

Litzsinger Road Ecology Center

COMMUNITY NEWSLETTER

www.litzsinger.org

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*A young student makes a bark rubbing.
Learn about other winter learning
experiences you can try with your students
on page 2. Photo by Eddie Jones.*

January 2016

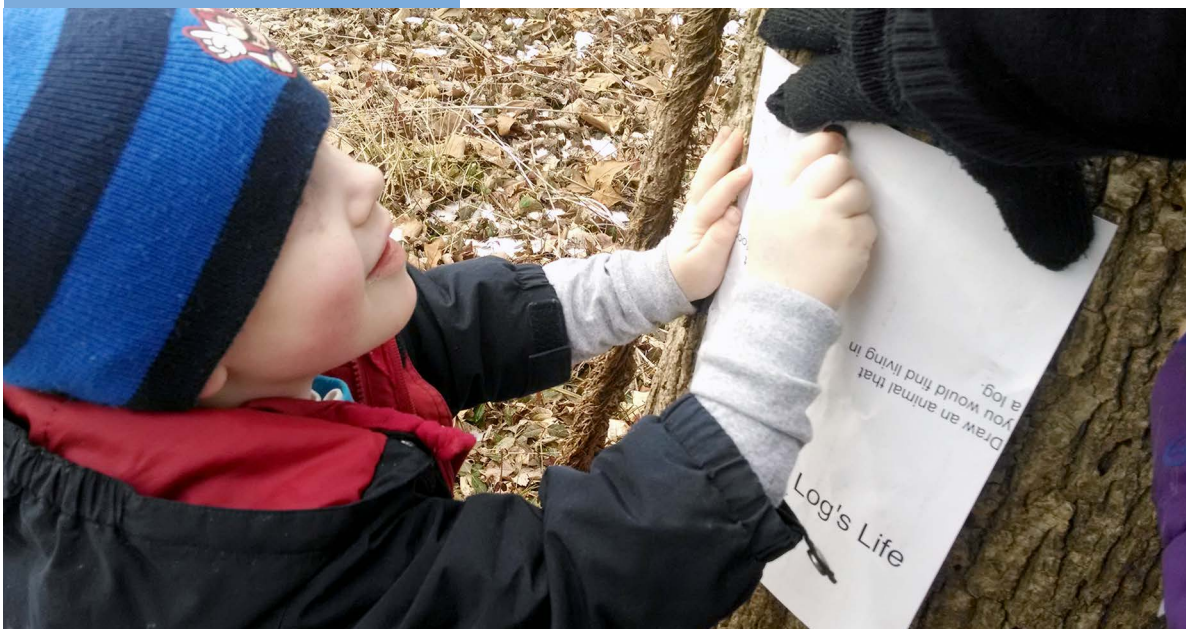
New Focus for the New Year

by Bob Coulter

As we move into a new year, I'd like to challenge you find a new interest that will grab and hold your attention. By getting started now, you'll have a chance to give your interest time to develop and inform your practice in ways that won't be possible during the summer, when your living laboratory of kids isn't available to you.

My current intrigue is how experiences literally rewire brains—ours to some extent, but kids' brains even more so. Within this broad field, I'm reading about how cultures sculpt the neural pathways that guide how we think and see the world. Applying this to school, how does a classroom focused on student-driven inquiry and shared leadership forge students' brains in ways that are different from what emerges in rote, authoritarian classrooms? While "neuroanthropology" can be off-putting as the name for a field, the implications for our teaching practice seem enormous given the potential for fledging different types of learners based on the learning culture we establish.

That's my current intrigue: What's yours? Drop us a note. Where there's overlap, we'll put you in touch with teachers who share your interests. 🌿



Activity Spotlight: A Selection of Winter Activities and Resources

by Leslie Memula

Upon returning from winter break, you may be tempted to hunker down indoors until the return of spring. But as a Litzinger teacher partner, you know the wonders that winter holds and the unique educational opportunities that await. This month I've decided to showcase a selection of activities especially suited for your schoolyard environment and the cooler school days ahead.

[“Enjoying Winter with Your Class”](#) by Gareth Thomson is from the book *Teaching Green: The Elementary Years*. Geared toward upper elementary grades, this lesson focuses on animals' adaptations to winter survival. It is a great learning tool not only concerning wild animals, but also for what it teaches students in regards to their own preparation for safely and comfortably exploring outside during the cold winter months. The different concepts discussed in this activity provide a variety of lessons that will beckon you to get outdoors with your students.

