

# Litzsinger Road Ecology Center

## COMMUNITY NEWSLETTER

www.litzsinger.org

### in this issue

- 2 Adventures in Phenology
- 3 Teacher Resource: Discover Nature Schools
- 4 Monitoring Deer Creek
- 5 Glass House Quiz: Investigating Elms
- 7 Cheers for Volunteers!
- 7 LREC Announcements
- 7 Local Events

October 2011

## St. Louis: The City of...?

by Bob Coulter

While I was on vacation earlier this month I came across *The Spirit of Cities*, an interesting book by Daniel Bell and Avner de Shalit. In it, the authors claim that great cities have a dominant identity: Jerusalem is the city of religion, Oxford the city of learning, and New York the city of ambition. What should we say St. Louis (or your particular suburb) is the city of?

Going further, what could it be? A green city? A sustainable city? And, how can we work with the kids to make that a reality? You're off to a good start by taking the kids out of the classroom and giving them meaningful work to do in and around your schoolyard. As you do this, be sure to focus on the big picture goals of giving the kids a voice in the planning

and design of the projects, and in evaluating how well they are doing. To guide your efforts, the National Youth Leadership Council has guideposts online at <http://tinyurl.com/nylc-standards>.

As work like this becomes the norm in your school, the kids will have multiple experiences with making a difference in the community, building St. Louis toward a better future. We look forward to sharing the journey with you. ✨

LREC staff and volunteers use kick nets to collect macroinvertebrates from Deer Creek. Learn more about water quality monitoring at LREC on page 4. Photo by Danelle Haake.





# Adventures in Phenology

*We did that last week! ...and the week before and the week before...*

by *Eddie Jones*

What color is the sky? the ocean? your garden? that big tree? These questions can be hard to answer because those things change; sometimes in a moment, often with the seasons or time of day. It is quite possible to visit the same outdoor spot at different times and encounter very different scenes. If this happens, then you are observing phenology.

---

*“If you want an adventure in nature, take the same walk that you took yesterday, and do so again tomorrow.”*

—John Burroughs

---

Phenology is the observation and study of natural events and cycles and how they relate to seasonal and climate changes. Apple picking, eagle watching, leaf raking, and lawn mowing are human activities associated with phenology.

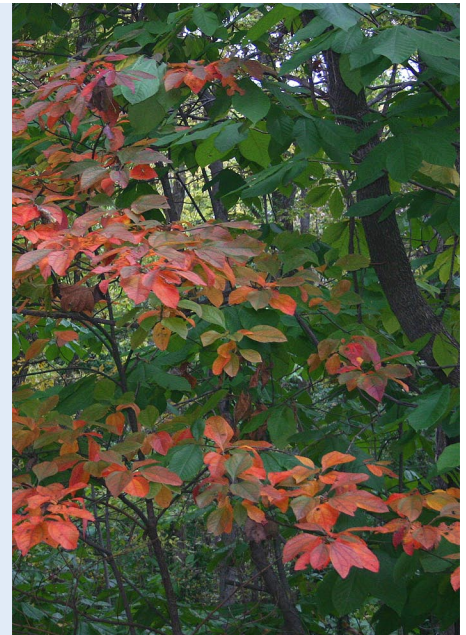
How far must we travel to investigate phenology? The ideal distance is most likely the shortest: right

See **Phenology**, page 6

## Phenology Study Activities

These activities are from the Earth Partnership for Schools lesson “Phenological Nature Walks”:

- 1) Take a neighborhood walk once a week. Walk the same route. What changes do you see week to week? Things to look for, note, discuss:
    - What’s the weather like?
    - What sounds do you hear?
    - What do you smell?
    - What do you feel?
    - What animal and insect clues to you see and hear?
    - What is going on with the plants that you see?
    - What do you see other people doing?
  - 2) Once you have made some observations, try to interpret them. What might cause the changes that you observe from week to week? Do you notice any patterns? Try this:
    - Draw a picture of something you find interesting on you walk.
    - Create a poem inspired by your phenological discoveries.
    - Create a phenology journal of your experiences.
    - Take a walk in different ecosystems; compare similarities and differences.
    - Design a phenology calendar\* and record observations throughout the year.
- \* One special kind of phenology calendar is a phenology wheel: “a circular journal or calendar that encourages a routine of Earth observation where you live. Single observations of what is happening in the lives of plants and animals made over time begin to tell a compelling story—your story—about the place on our living planet that you call home.” Learn more about the wheels, by searching for “phenology wheels” at <http://www.earthzine.org>.



