosed. To diagnose this disease, submit a small branch specimen (pencil-width in diameter), with scorched leaves attached, to the Rutgers Plant Diagnostic Laboratory for analysis; do not wrap the sample in plastic. The laboratory will identify BLS through the use of a selective antibody (ELISA) or PCR techniques. Proper sampling is necessary for an accurate diagnosis; the best samples have leaves that are symptomatic for the disease. For more information on mailing and fees, see the following link: <http://njaes.rutgers.edu/plantdiagnosticlab>.

Management

Care-takers of the New Jersey urban forest should look for the canopy thinning and marginal scorch characteristic of BLS from now through mid-October. Since there is no cure for this disease, proper management strategy includes the maintenance of tree vigor for as long as possible. If possible, water affected trees during times of water stress to reduce the debilitating effects of this disease. In addition, other diseases, insects, and environmental stresses (including drought) enhance the development of BLS. Branches and infected trees in a severe state of decline should be routinely removed as they are potential hazards. Expensive tree injections reduce symptom development, but do not cure the disease and must be repeated. In areas known to be affected by this disease, replace affected trees with species that are not known hosts of the bacterium. □

Cream Ridge Nursery Research & Extension Meeting

Thursday, August 28, 2008, 1:30 p.m. to 6:30 p.m.

Rutgers Fruit & Ornamental Research Extension Center

283 Route 539, Cream Ridge, New Jersey

1:00 Registration

1:30 Welcome - Dr. Mark Robson, Director, Rutgers NJAES

"Tree Species Selection for the Future", Dr. Jason Grabosky, Specialist Urban Forestry, Rutgers University

"Effects of Fertilizers and Naturally-Occurring , Dr. Gladys Zinati, Mycorrhizae on Sustainable Production of Nursery Crops", Specialist, Nursery Management, Rutgers University

"Recycling Options for New Jersey Nurseries", Karen Kritz, New Jersey Department of Agriculture

"Overview of Nursery Water Issues", Dr. Chris Obruapta, Specialist Water Resources, Rutgers University

"CORE Update for 2008", Dr. George Hamilton, Specialist Pest Management, Rutgers University

"Nursery Weed Control Update", Dr. Steve Hart, Specialist, Weed Management, Rutgers University

"Phytophthora Research", Dr. Cristi Palmer, IR-4 Project, Rutgers University

4:00 **Outside Field Tour**

- Plant Diagnostic Workshop – Richard Buckley
- Nursery Crop Research – Dr. Gladis Zinati
- Ornamental IR-4 Trials – Tom Freiberger
- Asian Ambrosia Beetle – Dr. Jim Lashomb

5:30 Pesticide Credits, Evaluation, SOCIAL TIME AND FOOD (sandwiches, salads & beverages)

COST: FREE!

Pesticide License Recertification Credits: CORE-1, PP2-4, 3A-4, 1A-4, 10-4

**** To register, call Monmouth County Extension Office 732-431-7260 or 7261 by Monday, August 25, 2008**

This program is sponsored by Rutgers Cooperative Extension of Monmouth County in cooperation with the New Jersey Nursery and Landscape Association.

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 69 degrees north, 71 degrees central and 72 degrees south. Extremes were 95 degrees at Canoe Brook on the 18th, and 52 degrees at Canoe Brook on the 16th. Weekly rainfall averaged 0.89 inches north, 1.54 inches central, and 0.02 inches south. The heaviest 24 hour total reported was 1.87 inches at Toms River on the 15th. Estimated soil moisture, in percent of field capacity, this past week averaged 86 percent north, 83 percent central and 72 percent south. Four inch soil temperatures averaged 68 degrees north, 71 degrees central and 72 degrees south.

