



Woodland Dunes Nature Center Dunesletter

Summer 2013 ☻ Volume 152

Fifteen species of fern grow at Woodland Dunes Nature Center, providing food and cover for wildlife.



Jim Knickelbine and Dr. Charles Sontag both received recognition through Lakeshore Natural Resource Partnership Champions of Conservation Environmental award program. We are proud to count these two long-time advocates of natural resources and education in the lakeshore area as our own. Past Woodland Dunes recipients are Bernie Brouchoud, Helen Dicke-Krivacek and Kelly Vorrone. The environmental award program recognizes and honors the achievements of groups, programs, organizations and individuals in a wide range of environmental initiatives throughout NE Wisconsin.

From the Director

What a great time of year. Although we love winter, the other seasons, with all their activity, really highlight the complexity of our world. There is so much going on out there, more than we will ever know.

Nurturing nature, and the minds of our visitors, is a very rewarding activity and worth every bit of the effort. The spring was outstanding – we dedicated the new Alyea Tower which is very popular with visitors, offering wonderful views of the wetlands near our headquarters. At the same time, a pair of osprey have decided to nest on one of the platforms we installed three years ago just east of our headquarters, and the tower is a great vantage point from which to watch them. From the tower you can see out to the river, and it's not unusual to see several species of ducks and geese, gulls and terns, cormorants, falcons like peregrine and merlin, and you have an overhead view of songbirds in the marsh and alders. Mink have been known to scamper around the pond, unaware that they are being watched from above.

The West Foundation has approved a grant that will allow us to expand our efforts to improve habitat in our area, not only within our preserve but also by reaching out to our neighbors. We will be able to work with landowners to evaluate their properties, help them determine their goals, and get started on implementing their restorations, including referring them to appropriate agencies or contractors. We look forward to initiating this very positive program.

Thanks to funding from several sources and donors, GreenSky Energetics is installing a solar photo-voltaic system on the roof of the Marsh Haus. This system will generate enough energy to equal nearly half of the usage of the center, and will include a monitor so we and visitors can track the power being captured. We know how hard it is to preserve and manage habitat for wildlife, and we want to do everything we can to reduce our impact on the land. That we have friends like Dominion, Focus on Energy, Don and Brenda DeBruyn, Two Rivers Water and Light, Hal and Nancy Just, and Pete and Judie Stuntz to help us do that is humbling and we are thankful for their help.

Congratulations to Charles Sontag for being named a Champion of Champions of Conservation by the Lakeshore Natural Resource Partnership. He is truly deserving of such recognition for his many years of teaching about living things and the importance of respecting and understanding them.

Volunteers from our deer management program have been working on several projects this spring, from painting the barn to building and repairing boardwalks to keeping trails clear of downed trees. If you meet them out in the preserve, please let them know that they are appreciated.

We are also working with the City of Two Rivers on their application to become a Wisconsin Bird City. Their Park and Recreation Director and Recreation Advisory Board are very positive about the prospect.

There are so many worthwhile projects possible in a place like this. Thanks to you all for helping to make them possible. Have a wonderful summer!

Jim Knickelbine, Director

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Coming Events



Common Yellowthroats are often seen along Cattail Trail.

Volunteer Appreciation Picnic and Ice Cream Social

Wednesday, June 12 ♦ 5:00-6:30 p.m.

Woodland Dunes volunteers join us for an evening picnic and make-your-own sundae bar. A small token of our appreciation for everything you make possible here at Woodland Dunes. All volunteers invited. **Please RSVP by June 5th.** If interested, following the picnic enjoy a presentation by Bill Mueller on aerial waterbird surveys along the shore of Lake Michigan.

The Wonder of It All Lake Michigan Aerial Waterbird Surveys

Wednesday, June 12 ♦ 6:30-7:30 p.m.

Join Bill Mueller from The Western Great Lakes Bird and Bat Observatory to learn about the waterfowl/waterbird surveys done by aircraft along the western shore of Lake Michigan. Get a glimpse into the lives of the species that inhabit these deep waters in fall, winter and spring. Research has been ongoing since fall of 2010 and is funded by the United States Fish and Wildlife Service and the Great Lakes Commission. The objective is to learn where offshore waterfowl congregate, in what depths of water and in what seasons. This information will be valuable if wind power development occurs in offshore waters of the Great Lakes. Sponsored by the Dominion Foundation. **Registration required by June 5th.**



Thank you to the two hundred and seventy five participants, twenty eight volunteers and sponsors that made Dash at the Dunes a success. Together, we raised nearly \$5,700 for education and land management programs! Thank you and we hope to see you at next year's Dash!

Fish Fry Fundraiser

Friday, June 14 ♦ 4:00-9:00 p.m.

Join us for a fish fry at the American Legion Hall! You can choose from a variety of fish plates, chicken strips and desserts. A percentage of each plate sold and all proceeds from the dessert sales will benefit Woodland Dunes. Bring the whole family! The American Legion Hall is located at 811 Jay St. in Manitowoc.

Invasive Work Days

Saturday, June 15 ♦ 9:00-1:00 p.m. ♦ Lincoln Park Zoo
Saturdays, June 22 & 29 ♦ 9:00 -1:00 p.m. ♦ Cherney
Maribel Caves County Park

A series of work parties to remove non-native invasive plants, hosted by the Manitowoc Co. Master Gardeners will be held at the above dates and locations. Volunteers are needed and appreciated! These activities offer a chance to help wildlife and learn about woodland wildflowers. For more information contact Gladwyn Doughman at 684-9483.