Changing leaves in the LREC woodlands. Photo by Colleen Crank.





# Teacher Resource: Discover Nature Schools

by *Eddie Jones*

**A**s an educator, how do you achieve formal learning goals, help students enjoy and appreciate learning, promote a sensible environmental ethic, teach a fundamental understanding of local ecology...AND go outside? An innovative and accessible program—developed and made available by the Missouri Department of Conservation (MDC)—called Discover Nature Schools (DNS) may be the answer.

According to MDC, the “purpose of the DNS program is to promote conservation education through instructional units that meet grade-level expectations and encourage hands-on outdoor learning experiences. Each unit is designed to increase student understanding and appreciation of our natural resources and our role in conserving them.”

The three instructional units are aligned with Missouri Department of Elementary and Secondary Education guidelines. Each unit is designed for a specific grade range.

MDC provides teacher training along with a curriculum guide and student learning materials. Funding is available for additional

instructional materials and student field trip transportation.

David Bruns, local Conservation Education Consultant with MDC, partners with LREC to encourage teachers to get outside with their students and become familiar with the natural world. He is a valuable resource for those teachers seeking guidance in outdoor and nature education. He can be contacted at [david.bruns@mdc.mo.gov](mailto:david.bruns@mdc.mo.gov).

LREC teacher partners from two schools are currently using the DNS units: Lisa Hastings and Amy Rehak, 4th grade teachers at McGrath Elementary (Brentwood); and Erik Taylor, science teacher at City Academy (Independent). All three have reported that the curriculum is teacher-friendly, relevant, and interesting.

All curriculum material can be previewed on the MDC web site at <http://mdc.mo.gov> (search for “Discover Nature Schools”). 🍂

## DISCOVER NATURE SCHOOLS Curriculum Units

### ***Nature Unleashed***

GRADES 3–5

Students develop a concept of ecosystem structure and function by investigating local ecosystems, recording and processing relevant observations made in the outdoors at school and other locations.

### ***Conserving Missouri's Aquatic Ecosystems***

GRADES 6–8

Students develop a deeper understanding of aquatic ecosystems and of how natural processes and human actions affect them. This is accomplished by investigating aquatic ecosystems.

### ***Nature Unbound***

GRADES 9–12

High school students will understand how all the pieces of their science knowledge are inter-related and to demonstrate how to connect those pieces to solve the puzzle of the natural world around them. Activities have been designed to be incorporated into, and to satisfy, the ecology components of a high school biology course.

### ***See How the Turkey Grows***

GRADES K–2

This unit is currently being field-tested.

# Monitoring Deer Creek

by Danelle Haake

If you have been looking at our “LREC Announcements” each month, you will have noticed that every month there is at least one date listed for water quality

monitoring. Water quality data have been collected at Litzsinger Road Ecology Center by trained volunteers with the Missouri Stream Team program since 1996.

For the past four years, our team of staff and volunteers has collected water chemistry data on a monthly basis at seven sites within the watershed. The group has also monitored the diversity of aquatic macroinvertebrates (water bugs) at LREC twice a year for several years. These data are submitted to the Missouri Stream Team program for use in assessments by the Missouri Department of Natural Resources and the Missouri Department of Conservation. The data are also shared with the Deer Creek Watershed Alliance to fulfill part of their monitoring requirements for a water quality grant.