[“Exploring Your Site Through Color, Texture, and Pattern”](#) from the EPS (Earth Partnership for Schools) curriculum incorporates science, math and art. Younger students can investigate the different colors found on your school grounds and make bark rubbings from different trees. Older students can begin to distinguish dark from light or bright from dull and can begin to identify textures such as rough or smooth and hard or soft. Patterns, both those found in natural and human-made objects, can be explored and analyzed. I love the idea of repeating this activity in different seasons and also creating artwork using the different colors, textures and patterns found.

[“Catch a Snowflake,”](#) although geared for the younger crowd, sounds like a lot of fun. It comes from *Nature Unfolds*, a grades K–2 instructional unit available from the Missouri Department of Conservation as part of their *Discover Nature Schools* program. You can head outside during a snowfall and literally catch a snowflake (or two, or three...).



A bird's nest is just one of the things your students might spot on a winter scavenger hunt. Photo by Danelle Haake.

A dark piece of paper or felt, that has been in the freezer for a few hours, works best. Students can use hand lenses to examine their snowflake in greater detail and then sketch their snowflake in their journal. They can compare their snowflake with those of their classmates. Being outdoors is great venue for kids to think about their senses—what did it sound like... or smell like...or look like...or feel like? And how magical to be able to take advantage of a snowfall.

Another option for winter exploration is to take your students on a scavenger hunt. [“Things To Look for this Winter”](#) can prove helpful when you want to add a little bit of focus to your open exploration time. You may want to check out the [Who Eat's What Guide](#) so you know what to be on the lookout for as you venture outdoors and into your schoolyard habitat. 🐦

CALLING ALL TEACHERS!

LREC ALL-DAY TEACHER WORKSHOP

As a teacher who partners with Litzsinger Road Ecology Center, you are invited to attend a no-cost workshop to share nature education successes and challenges with like-minded colleagues. The workshop will be held **January 28, 9am to 3pm at Litzsinger Road Ecology Center.**

We will be inviting a few of you to more formally present some aspect of your outdoor teaching experience that will benefit your colleagues at other schools. LREC staff will provide some additional resources to extend your outdoor teaching skills and strategies for networking with other schoolyard educators. This workshop is open to all LREC teacher partners. Lunch is provided.

Let your Litzsinger contact person know if you plan to attend and if we can help you get release time for the day. Thank you!



LREC teachers investigating seeds.
Photo by Eddie Jones.

LREC Teacher Partnerships: What's New For 2016?

by *Eddie Jones*

Look into the future with us: every school in St. Louis has teachers using their local community, beginning with their schoolyard, for teaching and learning. *You* are a part of that future!

We are in this educational movement because:

- People are a part of the natural world.
- Access to local wild places enhances the quality of life.
- The outdoors provides rich learning opportunities year-round.
- Learners of all ages and backgrounds benefit from outdoor learning.
- All aspects of school curriculum are strengthened by outdoor learning.
- The local community can contribute to, and benefit from, outdoor learning.
- Teachers are agents of cultural change.

The LREC Teacher Partnership Program is intended to foster a dynamic community of outdoor place-based educators. This is accomplished as we:

- Provide a model urban wild space for teachers to practice outdoor teaching with a support team.
- Help teachers adapt their curriculum to outdoor learning.
- Guide teachers in the planning, development, management and monitoring of schoolyard habitats as a framework for teaching and learning.
- Facilitate the development of school-based teams and community partners that support effective outdoor learning.
- Develop and manage a support network for outdoor educators, including training opportunities and teaching resources.

