

Litzsinger Road Ecology Center

COMMUNITY NEWSLETTER

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January 2015

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Students at Kennard Classical Junior Academy introduce Missouri native plants to their schoolyard. Learn about what other school partners are doing on page 2. Photo by Eddie Jones.

Making Makers?

by Bob Coulter

In a recent field experience with fourth graders, we were using hand-crafted clinometers to measure tree heights. Using this 'highly sophisticated equipment' (a small triangle of poster board and a straw purloined from a local fast food restaurant), students worked in small groups to identify and measure what they thought would be the tallest trees on site here at LREC. By itself this was an interesting project for the kids, teacher, and volunteers, but the excitement the kids had also offered a window into a larger issue: the ways in which creating something—in this case, a tool for measuring trees—empowers us and gives us direction.

Sadly, this is not a common experience for many. As schools continue to move toward pre-packaged curriculum and overly restrictive safety policies, the work you do to create spaces where kids can actually create becomes much more important. Whether the kids are crafting measuring tools, designing models and simulations, or collaboratively building a

native plant garden, you are giving them a space to be a maker rather than a consumer. This is good. Keep at it. Let us know how we can help... 🌱



Partnership Updates

by Eddie Jones

Each season, participating teachers submit a record of their studies with their students. Here are some excerpts:

Sixth grade:

Writing class went outside to observe and gain inspiration for writing a descriptive paragraph. Students were to look for patterns, shapes and the juxtaposition of nature and the urban environment.

Fifth grade:

The fifth graders are immersed at the beginning of the year in an environments unit that involves them exploring and studying our outdoor space. They make intentional observations, note topography and features of the area, and map it. They research an existing plant in the space, and then a plant they would like to have in the space. They then complete a poetry assignment on one of the plants they have researched.

Fourth grade:

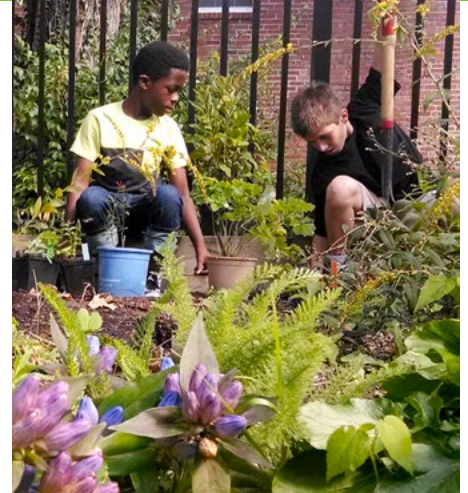
Apart from the school garden, we have also started a school stream team in support of our 4th grade goals for water quality, erosion study, watersheds and animal adaptation. To support this goal, we sampled macroinvertebrates in our adopted stream...

Third grade:

...explored the outdoor classroom/Atrium space at the start of the year, creating a list of items observed (with both illustrations and text); after introducing our animal architecture unit we visited the outdoor classroom/Atrium to predict places animal were building, or could possibly build and for what reasons.

Second grade:

...planted native Missouri plants in Outdoor Experience; identified plant parts and their jobs; field harvested seeds and sorted seeds. Activities support Science goal: Identify the parts of a plant and their functions and what plants need to grow.



Top: Central Christian School fifth graders add shade-tolerant plants to their student-designed schoolyard. Middle: Holy Cross Academy second graders enhance their expansive schoolyard habitat called "The Outdoor Experience." Bottom: Fifth graders discover a really cool caterpillar next to the schoolyard prairie at Chesterfield Elementary. Photos by Eddie Jones.

See **Updates**, page 3

From **Updates**, page 2

First grade:

Students collaborated across classes to discuss various plant parts eaten at school (roots, stems, leaves, seeds and fruits).

Teachers: The next Seasonal Partnership Update is due **February 18, 2015**. Please keep a sample of student work/photos to share with us along with the update. Thank you!

Kindergarten:

Our activities so far have included walks around our own schoolyard, observing, sketching and reflecting on our experience afterward. Children have been very interested in the colors and changes of the seasons and have been creating artistic representations of autumn leaves.

Pre-school:

We have been spending a lot of time working in our outdoor and wild wood areas. We worked with the art teacher to create shretelech houses near our prairie area. [Note: Shretelech are “little people”, i.e. ieprechauns, elves, or fairies. Learn more about Shretelech houses in our [December 2014 newsletter](#).]

In summary, teachers and their students have been engaged in, among other things, outdoor place-based education: achieving curriculum goals, investigating the schoolyard as habitat and partnering with their local community. ❧



Leslie and visiting students watch wildlife at the feeder. Photo by Danelle Haake.

