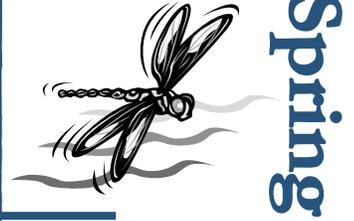


CROSSECTION



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DRAGONFLY LARVAE IN OUR HEADWATER STREAMS

CHAD EDGAR, URBAN STREAM SPECIALIST



In an effort to better understand and manage the natural resources of Lake County, the Lake County Soil and Water Conservation District (SWCD) started a countywide inventory of information on headwater streams in the summer of 2000. Using the Ohio EPA protocol for evaluating primary headwater streams (HHEI), over 1000 headwater streams have been assessed. Data collected on the streams includes: detailed morphological measurements, chemistry, the presence and abundance of obligate salamanders (species that require at least a year in the water to complete their larval stage) and the presence and abundance of benthic macroinvertebrates (insects, other crustaceans, and mollusks that live in streams). The information collected is then used to classify each stream based on the quality of habitat found and the diversity of species using that habitat. Class III streams are high quality, year-round streams recharged by melted snow. Typically, these streams are inhabited by cold-water adapted animals and should account for approximately 17% of the flow network. Class II streams have moderate habitat quality and are likely to become intermittent during dry periods. The salamander and insect populations are limited in both diversity and abundance. Class I streams lack most habitat features and most often only have water during and shortly after rainfall. The presence of insects is not likely and if present, is most often represented by midges and aquatic worms.

Lake County has two distinct geologic regions. The northern part of the county is very flat with fine grained soils deposited when Lake Erie's margin extended southward over currently dry ground. The southern part is defined by steeper, rockier topography. The steep slopes, numerous substrate types and large amounts of groundwater reaching the surface in the southern areas have created a cluster of Class III headwater streams. The streams on the northern lake plain range typically lack high quality habitats. Class II and Class I streams dominate this region due to low gradients and lack of larger sediment, such as slabs and cobbles.

During the evaluation of these streams, adult dragonflies are often patrolling our study sites devouring mosquitoes and midges. District employees greatly appreciate this service! It was this appreciation and interest that prodded me to evaluate the approximately 400 macroinvertebrate voucher samples that had been collected over the years for the presence of certain dragonfly larvae. Macroinvertebrate samples were collected with a dip net by disturbing the sand, stones, mud, and plant debris in all parts of the stream (riffles, pools, undercut banks, etc) and then sweeping the net through the area and along the bottom of the channel. Samples from over 70 separate headwater locations contained dragonfly larvae. These locations represent habitats from both the lake plain and the till plateau regions and 22 separate subwatersheds of the Chagrin River, East Branch of the Chagrin River, Grand River and Arcola Creek Watersheds. A total of 123 larvae were found in the samples and account for over 20 different species. Many new county records (distribution of plants and organisms are collected by biologists to understand the normal range of different organisms) have been identified in the collection. These include *Cordulegaster erronea* (Tiger Spiketail), *Cordulegaster diastatops* (Delta-spotted Spiketail) and *Lanthus parvulus/vernalis* (Northern/Southern Pygmy Clubtail).

Further collections of macroinvertebrate samples are planned in addition to a complete survey of the damselfly larva (damselflies are similar to dragonflies, belonging to the order *Odonata*). It should be noted that of the 70+ sample sites that contained dragonfly larva, 90% were Class III streams. The data provided from this study indicates that Class III streams are necessary for the continued existence of dragonfly species that depend on these habitats for reproduction. The Ohio EPA has estimated that only 17% of the drainage network in Ohio will be Class III streams. Wouldn't it be shameful to lose such voracious mosquito predators due to poor management of our water resources?

GRAND RIVER CANOE CLEAN-UP

Grand River Partners is sponsoring the Grand River Canoe Clean-up on Saturday, June 14th. Come paddle this wild and scenic river, and help remove the signs of human impact. For more information, or to register, please contact Mary Jo at 375-7311 by June 6.