We have been finding that the conditions in Deer Creek are highly variable, both over time and across the watershed. For example, dissolved oxygen in a typical, natural stream is generally between 5 and 12 milligrams per liter; over the course of our study, we have found concentrations ranging from 1 to 28 mg/l. While this should not have any effect on the safety of the water for us land mammals, it can create a very stressful environment for aquatic organisms. Imagine if the air we were breathing changed its concentration of oxygen!



Top: LREC staff and volunteers check their nets for macroinvertebrates. Bottom: Staff and volunteers identify the collected macroinvertebrates. Photos by Danelle Haake and Eddie Jones.

See **Monitoring**, page 6



# Glass House Quiz: Investigating Elms

by Danelle Haake

This summer, intern Amy Catalano shared with us her great enthusiasm for trees. For her research project, she inventoried all of the American elm and slippery elm trees here at Litzsinger Road Ecology Center. She identified nearly 100 elm trees with a trunk diameter of at least five inches, recording the species of each tree and estimating their ages.

To determine the ages of several of the trees, Amy used a tool called an increment borer. The hollow tube of the increment borer is hand-drilled into the tree. Once the borer reaches the center of the tree, a small core of wood is removed from the center of the borer. On this core, the annual growth rings of the tree are visible and can be counted to determine the age of the tree.

We all enjoyed learning from Amy about the elms of LREC this summer and we are proud to pass some of this knowledge on to you in this month's *Glass House Quiz*!

## 1. What has decimated the elm population in the US?

- a) emerald elm borer
- b) northern elm necrosis
- c) Dutch elm disease
- d) elm leaf wilt

## 2. How does this pest or disease spread from tree to tree?

- a) root-to-root contact between trees
- b) transported by beetles
- c) transported by infected pollen
- d) both a and b

## 3. Which species of elm is more dominant at LREC?

- a) American elm (*Ulmus americana*)
- b) slippery elm (*Ulmus fulva*)
- c) Siberian elm (*Ulmus pumila*)
- d) a nearly even split between American elm and slippery elm

## 4. American elm and slippery elm can be identified fairly quickly by their bark. How?

- a) the outer bark of slippery elm is very smooth and can even feel slippery when damp
- b) when peeled away, the inside of American elm bark has brown and white stripes
- c) the inner bark of mature slippery elms smell distinctly like a wet dog
- d) American elm bark is a darker color and tends to have deep furrows



In this photo taken by her father, LREC intern Amy Catalano uses an increment borer to obtain a core sample of the tree.

See **Quiz**, page 6



From **Quiz**, page 5

Answers:

1. **c) Dutch elm disease.** The fungus causing Dutch elm disease was introduced in the 1930s on logs shipped from Europe.
2. **d) both a and b.** Though the fungus is most commonly transported from tree to tree by elm bark beetles, it can also spread between nearby trees via roots that have naturally grafted together, effectively joining the two trees.
3. **a) American elm.** According to Amy’s data, our mature elms include 57 American elm and 38 slippery elm.
4. **b) when peeled away, the inside of American elm bark has brown and white stripes.** The American elm is as American as an Oreo cookie! Meanwhile, the slippery elm is so named because of the texture of the inner bark when chewed.



The inside of American elm bark has brown and white stripes. Photo by Danelle Haake.

Sources:

Don Kurz. *Trees of Missouri*. Missouri Department of Conservation, 2003.

USDA Forest Service Pest Alert. “Dutch Elm Disease and the American Elm” ([http://na.fs.fed.us/spfo/pubs/pest\\_al/ded/elm.pdf](http://na.fs.fed.us/spfo/pubs/pest_al/ded/elm.pdf)). 🍂

From **Phenology**, page 2

outside your door. How does that nearby tree change in appearance from week to week? What is hiding under that rock or board today that wasn’t there last week?

So what color is the sky? Go outside with your students today and find out! ...and next week and the next... 🍂

From **Monitoring**, page 4

This past spring, we released a report called, “Water Quality in Deer Creek and its Tributaries: An Analysis of Samples Collected by Stream Team 2760.” The report has further information on our water monitoring findings, including information on dissolved oxygen, pH, chloride, temperature, nitrate, flow, fish, and invertebrates. You can download the report at [http://www.litzsinger.org/research/haake\\_deercreek.pdf](http://www.litzsinger.org/research/haake_deercreek.pdf).