Weather Summary for the Week Ending 8 am Monday 8/18/ 8

| WEATHER STATIONS | RAINFALL | | | TEMPERATURE | | | | GDD BASE50 | | MON %FC |
|---------------------------------------|--|-------|-------|-------------|----|-----|-----|------------|------|---------|
| | WEEK | TOTAL | DEP | MX | MN | AVG | DEP | TOT | DEP | |
| BELVIDERE BRIDGE | 1.07 | 19.03 | -3.34 | 87 | 57 | 71. | 1 | 2108 | 160 | 77 |
| CANOE BROOK | .55 | 19.52 | -3.98 | 95 | 52 | 70. | -1 | 2081 | 126 | 72 |
| CHARLOTTEBURG | 1.98 | 24.32 | .60 | 82 | 54 | 67. | -1 | 1981 | 440 | 94 |
| FLEMINGTON | .22 | 18.50 | -4.18 | 85 | 54 | 69. | -2 | 2061 | 56 | 74 |
| NEWTON | .63 | 20.16 | -1.71 | 84 | 55 | 69. | 0 | 2236 | 457 | 82 |
| FREEHOLD | 1.56 | 15.13 | -6.95 | 86 | 55 | 71. | -1 | 1922 | -216 | 94 |
| LONG BRANCH | 1.30 | 17.61 | -4.62 | 85 | 59 | 71. | -1 | 2066 | 7 | 86 |
| NEW BRUNSWICK | 2.74 | 24.28 | 2.07 | 88 | 57 | 72. | -1 | 2385 | 162 | 95 |
| TOMS RIVER | 1.91 | 19.74 | -3.05 | 84 | 56 | 70. | -1 | 2319 | 274 | 80 |
| TRENTON | .21 | 20.51 | -.63 | 86 | 56 | 71. | -3 | 2468 | 142 | 52 |
| CAPE MAY COURT HOUSE | .00 | 15.17 | -4.50 | 86 | 59 | 73. | -1 | 2436 | 234 | 46 |
| DOWNSTOWN | .01 | 18.97 | -1.83 | 86 | 57 | 71. | -2 | 2475 | 143 | 62 |
| GLASSBORO | .00 | 18.15 | -3.61 | 85 | 61 | 72. | -2 | 2449 | 140 | 61 |
| HAMMONTON | .00 | 17.20 | -4.59 | 87 | 59 | 72. | -2 | 2585 | 273 | 57 |
| POMONA | .09 | 19.91 | -.07 | 87 | 58 | 73. | 1 | 2563 | 407 | 59 |
| SEABROOK | .04 | 17.20 | -2.76 | 86 | 60 | 73. | -1 | 2637 | 293 | 55 |
| SOUTH HARRISON | .32 | 20.24 | -1.43 | 85 | 58 | 71 | NA | 2443 | NA | NA |
| WES KLINE -- GDD BASE 40 PINEY HOLLOW | LAST WEEK 237 (Ending 8/11/08) THIS WEEK 69 (Ending 8/18/08) | | | | | | | | | |



New Jersey Agricultural
Experiment Station

Plant & Pest Advisory
Rutgers School of Environmental
and Biological Sciences
ASB II, 57 US Hwy. 1
New Brunswick, N.J. 08901

FIRST CLASS
POSTAGE PAID
PERMIT #576
MILLTOWN, NJ 08850

PLANT & PEST ADVISORY

Landscape, Nursery & Turf Edition Contributors

Rutgers NJAES-CE Specialists and Staff

Bruce B. Clarke, Ph.D., Turf Pathology
Ann B. Gould, Ph.D., Ornamentals Plant Pathology
Steven Hart, Ph.D., Weed Science
Joseph R. Heckman, Ph.D., Soil Fertility
Albrecht Koppenhofer, Ph.D., Turfgrass Entomology
James A. Murphy, Ph.D., Turf Management
Gladis Zinati, Ph.D., Nursery Management
Richard J. Buckley, Coordinator, Plant Diagnostic Laboratory

RCE County Agricultural Agents and Program Associates

Bergen, Joel Flagler (201-336-6780)
Burlington, Raymond J. Samulis (609-265-5050)
Camden, James Willmott (856-566-2900)
Steven Rettke, Program Associate IPM
Cape May, Jenny Carleo (609-465-5115)
Cumberland, James R. Johnson (856-451-2800)
Essex, Jan Zienteck, Program Coordinator (973-353-5958)
Gloucester, Jerome L. Frecon (856-307-6450, ext. 1)
Hunterdon, Winfred P. Cowgill, Jr. (908-788-1338)
Middlesex, William T. Hlubik (732-398-5260)
Monmouth, Richard G. Obal (732-431-7261)
Morris, Peter Nitzsche (973-285-8307)
Passaic, Elaine F. Barbour, Agric. Assistant (973-305-5740)
Somerset, Nick Polanin (908-526-6293)
Sussex, Brian Oleksak, Program Associate (973-948-3040)
Union, Madeline Flahive-DiNardo (908-654-9854)
Warren, William H. Tietjen (908-475-6505)

Newsletter Production

Jack Rabin, Associate Director for Farm Services, NJAES
Cindy Rovins, Agricultural Communications Editor

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

Use of Trade Names: No discrimination or endorsement is intended in the use of trade names in this publication. In some instances a compound may be sold under different trade names and may vary as to label clearances.

Reproduction of Articles: RCE invites reproduction of individual articles, source cited with complete article name, author name, followed by Rutgers Cooperative Extension, Plant & Pest Advisory Newsletter.

For back issues, visit our web site at:
www.rce.rutgers.edu/pubs/plantandpestadvisory