SUPPORTING LOCAL AGRICULTURE

MAURINE ORNDORFF, AGRICULTURAL PROGRAMS TECHNICIAN

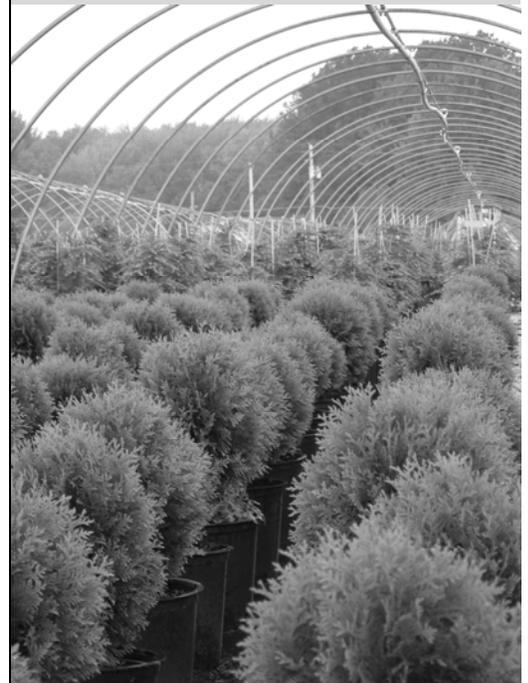
We are at the dawn of a new revolution in thinking about our food production systems and our patterns of settlement. If you seem to remember that there was a time when food tasted better (a tomato that burst with juicy flavor or a carrot that had a rich and sweet crunch) your memory is not failing you. The food revolution that followed on the heels of World War II led to a migration of people from farms to cities, and the industrialization of our agriculture, which, among other things, created food varieties that could withstand the rigors of long-distance travel. Nutrition, flavor, freshness, a connection with where our food came from all declined in the face of progress. In the decades since, (to keep this history brief) the migration reversed, and the American dream, for those who could afford it, became having a few acres in the country. We now find that across the United States, we have developed our highest quality farmland, much of which is in close proximity to the best consumer markets. We see that our future depends upon the wisdom of our agrarian roots and that if we want to eat nutritious and delicious food that is produced in a sustainable manner, we need small, family owned farms that have a connection to the earth and the foods that they grow, close to where we live. We need to invest in agriculture in our communities, which we can do by buying food that comes from local farms. When we do so, we invest in the future of our farmland, enabling our farmers to keep their lands in agriculture and to pass them on to their children as a viable way to make a living.

Our local bounty can be purchased at numerous Farmers' Markets and at on the farm markets around the county. We have a listing of those that we know about on our website: www.lakecountyohio.gov/soil/farmmarkets.htm. Several markets opened in mid- May, with the rest starting in June and running through October. Early produce includes asparagus, beets, peas, cabbage, tender salad greens, radishes, herbs, green onions, strawberries and rhubarb.

We also have a listing on our website of our local nurseries that sell retail. You can purchase herb and vegetable plants or beautiful landscape plants that will survive our unique soil and climatic conditions. Your support of our local nursery industry is another way you can invest in agriculture in Lake County and protect our open spaces, rural heritage and the quality of life we all enjoy.

ENTREPRENEURIAL FARMING

If you have a passion for growing and would like to try your hand at retail farming, take a look at "Entrepreneurial Farming" a special report published by The Farmland Center in 2005. It tells the stories of how folks in north-east Ohio have created new businesses to produce and sell their own foods. Now might be the right time to awaken your entrepreneurial spirit and follow your dream. Copies are available at the District office or you can call us at 440/350-2730 to request one by mail.



LOOKING FOR IDEAS TO TAKE ADVANTAGE OF OUR ABUNDANT LOCAL PRODUCE? KEEP THESE RECIPES IN MIND WHEN YOU ARE CHECKING OUT THE LOADED TABLES AT OUR LOCAL FARMER'S MARKETS OR AT YOUR FAVORITE LOCAL FARM STAND:

Herb-infused Oil

Ingredients: 2 cups fresh herbs (any single herb or any combination you like - parsley, thyme, basil and oregano is a great start)
 1 tsp. whole peppercorns (optional)
 2 c. canola oil
 1 c. extra-virgin olive oil

Directions: Combine oils in a saucepan. Heat to 200° on the stovetop. While the oil is heating, place the remaining ingredients into a heatproof container at least 1 quart in volume. Once the oil is heated, pour over the herbs. Let stand covered with a towel overnight. Strain into desired container the next day. Herb-infused oil will last longer if kept in the refrigerator. Use in salad dressings, on grilled or broiled meats, paired with a good Italian bread, or wherever else you use plain oil.

