

# LAKESHORE NATURE PRESERVE E-NEWSLETTER

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[www.lakeshorepreserve.wisc.edu](http://www.lakeshorepreserve.wisc.edu) [lakeshorepreserve@fpm.wisc.edu](mailto:lakeshorepreserve@fpm.wisc.edu) (608) 265-9275



## Autumnal fire

By Adam Gundlach

As land management across the Lakeshore Nature Preserve continues to foster native plant communities, autumnal fire will play an ever-increasing role in the land managers' tool chest. The fall season for prescribed fire can be short-lived in this region. The weather forecast often proves a temperamental and ever-shifting target. Given the Preserve's proximity to campus and surrounding residential neighborhoods, the prescribed burn program is dependent on specific wind and weather conditions to lift smoke away from sensitive areas.

The cool, humid nature of autumn makes it difficult to schedule burns. Sunny, dry days are often interspersed with cloudy, wet conditions. The shorter day length, cooler temperatures and lower sun angle increases the time it takes for fuels to dry out after rain. When extended periods of dry weather do settle in, they often ride in on high-pressure systems from Canada, which generally bring northerly winds. With few exceptions, north winds preclude prescribed burns in the Preserve. And so the waiting game goes, with some days bringing dry conditions and others offering the appropriate winds, but the two conditions rarely agree to arrive on the same day.

As it turns out November 8<sup>th</sup> was our window of opportunity for two prescribed burns in Biocore Prairie. The prairie's exposed location allows its abundant, upright, fine fuels to dry quickly following precipitation. The first of two units, with plentiful tall prairie grasses burned well, but the

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Fire crew members burned two units of Biocore Prairie on Nov. 8th. Photo by Lina Ekholm ©

second unit, with substantially more green cool-season weeds, burned poorly.

Also slated for prescribed burns this fall are several woodland and savanna areas in the Preserve but only if conditions are conducive for fire to carry through oak leaf litter which require significantly more drying time after precipitation. Many of these areas are in the initial stages of restoration, where invasive brush has been removed from the understory in recent years. Fire can now be used

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(where fuels allow) to remove leaf litter prior to over seeding in the late fall or early winter.

Much as indigenous Americans varied the timing of burns to maintain different plant communities on the land, we too can vary the time we use prescribed fire as a tool. Burning at different times

of the year and under varying site conditions can promote or suppress different species or plant communities, depending on the goals of the site.

With effective use of fire in the coming years, we will hopefully be able to reduce the need for routine manual labor tasks, while stimulating the resurgence of former plant communities.

## First-Year Interest Group uses the Lakeshore Nature Preserve to study landscapes

Anthropology Professor Sissel Schroeder, a faculty member of the Lakeshore Nature Preserve committee, is teaching the first First-Year Interest Group (FIG) course in the Preserve this fall. Schroeder worked with Professors Phil Townsend and Katrina Forest to prepare the initial proposal when serving together on the Lakeshore Nature Preserve Committee in 2011.

A FIG is a "learning community" of about 20 students who are enrolled in a cluster of three classes that are linked by a common theme. The main seminar course, Landscapes: Biological, Cultural, and Physical Dimension (Anthropology 120), which is being taught in the Lakeshore Nature Preserve enrolls only those 20 students and integrates content from the other two classes linked to the cluster—in this case, Introduction to Ecology (Botany 260) and General Chemistry (Chemistry 103).

In her course description Dr. Schroeder wrote: "...by focusing on the Lakeshore Nature Preserve, which is in our own 'backyard', and the home communities of the students, we have the opportunity to experience and visualize some of the broader issues in anthropogenic ecosystem studies and environmental history, and we will be able to apply methods of data collection, analysis, and interpretation to real problems that interest environmental scholars around the world....".



Students in the First-Year Interest Group hand test soils and sample invasive earthworms. Photos by Cathie Bruner

**"...by focusing on the Lakeshore Nature Preserve...we have the opportunity to experience and visualize some of the broader issues in anthropogenic ecosystem studies and environmental history..."**

**--Professor Sissell Schroeder**



## Gift sustains Wally Bauman Woods: a jewel in the Preserve's wooded shoreline

Wally Bauman Woods may not be known by many visitors to the Preserve, but this jewel of wooded shoreline, just 3.4 acres in size at the westernmost reach of the Preserve, is a lovely ecologically diverse piece of land. You can read the inspiring story of how Wally Bauman Woods became part of the Lakeshore Nature Preserve on our [website](#).

