

# Litzsinger Road Ecology Center

## Community Newsletter

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### New Beginnings

By Bob Coulter

**W**elcome back to a new school year. We hope you have had a restful summer, and perhaps an experience or two that will enrich your experience in the coming year. Summer at Litzsinger has been busy as usual, hosting summer programs for kids and workshops for teachers and 4-H leaders. Off site, Eddie Jones and Jennifer Brown traveled to Wisconsin with a group of four LREC teachers to learn about a new model for engaging students in schoolyard restoration projects. Through our National Science Foundation-funded LIONS program, we held a two week summer program for University City students, helping them to explore and learn about their community.

In addition to all of this program work, we have been working closely with our evaluators to integrate the thoughtful feedback many of you provided. Surveys and interviews with teachers, and small group discussions among volunteers have helped us to make sense of where we are meeting schools' needs and where we can continue to develop. Overall, five major themes emerged:

- Field work at LREC is becoming more integrated into what is happening at school and in the community.
- Outdoor exploration is engaging for students, and they are becoming more aware of conservation issues.
- Teachers working with us for more than one year are finding their programs improving and evolving each year.
- In many cases, more teachers within a school are engaging their students in programs, which helps "institutionalize" environmental studies in the school.
- Teachers find value in the staff and volunteer support they receive.

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#### Upcoming LREC Events:

##### LREC Stream Team:

##### Water Chemistry

September 6, 9-11am. Please contact Jennifer Brown at (314)961-4410 if you plan to participate.

##### New Education Volunteer Training

Begins September 11, 9am-3pm. Meets Mondays through November 12. Meet at the barn. If you know of a new recruit, have them call Jackie Juras at (314)577-5187. Veteran volunteers welcome.

##### Tallgrass Prairie

Beginning in September there are horticulture and education volunteer opportunities at Calvary Cemetery, the region's last remaining tallgrass prairie remnant. Please contact Heather at (314)255-2231.

#### Upcoming Opportunities:

##### Native Plant School- Prairie Reconstruction:

##### Seeding and Maintenance

September 6, 1-4pm. Whitmire Wildflower Garden at Shaw Nature Reserve. \$12 (\$8 for Garden Members). Reserve your place by calling (636)451-3512.

# An Invitation to Participation in Education for Restoration

By Eddie Jones

*re•store* : transitive verb

1. **give something back:** to return something to its proper owner or place
2. **return something to previous condition:** to bring something back to an earlier and better condition
3. **energize somebody:** to give somebody new strength or vigor
4. **acronym:** Restoration Education, Science Training, and Outreach for Regional Educators

**T**here's nothing like a good summer to restore the mind, body, and soul of a classroom teacher or an outdoor educator. Hopefully this summer has done just that for you. As I reflect on the word *restore*, I identify with each of the above definitions, both for the passing summer and the emerging school year. Let's take them in reverse order:

4. The *acronym*, RESTORE, is the name of an institute attended by Jennifer Brown and myself, along with four schoolteachers who are active members of the LREC community: Becky Bopp (McGrath School/Brentwood District), Kim Kearbey (Mann School/St. Louis Public Schools), JoAnn Ford and Debi Gibson (Maplewood-Richmond Heights Early Childhood Center). We institute participants are presently calling ourselves the "St. Louis RESTORE Team."

The vision of RESTORE is to "use native plantings and the process of ecological restoration on school grounds as a means



Photo by Eddie Jones

of placing education reform into core subject areas." RESTORE is a national expansion of Earth Partnership for Schools: a nationally recognized model for teacher professional development at the University of Wisconsin Arboretum in Madison. The EPS program has "contributed to improved teacher classroom practices, emphasizing inquiry-based learning, multiple intelligences, and

interdisciplinary connections in a hands-on, collaborative setting." For more information, see [http://uwarboretum.org/eps/restore\\_institute](http://uwarboretum.org/eps/restore_institute).

The St. Louis RESTORE team joined similar emerging teams from Oregon, Minnesota, and "Chicagoland" for a 2-week institute at the historic UW-Madison Arboretum. This

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1200-acre gem in the middle of Madison includes tallgrass prairies, savannas, several forest types and wetlands. The 60-acre Curtis Prairie, oldest of the ecosystem restorations, dates back to the 1930's when Aldo Leopold and his colleagues initiated the new science of restoration ecology. Included in the institute program was opportunity to observe schoolyard restoration projects that are more than 10 years old, learn from their community members, and become familiar with a tried-and-true restoration curriculum.

As an outcome of the institute, the St. Louis RESTORE Team is committed to connecting St. Louis school communities with nature through the development of native habitats on or near school grounds. The three schools represented on the team are already in the process of doing just that at their own schools, through the development and use of school gardens and native habitats by students and the surrounding school communities. In addition to their "real jobs," the team members are preparing to lead a summer '08 RESTORE Institute in St. Louis for educators in this area. Perhaps you would be interested in participating. Information is forthcoming.