See **Partnerships**, page 4

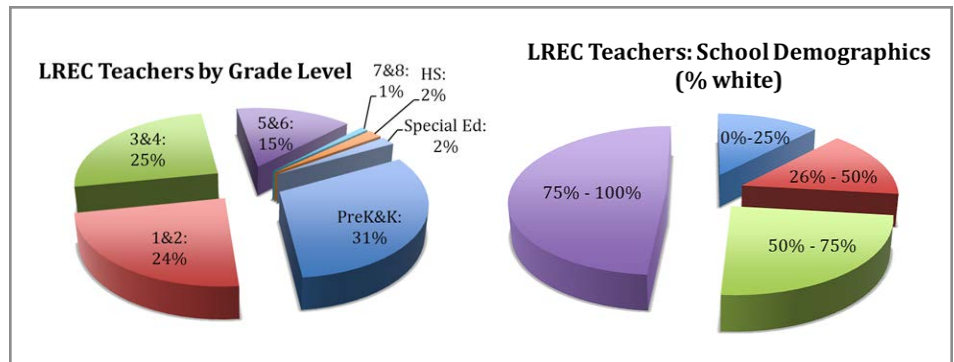
From **Partnerships**, page 3

In the current school year:

- LREC partners with 110 teachers at 45 schools in the St Louis region, representing 13 of the 24 school districts of St. Louis City and County. 12 of 45 participating schools (27%) are in the City of St. Louis. (Note: a [map of partner schools](#) can be found on our website.)
- 60% of the teachers serve in public schools.
- Most teachers visit LREC with their classes 2–3 times during the school year.
- 50% of the schools have a native plant habitat in their schoolyard.

As we assess our work this school year, we have been asking some questions:

1. How can we better assist teachers in becoming effective outdoor educators?
2. How do we continue to support current teacher partners while reaching out to new teachers?
3. How can we be more intentional about serving secondary schools and schools with limited resources and underserved populations?



Our discussions have led to the following plans:

Beginning this year, we will offer three 1-year teacher training programs, each with a summer workshop and school year activities at LREC and the school.

Two of the programs are already in place: *Effective Outdoor Learning* and *Sustainable Schoolyards*.

The new program, *Place-based Learning*, will provide training in interdisciplinary outdoor teaching and learning.

Teachers enrolled in any of these three programs will be given scheduling priority for LREC and school activities in the 2016–17 school year. Returning teachers who are not participating in one of these training programs will not be guaranteed LREC visits in 2016–17.

Instead, this last group of teachers will focus their outdoor teaching on their own school community, providing LREC calendar space for teachers in the training programs. While these teachers will decrease their use of the LREC site, they

will continue to make us of LREC resources and have opportunity to network with other effective outdoor teachers.

We all look forward to growing together as a community of educators and extending this opportunity to other teachers in the St. Louis region. This next year we will make a special effort to recruit teachers at secondary schools and schools with high minority enrollment.

2016 guidelines for current teachers will come your way before Spring Break. ✍

JANUARY

by Martha M. Schermann

Journaling

About

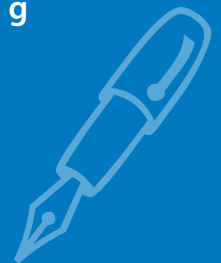
Nature

Uncovers

Areas

Remembering

Youth



LREC Research: Woodland Diversity

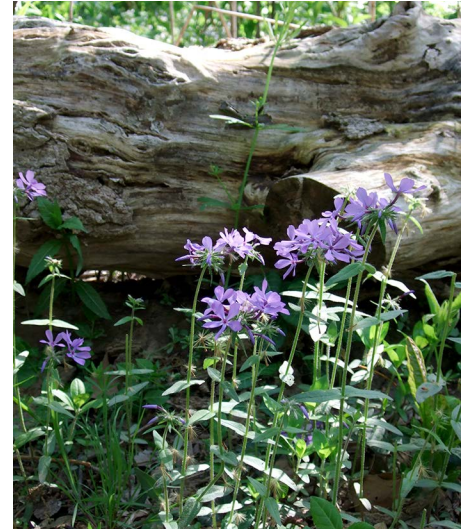
by Danelle Haake

Last month, I described the prairie monitoring we've been doing and the diversity of plants we've been finding. This month, we can do the same with our woodlands. While we have managed the prairies similarly over the past decade or so, the management of the woods has been a bit more spotty.

The North Woods has been in pretty good shape for at least eight years and has had a lot of attention when it comes to invasive species removal, burning, and sowing seed mixes. The Mulch Pile Woods has received substantial attention for the past five years or so. Until this fall, large portions of the South Woods has had minimal management other than trying to keep the bush honeysuckle out. Based on this information which area do you think will be the most diverse? Least diverse? Using a software tool called 'R', we are studying the diversity of our woodlands to see if the habitats are meeting our expectations.