In the 1980s Jim Zimmerman, University lecturer and Arboretum naturalist, counted 84 species of

plants in the woodland and wildlife ecologist Joe Hickey observed 29 breeding pairs of birds. Today the woods retains many of the species noted by Zimmerman and Hickey, but like so many natural areas across the state, Wally Bauman Woods has been invaded by non-native pest plants.

A recent gift has given the University the resources needed to remove the invasive shrub honeysuckle and buckthorn blocking the light needed to sustain the sedges, wildflowers, and young ironwoods, oaks, and hickories that hold the fragile slopes. The invasive removals will continue and the area will be monitored for resprouts and new plants for multiple years.

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## Emerald ash borer response plan

The confirmation this summer of Emerald Ash Borer in Janesville, just a short drive down I-90 from Madison, has prompted the UW to take another look at its Emerald ash borer response plan. UW Grounds Superintendent, Ellen Agnew, is tasked with updating the plan and helping administrators of areas not directly managed by the Grounds Department—the Preserve, the Arboretum and Housing—to prepare for impacts within their units. A July meeting of the affected campus units included entomology and forestry experts Professors Chris Williamson, Kenneth Raffa, and Phil Townsend.

In all likelihood the little green invasive insect is already in Dane County, even if it has not yet been observed. Current plans for the Lakeshore Nature Preserve call for the removal or substantial pruning of dying ash trees when they become safety hazards, such as trees hanging over the Lakeshore Path or other major access routes of the Preserve.

For most of the Preserve, however, ash trees will continue to contribute to the death and decay cycles of natural forested conditions. Many campus ash trees have been replaced during construction project landscaping, and the Grounds Department

has started injecting some selected significant ash trees on campus to protect them from the borer for use in continued teaching. For more information on Emerald Ash borer go to [UW-Madison Emerald Ash Borer Information Page](#).



Photo by David Cappaert, MI State University, Bugwood.org



Ash trees along the Lakeshore Path will be impacted by Emerald Ash Borer. Photo by Cathie Bruner

## West campus stormwater project

This fall, UW-Madison began implementing a comprehensive west campus stormwater management project to reduce sediment and pollutants that flow through the Preserve on a short route to Lake Mendota. The project creates four bio-retention areas in Eagle Heights and University Houses in areas that were previously mowed lawn. The bio-retention areas will not have standing water and will be planted throughout with native herbaceous plants, not only collecting sediments and slowing water before it enters the lake, but also providing food and homes for native pollinators and other wildlife.



Bio-retention area in Eagle Heights Apartments above Raymer's Cove. Photo by Bryn Scriver

Work this fall consisted of grading and earth work. The sites were then seeded and covered to prevent erosion. Work will resume in the spring for planting of thousands of native plugs. Fences were erected for the construction phase and will be removed once the project is complete.

Two rain gardens were created between the west end of University Houses and the University Houses gardens. Two large bio-retention areas were also created in the Eagle Heights Apartments. The first bio-retention area is located behind buildings 301 and 302, across Lake Mendota Dr. from the Eagle Heights Community Gardens. The second bio-retention area is located directly behind buildings 503 and 506 and above the outfall into Raymer's

Cove. You can see a map of the project areas [here](#) (PDF).

The stormwater facilities will become part of the overall managed campus landscape, and Lakeshore Nature Preserve staff will consult on their management.

### Volunteer in the Preserve!

Benefits include: meeting new people, fresh air, exercise, learning about local plants and animals. Tools and training provided. Bring your own winter work gloves. Dress in layers. Volunteers 17 or younger need a signed liability waiver and large groups are OK with advance notice.

