Litzsinger Road Ecology Center

Community Newsletter

9711 Litzsinger Road • Ladue, MO 63124 • Phone (314)442-6717 • www.litzsinger.org

First Hedgehogs, Now LIONS?

By Bob Coulter

Confounding our efforts to remove invasive species, we have another exotic species roaming the Litzsinger landscape. Back in September I referred to the hedgehog concept of sticking to what we can do well instead of acting fox-like, browsing far and wide in search of things to do. In particular, I mentioned four areas that we could use as anchors for our programs: Place based education, work grounded in authentic contexts, school partnerships, and data tools.

As some of you know, the National Science Foundation recently awarded us a 3-year grant to develop and deliver LIONS (Local Investigations of Natural Science), a program for students in grades 5–8 in the University City schools. Through LIONS, we will be providing professional development for 28 district teachers on ways to use the local community to advance student learning. Building on the workshops, teachers will lead students in after-school and summer projects in and around their local schools. Examples of local projects we hope to support include urban forestry studies and creek monitoring. Students will also participate in global projects such as Journey North's 'Mystery Class' project in which students use what they know about their local community as a point of contrast in identifying the location of 10 mystery sites around the world. Since strong math skills are also critical to success in the sciences, we will be supporting several community-based math projects as well.

Projecting forward, this work provides a chance for the intellectual resources of the Center to take root in the community, and potentially bring more U City school kids to Litzsinger during the school year for our field lab programs. We will also benefit greatly from the partnerships this project brings us. Aside from the school district, we will be working with Washington University on the teacher professional development, American

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Inside this issue:

Upcoming LREC Events:

LREC Ecology School
November 30, 1–3pm. At Glass House. Topic: Missouri's terrestrial natural ecosystems. Call Eddie at (314)256-9418 to participate.

LREC Stream Team
December 5, 9–11am. Monitor water chemistry. Call Jennifer at (314)961-4410 if you plan to attend.

Upcoming Opportunities:

Glass in the Garden extended!
Through January 1, 2007 at the Garden. If you haven't had a chance to see the marvelous Chihuly glass sculptures at the Missouri Botanical Garden, now you can. Both daytime visits and special "Chihuly Nights" are available. For more information call (314)577-9400 or go to www.mobot.org/chihuly.

Gardenland Express
November 22, 2006 through January 1, 2007 at the Garden. Come see the annual holiday flower show and model train exhibit. This year's theme is traveling west from the Midwest to Hollywood. For more information call (314)577-9400 or go to www.mobot.org.

Ecology School, Part 1

By Mary Voges

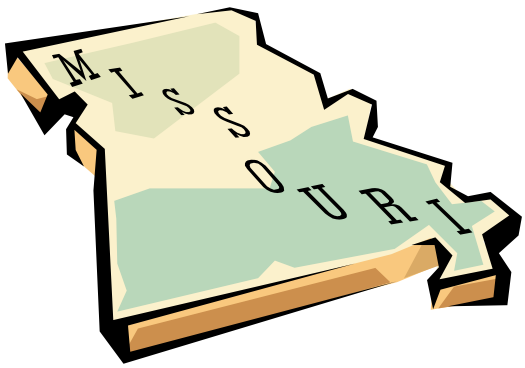
On October 26th, our first Ecology School class, made up of nineteen volunteers and staff, was held at the Glass House. Approximately seven classes will be held from October thru May 2007, in order to bring to light ecological understanding of restoration in Missouri.

Eddie Jones and Malinda Slagle began the class with an overview of the Missouri biogeography consistent with information in *The Terrestrial Natural Communities of Missouri*, one of two books provided in this class. The other suggested book is *The Tallgrass Restoration Handbook* that will be used as a reference manual as we delve further into Missouri prairies.

Thursday's class introduced us to the physical attributes making up Missouri's biogeography, including: ecological sections and subsections, elevation, average precipitation, and climate. Also discussed were rock formations throughout the state, glaciated areas, bedrock, and limestone substrates. The history of Missouri's waterways and relevant geological patterns were cited and discussed. Weather and climate changes were talked about, along with natural events, such as earthquakes, tornadoes, and floods, and the impact of such occurrences on Missouri's natural communities.

Future classes will discuss our state's ecosystems, woodland, prairies, streams, and the whys and hows of restoration.

Please find the schedule for LREC Ecology School as an insert to this newsletter. Your participation is welcome. Please contact Eddie Jones at (314)256-9418 or eddie.jones@mobot.org if you are interested in participating.



Kudos & Welcome

By Bob Coulter

Congratulations, Heather!

In recognition of her contributions in expanding our outreach to schools, Heather Wells-Sweeney has been promoted from Instructor to School Partnership Coordinator. Kudos!

Welcome Sean Fears!

On October 30th, Sean Fears joined the LREC team as School Partnership Coordinator. He comes to us with three years of experience working with urban youth through several projects in north St. Louis, and as a program leader in the AmeriCorps VISTA program. Sean and Bob have worked together since 2004 on several state-level projects building 4-H programs' capacity to improve their local communities. We're looking forward to the contributions he will make to the team.

A Metamorphosis Tale: On the Wings of a Dragonfly

By Jennifer Brown

The fall macro-invertebrate monitoring report is in thanks to the help of a few of the members of the LREC Stream Team (see acknowledgement to all LREC Stream Team participants at right) and we found some exciting organisms not previously noted in our sampling. Dragonfly and damselfly larvae are classified as "moderately pollution tolerant" organisms, which was exciting to find since many of the organisms we typically sample are those that are classified as "pollution tolerant" and thus, not considered as high of quality as these recent finds.