Summer Frittata

Ingredients: 6 eggs, scrambled
 1 ½ c. fresh summer veggies, lightly sautéed (peas, green onions, summer squash, peppers, etc.) or leftovers
 1 c. shredded or crumbled cheese
 3 T. fresh herbs, chopped (cilantro is nice)

1. Preheat oven to 400°F.
2. Lightly cook any raw vegetables in olive oil, about 2 minutes depending on vegetable used.
3. Scramble the eggs and stir in the herbs and ¾ c. cheese.
4. Pour egg mixture over vegetables, stir.
5. Bake in the oven until the center is set.
6. Remove frittata from oven and sprinkle with remaining cheese.
7. Serve warm or room temperature.

ARE YOU THE SOURCE OF NON-POINT SOURCE POLLUTION?

SUSAN HABOUSTAK, STORMWATER SANITARIAN, LAKE COUNTY GENERAL HEALTH DISTRICT

Now that spring is here, many residents throughout Lake County are looking forward to heading to our Lake Erie beaches and fishing in our area streams. Everyone wants clean water when they head to the beach. But did you know that various household activities like how you maintain your lawn and picking up after your pet affect water quality in our streams and Lake Erie? After it rains, stormwater flows off your property, into the street, through storm systems, and directly into streams and Lake Erie without being treated. The stormwater carries chemicals applied to your lawn, grass clippings, bacteria in pet waste, cigarette butts, oil from cars, soap from car washing, and other trash. This is called an illicit discharge, which is defined as a discharge not entirely composed of stormwater, and it can cause poor water quality in Lake Erie.

The EPA requires Stormwater outfall screenings and monitoring for illicit discharges in certain communities to help keep our waters clean. Representatives of the Stormwater Management Department and General Health District can be seen throughout your neighborhood checking for illicit discharges. The Ohio EPA requires the implementation of stormwater Rules and Regulations and illicit discharge ordinances. By issuing correction notifications and making recommendations to households and businesses under these rules and ordinances, illicit discharges are eliminated and water quality is improved.

There are many things you can do at home to improve water quality. Do not pile your yard waste and grass clippings on the banks of streams and ponds; it does not stabilize the banks. The piles prevent good vegetation, like plants and shrubs, from growing at the banks, which would stabilize the soil and prevent erosion. Once this organic matter is in the streams and lakes, it breaks down, depleting oxygen in the water and increasing nutrient concentrations. It then leads to poor water quality for drinking and recreation. Cleaning up after your pets prevents bacteria from washing into our streams and lakes, helping to prevent beach closures and lowering the amount of bacteria in our source of drinking water.

Check your pipes. Is all your plumbing connected to the sanitary sewer or septic tank? If not, it may be causing an illicit discharge. In many older houses, basement plumbing and floor drains do not always go to the sanitary sewer; it may be connected to the storm sewer or road ditch. Sometimes basement washtubs, showers, or laundry water are not connected to the household sewage treatment system, instead they drain directly to the storm sewer or near-by creek. If there is a floor drain in your garage, ensure that it is not draining directly to a creek, ditch or storm sewer. Garage drains should go to the household sewage treatment system or the sanitary sewer.

You may not think that little things you do at your house make a difference. But the combined effort of an entire community makes a big impact! Other things you can do to protect stormwater are:

- ♣ Drop off waste oil and other hazardous materials at collection facilities.
- ♣ Pick up after your pets and throw the waste in the trash. Never throw cigarette butts or trash on the ground; dispose of it properly!
- ♣ After lawn care and maintenance, sweep up lawn clippings and fertilizer from the driveway, never rinse it away!
- ♣ Ensure your septic system is operating properly and perform routine maintenance.
- ♣ Wash your car on the lawn or take it to a car washing facility.
- ♣ Ensure that all drains in your house go to the sanitary sewer or household sewage treatment system.

Do your part to improve water quality in our streams and Lake Erie so that everyone can enjoy fresh, clean water!