#### December

**Dec. 7, Friday, 1-3PM,**  
Meet at Frautschi Point parking lot.

**Dec. 8, Saturday, 1-3PM,**  
Meet at Picnic Point lot 129.

#### February

**Feb. 9, Saturday, 1-3PM,**  
Meet at Frautschi Point parking lot.

**Feb. 17, Sunday, 1-3PM,**  
Meet at Picnic Point lot 129.

#### March

**March 2, Saturday, 9AM-Noon,**  
Meet at Frautschi Point parking lot.

**March 10, Sunday, 9AM-Noon,**  
Meet at Picnic Point lot 129.

For more information about volunteering in the Preserve visit our [website](#) or contact Bryn Scriver, [bscriv@fpm.wisc.edu](mailto:bscriv@fpm.wisc.edu) or 220-5560.



## Volunteer spotlight: WESLI students practice English and land care

By Ally Merten



Ally Merten (in red jacket) and WESLI student volunteers in Fall 2011. Photo by Glenda Denniston

Hello! I work for the Wisconsin English as a Second Language Institute (WESLI), located on the Capitol Square. WESLI is a private institution that teaches English to non-native speakers. WESLI has students from all over the world who study English for different reasons. Most of the people who study at WESLI are doing so in order to develop their English skills so that they can study at a college or university in the United States. Some students are learning English at WESLI for their job, while others are learning English for pleasure.

As WESLI's volunteer and activities coordinator, I find opportunities for WESLI students to improve their English, have new experiences, and become a part of the community. I found out about volunteer opportunities on the Lakeshore Nature Preserve last year and have been bringing WESLI students to volunteer there ever

since. WESLI volunteers have helped plant native plants, remove buckthorn and Norway maple, pull garlic mustard and clear trails. Some of the students at WESLI have never volunteered before, and at WESLI, we want our students to understand the value of helping for free. WESLI students talk about what a beautiful place Madison is. When WESLI students volunteer at the Lakeshore Nature Preserve, the students help Madison maintain its beauty. Volunteering at the Lakeshore Nature Preserve allows WESLI students to become connected with the community while also practicing their English with Lakeshore Nature Preserve staff and other volunteers. After WESLI students volunteer at the Lakeshore Nature Preserve, they express that although it was hard work, they enjoyed making new friends, and learning about and helping the environment.



## WESLI student volunteers in action



Photos by Bryn Scriver and Glenda Denniston



## Forage for thought: biomass as a resource

By Adam Gundlach

In certain contexts, biomass refers to the total living mass of all organisms in a given area. However, it is now often used to discuss any organic matter that can be converted to a fuel. The Lakeshore Nature Preserve contains ample woody biomass, much of it in the form of invasive species such as common buckthorn (*Rhamnus cathartica*) and Asian bush honeysuckle (*Lonicera* spp.). Thickets of these small trees and shrubs are continuously being removed from restoration areas across the Preserve.

Up to this point, the brush generated by restoration activities has typically been chipped and used on paths or hauled offsite. Over the years, many brush piles have been left in place to provide habitat for various organisms, from birds and small mammals to insects and fungi.

However, brush is still often viewed as a nuisance by-product of the restoration process – who wants a giant pile of buckthorn in the middle of an oak savanna restoration? The additional costs associated with processing and removing brush from restorations can delay or impede restoration efforts.



**Buckthorn—pest plant AND energy source? Volunteers from Pi Kappa Alpha build a brush pile. Photo by Bryn Scriver**

In rural areas, the most efficient method to dispose of brush piles is typically to burn them onsite. While this is the most expedient means to an end, it is not the highest use of an abundant resource.

Fortunately, there are many initiatives around the country that are promoting the potential value of biomass as an energy resource. Perhaps not too far in the future, the products of restoration in the Preserve will be used to fuel similar local initiatives.

A great deal of funding is currently being pumped into biofuels research, and UW-Madison is deeply connected to the global pursuit for renewable fuels. The university is the lead institution for the [Great Lakes Bioenergy Research Center](#) (GLBRC), in close partnership with Michigan State University. The GLBRC is one of three [Bioenergy Research Centers](#) (BRCs) established in 2007 by the U.S. [Department of Energy Office of Science](#). It is the only BRC based at an academic institution.