JANUARY

by Martha M. Schermann

Jumping

Around

Nature

Unleashes

Awareness

Remembering

Youth



Second graders at Saul Mirowitz Jewish Community School arrange plants in a new native habitat outside their classroom windows. Photo by Eddie Jones.

Student Project Highlights: Sustainable Schoolyards

by Deanna English

The student project highlights that you read about each month come about because of our amazing partner teachers. While many, if not most, of these students projects would happen without us, there are many opportunities for teacher support here at Litzsinger Road Ecology Center. We like to think these opportunities help to move our partner teachers to a different level than what they might feel they can achieve on their own. As we enter a new year, I thought I would focus on one of those areas of support.

Sustainable Schoolyards is a five-day workshop LREC offers each summer for teachers who have partnered with us for at least one

year. This workshop is the second partnership workshop we offer. When teachers first start working with us we ask that they take a three-day summer workshop entitled *Effective Outdoor Learning (EOL)*.

Sustainable Schoolyards expands on three areas introduced in the *EOL* workshop that we have found are crucial for continued success with effective outdoor place-based education. These three areas are curriculum integration, schoolyard habitats, and community partnerships. During the *Sustainable Schoolyards* workshop we continue to support our teachers in these areas while expanding that support to include

beginning work on teacher and student created outdoor learning spaces with native Missouri plants. Personally, I love this time for the teachers, students, and Litzsinger Road Ecology Center staff.

During the *Sustainable Schoolyards* workshop a community begins to develop between the different partner schools. To support and encourage this community we offer monthly afternoon enrichments and one all-day winter meeting. Each month *Sustainable Schoolyards* teachers are invited to a different host school. Along with visiting the host school's outdoor space, we focus on seasonal happenings in the garden such as seed collecting, planting, and plant identification and how these activities tie to their curriculum. We also bring community partners in to speak to our teachers so they have the opportunity to find support beyond Litzsinger Road Ecology Center. This year we had our first seed swap and several of our schools have gotten together to start a phenology project so their classes can share and compare



Sustainable Schoolyard alumni take part in an enrichment held at Kirkwood United Methodist preschool. Photo by Eddie Jones.

See **Sustainable**, page 5

From **Sustainable**, page 4

observations about weather, plants, and animals with other schools and LREC. Our January all-day meeting here at Litzsinger Road Ecology Center will give us more time to dig deeper and build an even stronger foundation.

All of these opportunities help our teachers and their students by celebrating accomplishments, brainstorming solutions, sharing spaces, gathering ideas, sharing resources, and most importantly creating a community of motivated and talented professionals who are working to give their students the best possible experiences.

I look forward to sharing more stories about the accomplishments of our different partner schools and looking forward to seeing more of you at our *Sustainable Schoolyards* workshop this summer. (Please note: teachers may only participate in *Sustainable Schoolyards* as part of a **team of two or more teachers from their school**; teachers are not eligible to participate individually.) ✂

REMINDER: Our all-day January winter meeting for *Sustainable Schoolyards* graduates is **Friday, January 30 at LREC**. If you are a *Sustainable Schoolyards* graduate, are interested in attending, and have not yet sent an RSVP, please do so we can plan for you.

HORTICULTURE & RESTORATION OFFERINGS FOR SCHOOL GROUPS

by *Deanna English*

We are already starting the winter months with several rain events that come fast and heavy. During these wet weather events Deer Creek swells in size bringing interesting treasures from upstream and depositing them along our banks as the water recedes. Sometimes the items that travel downstream and end up at LREC are not what we want on site, in other words, trash.

Just like almost every child who visits LREC and our volunteers, the staff enjoys the opportunity to walk and explore the section of Deer Creek that runs through LREC. After a storm event has come and gone, and the water has gone down, we will periodically take the time to stroll along the creek bed and collect trash that has accumulated along the banks. It's fun, social, and productive, and we often find interesting natural treasures and observe how the stream bank continues to change. If you or your students would like to help clean the creek as part of your visit to LREC, please let us know. We'd be happy to have you join us in a cleanup while we take time to skip a few rocks, find some fossils and climb some roots to grab that stray plastic bag. It's super fun and a great way to learn about many things like erosion, fossils, and what lives in the stream.

If walking the stream doesn't fit into your plans to LREC there might be some other interesting opportunities you can find listed below. If any of these fit into your lesson plan, please contact us and we can arrange for you and your students to get involved.