We are always interested in having new volunteers join the water monitoring fun. Our second 2011 check of aquatic invertebrates will be held on Friday, October 7 from 1:30 until 4 p.m. We would be glad to have you join us! Or join us for water chemistry monitoring on Thursday, October 27 from 9 a.m. until noon. For additional details, please contact me at [danelle@litzsinger.org](mailto:danelle@litzsinger.org) or 314-961-4410. 🍂



This flathead mayfly nymph is just one of the many critters you can find while sampling for aquatic invertebrates. Photo by Danelle Haake.



# Cheers for Volunteers!

by Leslie Memula

Most of you reading this newsletter are familiar with the Litzsinger Road Ecology Center and you already know how important our volunteer team is to us. Nearly every day of the school year, we have teachers and students on site. Our dedicated Volunteer Educators show up rain or shine to lead small groups of kids through the center and to teach them about local ecology.

Working behind the scenes, no less important, are our Tuesday and Friday Horticulture Volunteers who perform a variety of tasks that directly affect our work with school groups. They collect seed for the students to sow in the greenhouse during the winter months, remove nasty invasive species like bush honeysuckle, make sure our trails are accessible and our site is safe...just to name a few.

Without this extraordinary group of people, the small LREC staff would not be able to serve the community as we do. We appreciate your continued support.

And a special kudos to Leo Ebel, Charlotte Manges, Ray Potter, and Nancy Solodar who have gone above and beyond in their commitment to LREC since the beginning of this school year! ✨

## LREC Announcements

### Invertebrate Sampling

on October 7, 1:30–4pm

### Water Chemistry Sampling

on October 27, 9am–noon

Meet at the Glass House. Contact Danelle Haake at 314-961-4410 or [danelle@litzsinger.org](mailto:danelle@litzsinger.org) if you have questions.

### Program Review for Volunteer Educators

Three dates to choose from:

October 20, 10:30am–12:30pm

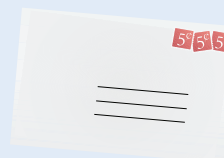
October 28, 10:30am–12:30pm

November 1, 10:30am–12:30pm

RSVP to Martha at 314-540-4068 or [martha@litzsinger.org](mailto:martha@litzsinger.org).

Please note LREC's new mailing address:

Litzsinger Road Ecology Center  
292 East Ave. Suite 28,  
Webster Groves, Missouri 63119-1702



## Local Events

October 1–31

### October Owls and Orchids

Daily at the Sophia M. Sachs Butterfly House. Enjoy extended hours during October to witness more than ten times the normal number of owl butterflies plus an amazing orchid display. Free with admission. Learn more at <http://www.butterflyhouse.org/>.

October 5

### Plants as Medicines: From Obsolete to Leading Edge

7:30–9pm at the Living World, Saint Louis Zoo. Learn about the past, present, and future contributions of plants to human health. Free. For more information call 314-646-4544.

October 11

### Innovations in Conservation: Planning for Natural Diversity in Urban Environments

7:30–9pm at the Living World, Saint Louis Zoo. Community Conservation Planner Angie Weber demonstrates projects, planning, and funding opportunities that restore natural diversity in the St. Louis area. Free. For more information call 314-646-4544.

October 20

### Science Café: “Wicked Plants”

7–9pm at Herbie’s Restaurant, 405 N. Euclid Ave. Discuss toxic plants and how people have used them throughout the ages. Free. Learn more at <http://www.slsc.org/AdultProgrammings/ScienceCafe.aspx>.

November 3

### Giants in the American Conservation Movement

5:30–9pm at the Living World, Saint Louis Zoo. Presentations about Aldo Leopold and Rachel Carson; David Sibley discusses field guides; panel discussion. Free but reservations required (314-516-6203). Details at <http://www.stlzoo.org/downloads/ConservationForum2011.pdf>.