There are several ways to measure diversity (Table 1). The simplest is to just count the number of species that are found in an area; doing this (first column of Table 1), we see that the South Woods has the most species and the Mulch Pile Woods the fewest. I don't know about you, but this is not what I would expect based on the level of effort we put into the different areas. But, as we learned by looking at the prairies last month, when we put more effort into counting species in one area than another (for example, when it is a larger area), we need to standardize our measurements. When we do this in our woodlands (second column of Table 1), the picture changes dramatically, with the North Woods having the largest standardized diversity.

Another thing we consider when looking at diversity is the similarity of the species to one another. To repeat the example from last month, if an area has ten species and six of them are coneflowers and the other four are sedges, that



Woodland phlox (*Phlox divaricata*).

is not really as diverse as an area with ten species that are each from a different group. When we take the similarity of the species into account (third column of Table 1), the pattern looks similar to the standardized diversity.

So what have we learned? The efforts we have put into improving and maintaining the North Woods over the last decade has paid off in the diversity of plants found in the area. If we want to have greater diversity in the Mulch Pile Woods and the South Woods, we are going to have to continue our efforts to control invasive species and add other species into the mix. Over the coming months, we plan to have opportunities for both volunteers and students to participate in the management of our woodlands! 🌿

	Number of Species	Standardized Diversity	Diversity Considering Species Similarity
North Woods	46	34.2	25.1
South Woods	67	29.5	22.3
Mulch Pile Woods	29	29.0	22.8

Table 1. Diversity in the woodlands of LREC. Data collected 2013–2015.

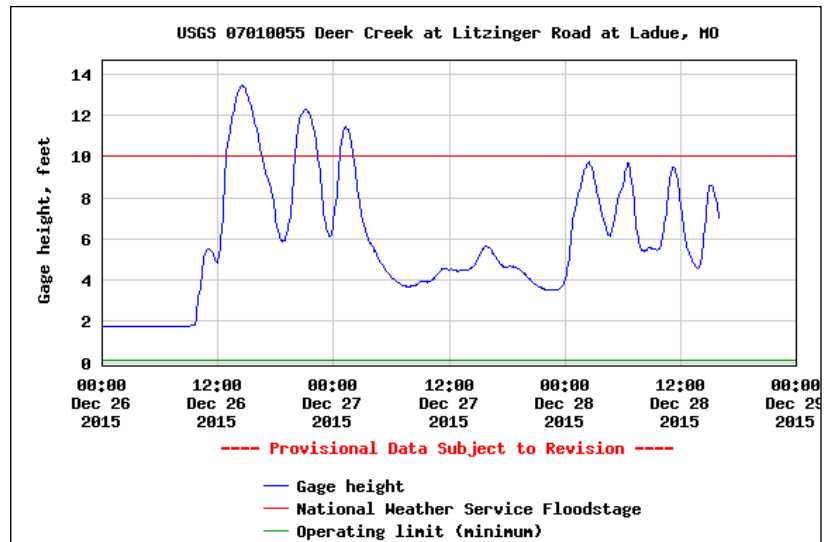
Christmas Week Flooding

by Danelle Haake

Rainfall has defined the final week of 2015 at Litzinger Road Ecology Center. Between 7 am on December 26 and 3pm on December 28, we measured 9.3 inches of rain. Deer Creek rose and fell rapidly several times in this 56-hour stretch. At its peak, the creek rose to 13.5 feet and carried 5,100 cubic feet of water per second. At this rate, the creek could fill three and a half Olympic-sized pools in one minute.

With all that rain, we are quite fortunate that we did not end up with flood damage in either the Barn or Cabin; however, some other parts of the property did not fare as well. It is not unusual for several of our bridges to be shifted by flood waters, but this time one bridge was washed away. Fortunately, it did not leave the property and was washed onto the bank a few hundred feet downstream. Also, one of our three creek overlooks was severely damaged and will need to be relocated after the waters recede.