JANUARY RESTORATION OPPORTUNITIES:

Stream cleanup—Cleanups available when the stream is at a safe level.

Stream monitoring—Stream monitoring kits are available and include dissolved oxygen, conductivity, pH, temperature (air and water), nitrates, turbidity, and chloride.

Invasive plant removal—We welcome opportunities to educate as students help us remove invasive plant species from the site.

Roots and plant structure demonstration—This activity introduces students to the purpose and function of roots and plant structures.

Seed sowing in the greenhouse—Learn about seed sowing and sow some plants in the greenhouse

Seed sowing outside—Help us spread seed and “stomp” it into the ground. ✂



Rain gardens are part of the landscape at Litzsinger Road Ecology Center. Photo by Danelle Haake.

LREC Research: Rain Gardens

by Danelle Haake

Over the past three years, I have been working with the Deer Creek Watershed Alliance to monitor the effectiveness of rain gardens in three areas of the Deer Creek watershed. This was an opportunity to participate in a project involving land uses in the areas upstream of Litzsinger Road Ecology Center that can influence water quality and water quantity here and in areas further downstream.

The rain gardens in this study

were placed in locations where the Metropolitan St. Louis Sewer District had noted a history of water problems; downhill landowners had problems with basement flooding and ponding in their yards. The goal was to collect the water in uphill locations and allow it to soak into the ground, keeping downhill areas drier. My role in the project was to maintain monitoring equipment at each of the sites, download the data regularly, and report the findings to the project managers. Data were

collected both before and after the gardens were put in place, so we have been able to see if there has been a decrease in the amount of water leaving the area.

The data were sent to Dr. Bob Criss of Washington University for analysis. According to the conclusion of his report (download a copy from <http://www.litzsinger.org/criss.pdf>), “Results suggest that lag times increased at two sites¹, and that peak stages in the culverts were reduced at all sites², for a given amount of antecedent rainfall. Runoff volume may have decreased at two sites following rainfall³.” (For explanation of each numbered statement, see below.)

It has been a pleasure to work on this project and it is good to know that the data support the use of rain gardens to help reduce the impacts of our paved surfaces. While no single study can prove the effectiveness of a technique, the evidence I have seen certainly lean strongly in favor of using rain gardens. If you are looking to put in a rain garden in your yard or at your school, get in touch and we can connect you with several great how-to resources! 🌿

1. Lag time is the amount of time between when rain begins to fall and when water levels rise; flash floods are partially a result of the decrease in lag time due to pavement conveying water more quickly to streams. An increase in lag time is a good thing.
2. Peak stage is the highest water level; lower peaks mean that either there is less water or that the water is passing by over a longer period of time.
3. A decrease in runoff volume indicates that the rainfall is being diverted, most likely into the soil within the rain gardens.

From the Glass House: Volunteer Highlights

by Amanda Topping

Despite the cooler (um, occasionally brisk) weather, managing our site keeps us busy all year. Land management tasks have been diverse and engaging, and our volunteers have been integral to their successful implementation. Regardless of season, our volunteers ensure our ability to both foster children's investigation of the natural world and nurture our site and restoration activities.

Our volunteers have helped us accomplish so much the last few

months. Native plants grown from seed were planted, transplanted, and kept viable for use at schools and here at Litzsinger Road Ecology Center. Seeds to supply mixes and new plantings—again for school and on-site use—were harvested, cleaned of chaff, and either stratified or stored. Various areas within LREC, such as the Savanna and North Edge, were weeded to thin invasive species like shrub honeysuckle and wintercreeper, selectively treated with herbicide, and planted

with additional native species. Restoration and education alike were supported via maintenance such as repairing sitting circles and bridges impacted by flooding and regular use, repairing benches, cleaning tools, and putting up cold frames. And an old friend was honored and remembered by planting a red oak.

To our volunteers: THANK YOU! Winter can't compete with how cool you are! 🌿

WELCOME NEW VOLUNTEER EDUCATORS!

by Leslie Memula

One of the highlights of each fall at Litzsinger Road Ecology Center is our Volunteer Educator training. We always become energized when meeting like-minded individuals who understand the importance of getting kids outside.

This year our class was made up of seven people who are already exploring the center with students! Please welcome **Marilyn Claggett, Margaret Grant, Karen Hermann, Jay Kridel, Deb Moulton, Cindy Strickland, and Mary Wentz** to our talented team.

Many thanks to **all** of our Volunteer Educators for making LREC such a special place for both kids and adults. 🌿



Top: Jay Kridel leads a school group in the prairie. Bottom: Cindy Strickland investigates a bug board with her students. Photo by Leslie Memula.