AMERICAN TREE FARM SYSTEM CERTIFICATION AVAILABLE

MATT SCHARVER, RESOURCE PROTECTION TECHNICIAN

Do you have a desire to have your forestland become an integral part of our nation's renewable natural resource system? Do you wish to have your forestland certified as a sustainable forest? Becoming a certified tree farmer through The American Tree Farm System (ATFS) is a great first step. The ATFS is a program sponsored nationally by the American Forest Foundation, a 501c3 non-profit organization promoting the sustainable management of forests through education and outreach to private forest landowners. The ATFS is the oldest and largest forest conservation, certification and advocacy program in the U.S. A tree farm is a privately owned forest that is managed for wood, water, wildlife and recreation. Tree farmers manage their forestland for pride, profit, and pleasure. The District now has a certified tree farm inspector on staff that can assist you with enrollment into the ATFS. The District can also help you develop a complete forest management plan and conduct a natural resource assessment of your property. Eligible properties must contain a minimum of 10 acres dedicated to forest management. Contact the District for more information or to schedule an appointment.

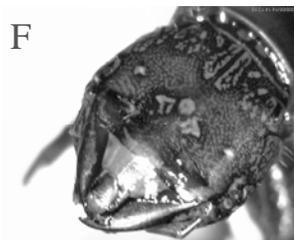
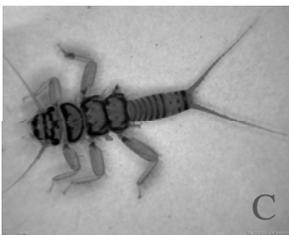
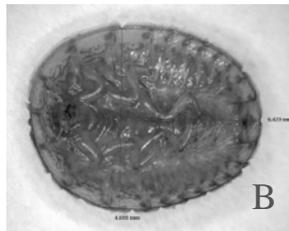


Return Service Requested



WHO WANTS TO BE A CONSERVATIONIST?

What's bugging our streams? These images are all native aquatic macroinvertebrates. Match the picture with the description.



- 1) Stonefly
- 2) Water Penny
- 3) Caddisfly
- 4) Crayfish
- 5) Dobsonfly
- 6) Deer Fly

Answers:
 1. C
 2. B
 3. E
 4. D
 5. F
 6. A

Lake SWCD would like to thank Andrea Scherer and Sean Evans for their many hours of volunteer work this spring, including taking these images for our database. Sean will be heading to Ohio State this fall and Andrea will attend Linwood University.

LAKE COUNTY SOIL & WATER CONSERVATION DISTRICT

125 E. Erie St., Painesville, OH 44077

- 440-350-2730 (main number) •FAX 440-350-2601
- Toll-free •428-4348 ext. 2730 Madison/Perry
- 918-2730 Cleveland/Western Lake County
- 1-800-899-LAKE ext 2730 outside Lake County only
- Office Hours: Mon.-Fri. 7:30 am-4:00 pm*

•E-mail: soil@lakecountyohio.org

•Web site: www.lakecountyohio.org/soil

PAUL BOWYER, Stormwater Specialist	350-2092
PAM BROWN, District Secretary/Treasurer	350-2041
DAN DONALDSON, District Administrator	350-2030
CHAD EDGAR, Urban Stream Specialist	350-2032
BETH LANDERS, Education/Information Coordinator	350-2033
MAURINE ORNDORFF, Agricultural Programs Technician	350-5863
MATTHEW SCHARVER, Resource Protection Specialist	350-2031
AL BONNIS, District Conservationist, NRCS	437-5888
JOHN NIEDZIALEK, Western Reserve RC&D Coordinator	350-2034

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MEMBER OF:

- American Farmland Trust •Lake County Farm Bureau
- Nursery Growers of Lake County Ohio
- National Association of Conservation Districts
- Ohio Federation of Soil & Water Conservation Districts

AN EQUAL OPPORTUNITY EMPLOYER: All Lake SWCD and USDA programs and services are available without regard to race, age, gender, national origin, political beliefs, color, religion, disability, sexual orientation, or marital or family status.

The public is invited to attend Lake SWCD's monthly Board meetings, held the third Tuesday of the month at 7:00 pm at 125 East Erie St., Painesville. Meeting announcements appear under the public agenda in the News-Herald and on the Lake SWCD website. Please call in advance to let us know you will be attending.