The biggest changes from the flooding are in the stream itself. In just a quick assessment of the site when the water was still high, staff noticed at least six areas with substantial erosion (loss of at least one foot of stream bank and/or major trees). The most notable of these can be seen across the creek from the access nearest the Cabin, where the stream has cut a new channel to bypass the area near the overlook at the gravel drive. The water currently flows in both the old and new channel at this cut-through, but it will certainly be interesting to see if this path becomes permanent and how it will change the appearance of the creek in other areas. 🍃



Top: approaching damaged overlook. Middle: damaged overlook. Photos taken December 28 by Deanna English. See additional photos on page 11. Bottom: chart from the USGS gage at Litzinger Road.

See **Flood**, page 11

Glass House Quiz: Barks and Buds

by Deanna English and Danelle Haake

With all the hustle and bustle of December behind us, January is a good time to slow down, get outside, and spend time appreciating the more subtle beauty of nature in the winter. One of the most interesting areas to explore this time of year is the Missouri woods, which are now more open, cool and without the insects and nettle that can hinder our comfort. Winter is also a time to push your plant identification skills, and winter tree identification is a favorite here at LREC.

Because we enjoy this challenge, we thought the next two months we would share some of the more common trees you may encounter at LREC and around Missouri on your winter walks. We hope you enjoy and become better acquainted with our native trees. Let's get started:

Note: all photos by Danelle Haake.

Sources:

Virginia Tech Dendrology website (<http://dendro.cnre.vt.edu/dendrology/main.htm>)

Cliburn, Jerry, and Ginny Wallace. *A Key to Missouri Trees in Winter*. Missouri Department of Conservation, 2003

One of the first steps to identifying a tree is to check the **branching pattern**. As you look at the branches, you will notice that they are either growing

OPPOSITE

(branches are growing opposite of each other on the limb)



or ALTERNATE

(branches are offset from each other on the branch)



Note: If the tree you are looking at on your woodland hike has **opposite** branching you are likely looking at one of five types of trees. You can reduce the number of species choices by remembering this simple phrase, "M. A. D. horse bucking." Each part of the phrase refers to a group of trees with **opposite** branching.

M–maple

A–ash

D–dogwood

Horse–horse chestnut (not often found in Missouri)

Bucking–buckeye

After you know the branching pattern you can become familiar with bark and bud characteristics. To practice this, take a look at the following pictures of bark and buds and branching patterns and try and match them with the names listed. After you start to get the hang of this go out and try your skills on some real trees. In February we'll add a few more so you can keep building on your winter tree identification knowledge.



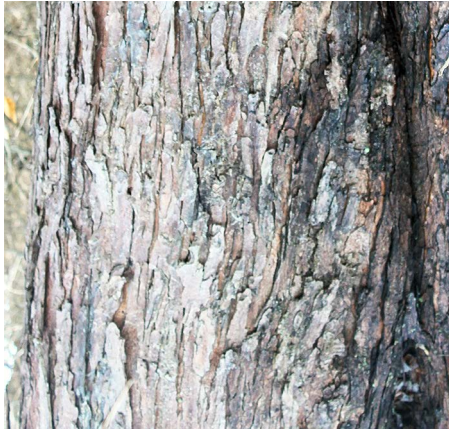

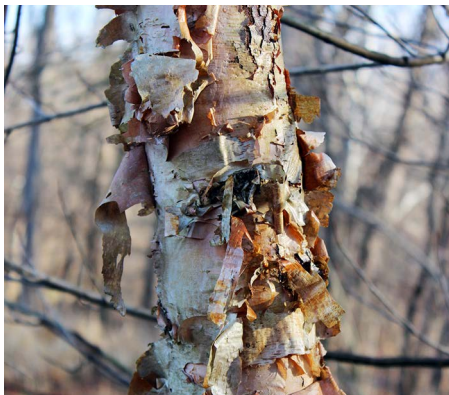

See **Quiz**, page 8



From **Quiz**, page 7

Match each of the trees pictured below with the correct species. Choose from:









- Musclewood (*Carpinus caroliniana*)
- Sassafras (*Sassafras albidum*)
- Pawpaw (*Asimina triloba*)
- River birch (*Betula nigra*)
- Hackberry (*Celtis occidentalis*)
- Ohio buckeye (*Aesculus glabra*)
- Silver maple (*Acer saccharinum*)

Tree	Branching Pattern	Bark	Bud
1	alternate		
2	opposite		
3	alternate		

See **Quiz**, page 9



From **Quiz**, page 8

Tree	Branching Pattern	Bark	Bud
4	alternate		
5	opposite		
6	alternate		
7	alternate		