Photo by Eddie Jones

As for the other three definitions of *restore*:

3. The team is definitely *energized* for the task of promoting the educational use of native plant habitats.

2. School communities will follow their lead in *returning* local ecosystems to a better condition.

1. The team also wants to *give back* to local citizens an appreciation of the land and a connection with the local ecology. Is there a better place

to start than with the children that attend the schools in our very own neighborhoods? ☞



Photo by Sean Fears

## What's That?

By Mary Voges

If you have recently been walking the firebreak along the south prairie, you might have noticed an orange, spaghetti-like vine twirling itself around some of the prairie plants. This web-like plant is dodder (*Cuscuta* spp.), also known as devil's-hair, witches' shoelaces, lover's knot, and tanglegut.

Although we mostly observe the orange stem of the native dodder (*Cuscuta indecora*), the filament-like stems can be green, orange, or yellow and covered with scale-like leaves. Flowers are small, pink, creamy, or white and bloom from late spring through fall. The fruit is about one-eighth inch in diameter and contains four seeds encased in a thick heat- and fire-resistant coat, allowing the seed to remain viable for many years. A single dodder plant can produce more than 16,000 seeds!!

Dodder is a parasitic plant, whose seedlings produce a tiny ephemeral root, but negligible amounts of chlorophyll and sugars and therefore must quickly locate a host plant to provide food. "Dodder seedlings that fail to find a host usually die in about 10 days," according to Dolin Purrington, associate professor of biology at Swarthmore College in Pennsylvania.

A most interesting plant to observe, it twines counter-clockwise searching for a host plant, coiling around everything in its path. Once a suitable host is found, dodder encircles it in a stranglehold. Adventitious rootlets called haustoria develop from tiny buds where the dodder stem touches the host. It then pierces the host and extracts carbohydrates, minerals, and water. Once the dodder twine has found a

healthy host, and no longer needs nutrition from the soil, the root dies off. The dodder vine can grow three to six inches per day, encasing plants in its string-like stems.

Worldwide, approximately 170 species are found and about 50 of these are found in the United States. The *Cuscuta* genus is on the Federal Noxious Weed List, although some native or widely scattered species are excluded from "noxious" status.

So...why are we, at LREC, not racing to eliminate this plant? Well, first of all, *Cuscuta indecora* is a native plant that has been on this site for years. I first noticed it years ago in the northeast corner of the south prairie, attacking the massive influx of giant ragweed. It

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seems to attach itself to some of the most obnoxious plants we have, such as wingstem, Japanese hops, tall goldenrod and ragweed, while leaving our most desirable prairie plants alone. Also, dodder reduces the height of plants, allowing light to penetrate the area and permit the growth of sought-after understory species.

And, you may ask, how does dodder locate its preferred host? A study done at Pennsylvania State University found that dodder was drawn to a host plant by detecting the airborne chemical compounds or volatiles released by that plant. What airborne chemicals? The ones that draw pollinators to flowers, produce chemical deterrents to pests, and lure predators of pests.

Here at LREC, we hope that, as students study prairie habitats and walk the area, they are introduced to dodder as a remarkably unusual plant that deserves our observation and discussion. ☞



Photo by Sean Fears

**Sources**

*The American Gardener*, July/August 2007. "Avoiding the Stranglehold of Dodder".

Yatskievych, George. *Steiermark's Flora of Missouri*, Volume 2: pg. 943.

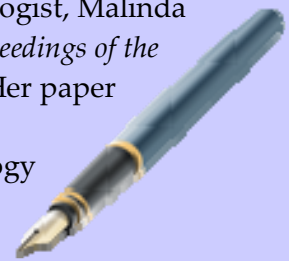
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Each of these, of course, is a broad generalization from the data we collected. In the coming year we will be working with each of you to be sure that we are using the Center's resources to best support your students' learning about and caring for the environment.

Again, welcome back. We're looking forward to a great year together. ☞

**Kudos!**

Congratulations to our Restoration Ecologist, Malinda Slagle! She will be published in the *Proceedings of the 20th North American Prairie Conference*. Her paper is titled, "Vegetation Survey of Prairie Reconstruction at Litzsinger Road Ecology Center" and was presented last year in Kearny, Nebraska.



## A New Spin on Site Research

By Heather Wells-Sweeney

**W**hat do seventh and eighth graders, salad spinners, and bees have in common? The answer is research.

For nine days in July, middle school students studied the ecosystems at the Litzsinger Road Ecology Center. The twelve participants were enrolled in a summer school program with Ladue Middle School science teacher, Hugh McMonigle.

The students embarked upon their studies that began with unstructured exploration and ended with student-driven projects. Although the culminating event was the students' mini experiments, the highlight was their participation in an authentic research project.

The students assisted Malinda with building a collection of bees to understand which species live at LREC. (See Malinda's article about bees and LREC's research goals on the next page.)

In the morning of the day of the research project, Malinda set up two transects—one in the prairie and one in the woods. (A transect is a straight line used for sampling, such as to count the occurrence of a species in order to estimate its

population size.) Along each transect she placed a plastic cup, or "bee bowl," every five meters. The cups alternated in color (white, blue, yellow) and were filled with soapy water. The idea is that the bees are attracted to the color and can't help themselves from flying into the soapy water.