Much of the research is focused on identifying efficient and environmentally sound methods of breaking down the structural cells that form tough fibrous tissues found in many plant species. Unlocking the chemical compounds stored in these tissues allows the biomass to be processed further into usable biofuels, such as ethanol. Until a viable technology is developed to accomplish this feat, some municipalities are making use of old methods for breaking down biomass.

The Minnesota DNR recently received a 3-year grant to undertake a project titled [Woody Biomass Harvest for Habitat Restoration](#) (also called [Linking Habitat Restoration to Bioenergy](#)). The project links restoration projects in the greater St. Paul region with energy production. As invasive brush is removed from restoration sites, it is chipped into semi-trailers and delivered to power plants capable of burning the biomass. As it is in southern Wisconsin, buckthorn is often a main target for harvesting, but the project seeks pilot sites in a

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variety of plant community types to establish a base of information for future research.

Though some projects, like the one in Minnesota, operate at the semi-trailer-load scale of biomass removal, other initiatives seek to make use of the biomass generated at the scale of a single yard. The rocket stove is a simple technology being employed across the globe for cooking and heating needs. The stoves combine high efficiency with high BTU output, and uses small-diameter woody biomass that is readily available in most regions, but often overlooked as a fuel source. A quick search of the Internet will show the infinite variety of designs and applications for the rocket stove concept.

On a larger scale, the revival of old technologies, such as wood gasification, is also experiencing a bit of a renaissance. Gasification is the process whereby woody biomass is burned at high temperatures in the absence of combustion. When done properly, the escaping gases can be captured and used as a fuel source for internal combustion engines. The method has been around since the early 1900's, when it was employed to power tractors, trucks, ships, and a variety of other vehicles, including much of the German army near the end of World War II.

In recent years, interest in the use of woody biomass has also surged amongst some gardening and sustainable food production circles. The practice of burying woody material in raised garden beds, called hugelkultur, is a popular topic. In essence, the technique mimics the soil-forming decomposition process of a forest, but accelerates it to yield near-term benefits for cultivated crops. Unlike a typical compost pile, woody material is mainly decomposed by fungal colonization. As the intricate networks of fungal hyphae spread through and devour the wood, they form a rich spongy matrix, with superior water-holding capacity. Like rocket stoves, there are infinite approaches to the hugelkultur method. F.H. King Student Farm managers are experimenting with using wood chips

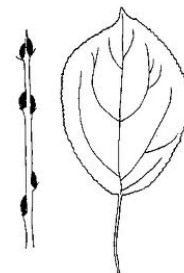
generated from Preserve restoration sites as mulch between garden beds.

**F.H. King Student Farm managers are experimenting with using wood chips generated from Preserve restoration sites as mulch between garden beds.**

An interesting symbiosis also forms when the by-product of gasification, known as biochar, is used to enrich soil cultivated for food production. Biochar is the residual charcoal produced by the gasification process. It is known for its ability to sequester carbon and increase soil fertility. Indigenous cultures of the Amazon basin used similar soil amendments thousands of years ago in the famous terra preta.

So, what does all this potential harvest and use of biomass from the landscape mean for the organisms that inhabit it? Researchers at Michigan State University are coordinating a project focused on quantifying the impacts of biomass harvest from grasslands on pollinator populations. Similar studies will undoubtedly look at the varied implications biomass removal has for the environment.

For now, it appears the interest in converting biomass to energy will prove a boon for restoration projects. There is great potential for bioenergy-restoration collaborations, across the state, region and world. But as with any new method of energy production, the developing biomass industry will need oversight to ensure it is implemented sensibly across the landscape.





## Getting lost in Nature should be harder to do with new Preserve trailhead signs!



This fall UW Grounds staff erected fifteen new trailhead signs at most entrance points to the Preserve. The signs, designed by UW Landscape Architect Rhonda James, featuring trails and regulations will make it easier for visitors to plan their outings.

Also, you may have noticed two hexagon-shaped concrete pads—one at the Frautschi Point parking lot and the other at the far east end of the Lakeshore Path. No, these are not alien landing pads...they are the bases for two soon-to-arrive kiosks. The 3-sided kiosks will feature the trail map and regulations, a locked case for official notices and a future interpretive panel.



Photos by Bryn Scriver

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