See **Quiz**, page 10



From **Quiz**, page 9

Answers:

Tree Identification	Virginia Tech Information	LREC Comments
1. Hackberry <i>(Celtis occidentalis)</i>	Bark – Smooth and gray-brown when young, soon developing corky, individual “warts” which later develop into rough corky, irregular ridges. Bud – Lateral buds are small, tan, triangular, and appressed.	Alternate branching A similar species is sugar berry (<i>Celtis laevigata</i>). Sugarberry bark has warty patches, but does not develop ridges like hackberry.
2. Silver maple <i>(Acer saccharinum)</i>	Bark – Light gray and smooth when young; when older breaks up into long thin strips, loose at ends. Bud – Reddish brown with large scales, flower buds often in conspicuous dense clusters.	Opposite branching As we head into spring, silver maples are one of the first trees to flower and leaf out. You’ll notice a pinkish haze around the tree as the buds swell.
3. River birch <i>(Betula nigra)</i>	Bark – Smooth on young trees, salmon to rust colored; developing papery scales, with several colors (creamy to orangish-brown) visible; later developing coarse scales. Bud – Lateral buds may be slightly pubescent.	Alternate branching River birch is our only native birch and makes a beautiful landscaping tree.
4. Sassafras <i>(Sassafras albidum)</i>	Bark – Brown, with cinnamon-brown inner bark, becoming coarsely ridged and furrowed; when cut the spicy aroma is obvious. Bud – Buds are ¼ inch long and green; twigs from young plants displayed at a uniform 60 degree angle from main stem.	Alternate branching Look for the green twigs. We think when you scratch and sniff the twig it smells just like Froot Loops cereal.
5. Ohio buckeye <i>(Aesculus glabra)</i>	Bark – Initially smooth, ashy gray but later developing corky, scaly patches, becoming quite rough and darker gray. Bud – Terminal buds are large, orangish brown with keeled scales; opposite lateral buds are much smaller.	Opposite branching The smaller red buckeye (<i>Aesculus pavia</i>) can also be found in the woods. We think it’s pretty tough to tell the two apart in the winter.
6. Musclewood <i>(Carpinus caroliniana)</i>	Bark – Thin, smooth, gray to bluish gray regardless of age or size; trunk is fluted heavily, resulting in a muscular appearance. Bud – Brown, angled, with a tan silky edge to each scale (making the buds appear lined), approximately ¼ inch or less in length.	Alternate branching Unlike most trees, the musclewood bark pretty much looks the same regardless of the age of the tree.
7. Pawpaw <i>(Asimina triloba)</i>	Bark – Smooth, brown, splotched with wart-like lenticels, often with light gray patches. Bud – Purplish brown, fuzzy, naked bud which is flattened and often curved, terminal bud ¼ to ½ inch long.	Alternate branching As spring approaches and the buds begin to swell, it is fun to observe the round fuzzy flower bud along with the leaf bud.

Litzsinger Road Ecology Center

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From **Flood**, page 6



Top: overflow from pond. Middle: floodwater near demo garden. Bottom: north corner of North Prairie.
Photos taken December 28 by Deanna English.

LREC Announcements

January 13

Volunteer Enrichment: Resources for Winter Learning Activities

12:30 to 3pm in the Barn. All volunteers are invited to get updated on LREC resources for winter outdoor learning activities. We will utilize some of these resources as we explore the LREC habitats. Bring your sack lunch at 12:30pm; activities begin at 1pm. RSVP to Martha: martha@lrec.net or 314-540-4068.

January 28

LREC All-day Teacher Workshop

9am to 3pm at LREC. Details on page 3.

Local Events

January 16, 17, and 18

Minority Scientists Showcase

At the Saint Louis Science Center. STEM professionals show off cutting-edge research and awesome new inventions. Free. Learn more at <http://www.slsc.org/node/1150>.

January 26

From Boy Naturalist to Professor—the Importance of Early Mentors

6 to 8pm at the Green Center, 8025 Blackberry Ave., St. Louis, 63130. Robert E. Ricklefs, Department of Biology at UM – St. Louis, documents his life from his boyhood in California to his research on ecology, biogeography, and evolution, with a special focus on birds. Donation suggested. Reservations required. Learn more at <http://www.thegreencenter.org/>.