The cups were left in place for several hours. In the afternoon, we hiked to the transects to collect the specimens. Each student had a specific task. The entire contents of the cup were poured into a filter and all the critters in the filters were transferred to labeled collection bags and transported back to the deck for washing.

How do the salad spinners factor in? The salad spinners are the latest in preparing bees for professional collections (Sam Droege of the USGS Native Bee Inventory and

Monitoring Lab created this fun, student-friendly protocol.) Bees' bodies are covered with long hairs that get matted when wet. Normally insects preen themselves to straighten out the hairs; but, our bees—having succumbed to their fates via the "bee bowls"—were no longer capable of this task. To correctly identify the bees, only fluffy-haired bees will do. So, we spun them. In salad spinners.

Serving as data collectors and specimen processors, the teens helped us to learn about the bees of LREC and to meet the research goals of the site. We collected 13 individual bees that the students processed in the way that professional entomologists do. Teens were doing real scientific research using real-world techniques! 🐝



# Why Collect Bees?

By Malinda Slagle

**W**hy collect bees? Bees are the most important

pollinators in Missouri.

Pollinators move pollen from the anther (the male part of the flower) to the stigma at the top of the pistil (the female part of the flower), uniting them to fertilize the seeds. Bees are such good pollinators because they are the only group that actively collects pollen from flowers.

Bees that collect pollen are females, most of whom live by themselves, lay their own eggs, and dig their own nests in the ground. Only female bees can sting and they only do so in

self-defense. Male bees drink nectar and wait at flowers for females.

Of the more than 400 kinds of bees that live in Missouri, only honeybees, bumble bees, and a few kinds of sweat bees are social, living in colonies. Because bees are small and their identifying characters are very small, it's hard to monitor bee populations. So, we need to collect bees so that we can learn about them and teach students about them because they're very important.

Currently, our research efforts include collecting bees from flowers once a month in the


prairie and woods. We are expanding to include collecting bees using bee bowls once a month in the prairie, woods, and creek. 



Photo by Sean Fears

## Research Goals of LREC

### Short-term Goals

- To evaluate the effectiveness of techniques used for restoring ecosystems.
- To study the dynamics of urban watersheds, particularly that of Deer Creek.
- To examine the effects of humans on ecosystems and understand the role of humans as a part of ecosystems.
- To better understand population dynamics, individual life histories of organisms living at LREC, interactions between organisms, and interactions between organisms and their environment.

### Medium-term Goals

To share information about ecology, restoration, and watersheds with the public and scientific community, resulting in improved ecological restoration practices and watershed planning.

### Long-term Goals

To increase the connection of people with ecosystems resulting in an increased number of natural spaces in the community.

## **Missouri Department of Conservation Grant Opportunities for Teachers**

### **Conservation Field Trip Grants**

This grant program distributes up to \$700 to public, private, parochial or home-school educators interested in taking students on field trips related to fish, wildlife, and natural habitats. This program promotes learning experiences which support science and other academic concepts being taught in the classroom. Field trips are not restricted to Conservation Department sites; however, field trip sites must be related to fish, wildlife, or natural habitats. Applications are accepted on an ongoing award basis September 1, 2007 through March 1, 2008, or until all funds are awarded. Go to <http://mdc.mo.gov/teacher/grants/>.

### **Outdoor Classroom Grant**

This grant program distributes up to \$1,000 to public, private or parochial schools interested in developing or enhancing an outdoor learning site, either on school grounds or at a nearby location. This program promotes interdisciplinary, hands-on instruction through conservation education in the out-of-doors. In addition, this program encourages awareness, appreciation, knowledge and active conservation of natural resources, including native vegetation, wildlife, and wildlife habitat. Applications are due March 14, 2008. Awarded projects must be completed by May 8, 2009. Go to <http://mdc.mo.gov/teacher/grants/>.

### **Community Stewardship Grant Program**

The objectives of the Community Stewardship Grant Program are to provide support for open space management, wildlife habitat improvement, and community land stewardship, and to engage urban residents in community conservation through volunteer efforts to improve open space.

Funding is available to non-profit organizations, parks departments, and other land management entities, and volunteer groups within the St. Louis metropolitan area (St. Louis City, St. Louis County, St. Charles County, and northern Jefferson County). Potential projects might include native plant restorations on open spaces which were previously mowed or unmanaged, volunteer-based trail building or tree planting projects, or exotic species control. Grant requests should not exceed \$15,000, and preference will be given to projects that involve cost share or in-kind contributions.

MDC will be accepting grant applications through November 2, 2007 for projects that fit program criteria. For more information about the Community Stewardship Grant Program, contact Erin Shank at (314)301-1500.

Go to [http://www.mdc.mo.gov/areas/stlouis/stew\\_grant.htm](http://www.mdc.mo.gov/areas/stlouis/stew_grant.htm).