Dragonflies and damselflies are in the same order of macroinvertebrates called *Odonata*. They fill similar roles in the aquatic and terrestrial ecosystems they inhabit and they each have three-part life cycles, consisting of egg, larva, and adult stages. Depending on the species and environmental temperatures, the egg stage typically lasts anywhere from one to eight weeks. Some eggs can over winter, in which case, their development is delayed during the winter and completed in the spring.

Larvae emerge from the eggs and spend their lives growing and developing underwater in the bottom of stream beds,

See **Metamorphosis**, page 4

Special thanks to everyone who has helped out in various ways to make the LREC Stream Team a success this year:

Volunteers

Dale Albers — macros

Nancy Solodar — water chemistry

Jerry Lehman — macros

John Solodar — mapping

Jon Lawrence — mapping & water chemistry

Ron Nimmer — water chemistry & mapping

Ray Potter — mapping

Staff

Jennifer Hoffman (intern) — macros & mapping

John Lee (intern)

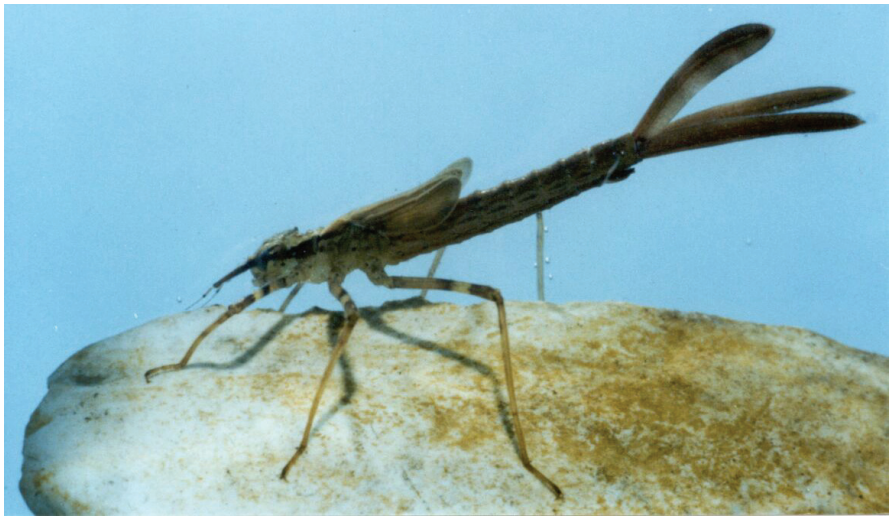
Jack Connor (intern)

Heather Wells-Sweeney & ERC — mapping

Malinda Slagle — macros

Martha Schermann — water chemistry

Dragonfly larvae (below left) obtain oxygen through 60 to 80 gills located inside the abdomen, while damselflies (below right) rely on their three long tail-like projections at the end of their abdomens .



Metamorphosis, from page 3

ponds, lakes, and other types of slow-moving water bodies. Amazingly, the larval stage can last anywhere from one month to five years, varying on the species and certain environmental conditions. During that time period they grow by molting and shedding their exoskeletons anywhere from eight to 17 times before reaching maturity!

Both dragonflies and damselflies play an important role in aquatic food webs. As larvae they behave as either sit-and-wait predators or active hunters and detect their prey by sight, touch, or vibration. They use specialized extendable lower lips (equipped with hooks) to capture aquatic insects (especially fly larvae) as well as crustaceans, worms, snails, tadpoles, and even small fish. Fish, birds, frogs, turtles, and other insects in turn eat the larvae.

When the time is right, dragonfly and damselfly larvae undergo metamorphosis by crawling onto a branch, rock, or some other terrestrial support and emerge from the last larvae skeleton as an adult. Cast skeletons, called exuviae, are often found clinging to wetland or riparian vegetation.

As adults, these creatures take to the skies and their masterly flying and hunting skills makes them top predators in the insect world. Often referred to as "mosquito hawks" these opportunistic predators are one of the main natural forces keeping the populations of some of the bothersome insects like mosquitoes, gnats, and flies, in check. They also prey upon just about anything else they can catch including ants, butterflies, moths, other dragonflies and damselflies, and in some rare cases hummingbirds!

Come spring, keep your eyes out for these two remarkable insects cruising around the riparian and prairie areas of LREC. Once they emerge as adults they generally only live two to four weeks, a relatively short period compared to the amount of time spent as nymphs. Exceptions occur in 16 of the 43 species of dragonfly and damselfly species known in North America that carry out migrations very similar to bird and butterfly migrations, in which case they can live for months.

Not very much is known about the dragonflies and damselflies of LREC, so perhaps we can all begin to pay special attention to them once the weather starts to warm up. The best way to tell the difference between these two types of insects is dragonflies typically land with their wings spread out, whereas damselflies hold their wings more closed and parallel to their bodies. For now we can find comfort in knowing that these fascinating creatures, which are among some of the oldest living creatures on earth, are lying in wait in the waters of Deer Creek and will arise with wings to greet warmer weather with their dazzling color and agile speed.

Reference Recommendation: Stokes' *Beginner's Guide to Dragonflies*

LIONS, from page 1

Forests on urban forestry studies, and the Jane Goodall Institute on service learning projects. We will also expand our relationship with Environmental Systems Research Institute on the use of data tools with students, and with PEER Associates on program evaluation.

This represents exciting new work for the Center, and a chance to extend our efforts to bring place-based education into local schools. If you see LIONS wandering around U City, don't worry...they're ours, adding to the community's environmental health.