Glass House Quiz: Insect Adaptations to Winter

by Danelle Haake and Deanna English

It's that time of year: the days are shorter and the nights longer. Children arrive at LREC bundled up in hats, gloves, and boots. We find random gloves on the ground and wonder where their matches could possibly be. Volunteers and staff raise the hoods on our orange hoodies to fend off the wind and cold. We spend (or imagine spending) our evenings wrapped in a blanket by a warm fireplace drinking hot cocoa, coffee, tea... And when all else fails, we boost the heat on the thermostat and go about our business.



Ice covers stems in the Pasture Prairie.
Photo by Eddie Jones.

Insects don't have access to any of these methods for keeping warm in the winter, so we thought we would look at what adaptations the insects use in order to survive winter conditions: cold, snow, wind, radiation (light), and energy (food). We hope you enjoy venturing into insect winter adaptations. We've learned a lot.

- 1. During the winter, many insects go into a state similar to hibernation. What is this called?**
 - a) diapause
 - b) mawnpause
 - c) fauxpause
 - d) cryopause
 - e) thermopause
- 2. Several types of insects found in Missouri migrate in order to avoid winter. Which of the following do not migrate?**
 - a) monarch butterflies
 - b) green darner dragonflies
 - c) buckeye butterflies
 - d) Bumblebees
- 3. Many insects that 'hibernate' (see the answer to question one for the real word for this) create chemicals like glycerol in their circulatory system. What do these chemicals do?**
 - a) slow their respiration
 - b) make them taste bad to predators
 - c) prevent them from freezing
 - d) improve their ability to absorb heat from the sun
- 4. Some insects have a simple avoidance approach to surviving winter: they die. How do these insects still exist?**
 - a) they leave eggs behind
 - b) spontaneous regeneration
 - c) magic
 - d) they recolonize from somewhere else
- 5. We've mentioned insects that handle winter by 'hibernating,' migrating, or dying, but we do see insects outside periodically in winter. How do these survive?**
 - a) they avoid the worst of winter by hiding in trees
 - b) they burrow underground
 - c) they find a nice warm mammal with which to cuddle up
 - d) all of the above

See **Quiz**, page 9

From **Quiz**, page 8

Answers:

- 1. a) diapause.** Here's the best easy definition we could find: during diapause an insect's metabolic rate drops to one tenth or less, so it can use stored body fat to survive winter. Also many insects produce alcohols for antifreeze. Their bodies can supercool (reach temperatures below freezing) without forming cell-damaging ice. Source: <http://web.extension.illinois.edu/cfv/homeowners/071213.html>.
- 2. d) bumblebees.** Bumblebees mostly die off (their winter survival strategy) except a mated queen who creates a small nest in the ground just large enough for her. She spends her winter in diapause and emerges in the spring and finds a nesting site.
- 3. c) prevent them from freezing.** Glycerol acts as an antifreeze which allows the body fluid to drop below freezing without causing ice damage.
- 4. a) they leave eggs behind.**
- 5. d) all of the above.**

Source:

James C. Halfpenny and Roy Douglas Ozanne. *Winter: An Ecological Handbook*. Boulder: Johnson Books, 1989. 🐝



A bumblebee makes the most of summer in the prairie at LREC.

LREC Announcements

January 20

Volunteer Enrichment: Where Things are Located at LREC

1 to 3pm, meet at the Barn. Learn where you can find the sitting circles, various entrances to the creek, the location of the new proposed path, and more. Be prepared to be outside. If you'd like, come early with your lunch at 12:30pm. RSVP to Martha at 314-540-4068 or martha@lrec.net.

Local Events

January 13

River des Peres Watershed Coalition Meeting

6:30 to 8pm at the Green Center (8025 Blackberry Ave., University City, MO 63130). Learn about the coalition's activities and initiatives and make suggestions for future efforts. For more information, contact Eric Karch at 314-603-8834 or eric@riverdesperes.org.

January 17 and 18

Eagle Days at the Old Chain of Rocks Bridge

9am to 3pm at Columbia Bottom Conservation Area. Spotting scopes and knowledgeable volunteers will help you locate and identify eagles in the wild. Live eagle presentations begin at 10am and run every 20 minutes. No reservations required.

January 20

Starting Seeds Indoors

6 to 7:30pm at the Visitor Center in Forest Park. Learn what steps need to be taken to collect and prepare seeds for successful germination and eventual transplantation into your garden. Contact jturney@forestparkforever.org to register.