Watershed Ambassadors Summer Camp

June 17-28, Monday-Friday ♦ 9:30 a.m.-3:00 p.m.

Cost: \$25 per student

Students going into 7th-12th grade this camp is for you! Explore the waterways of Manitowoc County and learn about their importance. Experience Lake Michigan aboard a schooner, paddle local waterways, help restore shoreline, sleep on a submarine and complete projects to help keep waterways healthy. Contact Wendy Lutzke to register 920-684-0218. This camp is hosted by the Wisconsin Maritime Museum and Woodland Dunes Nature Center. Thank you to our sponsors: Cellcom, Wisconsin Public Service, The FORWARD endowment, the Dominion Foundation and Wisconsin Department of Natural Resources.

Firefly Night

Thursday, June 20 ♦ 8:30-9:30 p.m.

Members: Family, \$10; Individuals, \$4

Non-members: Family, \$15; Individuals, \$5

Enjoy an evening light show at Woodland Dunes. An indoor program about fireflies will be followed by a walk to look for these amazing insects. A mile walk round trip will take us to the firefly field and back. Recommended for children seven years old and older. Registration required by June 13.

Check our events calendar at woodlanddunes.org for additional programs and updates.

Coming Events



To confirm events and register for classes, call (920) 793-4007 or email kellye@woodlanddunes.org.

West Twin River Paddle

Saturday, June 22 ♦ 9:00 a.m.-1:00 p.m.

Rain Date: Sunday, June 23 ♦ 9:00 a.m.-1:00 p.m.

Paddle the lower West Twin River through scenic country. Stop for lunch at Woodland Dunes and explore the surrounding wetlands. Meet at the Shoto boat launch off Highway VV. Bring a bag lunch. Five miles round trip. Registration required by June 20. Funded through a Wisconsin Department of Natural Resources River Planning and Protection Grant.

West Twin River Paddle

Wednesday, July 24 ♦ 9:00 a.m.-1:00 p.m.

Rain Date: Wednesday, July 31 ♦ 9:00 a.m.-1:00 p.m.

Paddle the lower West Twin River through scenic country. Stop for lunch at Woodland Dunes and explore the surrounding wetlands. Meet at the Shoto boat launch off Highway VV. Bring a bag lunch. Five miles round trip. Registration required by July 22. Funded through a Wisconsin Department of Natural Resources River Planning and Protection Grant.

Story Walks

Monthly, July & August

Hike the story walk trail for fun and learning. During July and August pages of a storybook will be posted at intervals along one of our trails. Combine literacy, exercise, nature and family time. Trail maps are on our website or at the Nature Center. After your walk, enjoy time in Little Wings play area and kid's room.

Sponsored by the Service League of Manitowoc County.

July - Cattail Trail, .3 miles (.6 out and back)

August - Willow Trail, Goldenrod Loop .7 miles

Oh! Snap! Mini Photo Session Fundraiser

Sunday, August 4 ♦ 2:00 p.m.

Rain date: Sunday, August 25



You are invited to participate in our first ever mini photo session marathon! Oh! Photography's Olivia Brey will generously donate her time and talent and snap away all afternoon at the Dunes! For \$60, you will receive a 15-minute mini session for up to five people in the unique setting that Woodland Dunes has to offer. You will also receive 10 edited digital images in color and black and white along with the rights to the images. **Pre-registration is required.** To register or for more information, call 793-4007 and talk to Jess or email her at jessicaj@woodlanddunes.org. Check out Olivia's amazing photos at www.photosbyoh.com

Little Wings Fridays

Nature fun and play time for you and your little one

Fridays: July 5, 12, 19, 26 ♦ 10:00 a.m.

Suggested donation: \$3 per child

Spend time with your kids this summer in our Little Wings natural play area. Start the morning with a guided nature activity, then let your little ones explore the play area or enjoy our story walk trail. Nature activities best suited for ages 4 to 7, but all ages are welcome. Registration required by the Friday before participation. July 5th: Feathered Friends ♦ July 12th: Animal Tracks and Movement ♦ July 19 & 26 Check our on-line calendar

The Wonder of It All Fern Hike

Tuesday, July 23 ♦ 10:00-11:30 a.m.

An indoor session on ferns and fern identification will start our exploration of these fascinating plants. A walk through the preserve with our fern keys and a Woodland Dunes naturalist at hand will help us identify the many ferns that make their home at Woodland Dunes. Registration required by July 16. Sponsored by the Dominion Foundation.



Volunteers LouAnn Gray and Geri Berkovitz assist kids with making binoculars to take exploring on the trails and window clings to help prevent bird collisions with windows. Despite the rain we still managed to have fun and learn about birds and how to help them at this year's bird breakfast event.

Stay connected, fan us on facebook for event information and wildlife updates.

Coming Events



Email jessicaj@woodlanddunes.org for monthly program reminders, a great way to stay connected.

The Wonder of It All Prairie Life

Wednesday, 7 ♦ 10:00-12:00 p.m.

Learn about the dynamic prairie ecosystem with a hike along Coneflower Trail and a visit to the area burned this April. This program will introduce you to the birds, insects, plants and mammals who live in the prairie. Sponsored by the Dominion Foundation.

Butterfly Garden Festival

Saturday, August 24 ♦ 10:00 a.m.-1:00 p.m.

Members: Family, \$15 ; Individuals, \$5

Non-members: Family, \$20 ; Individuals, \$8

Celebrate the Dorothy R. Starr Garden and the animals that find refuge there. Butterfly and wildflower hikes, monarch tagging, kids' activities and games. Great family fun with musician Bill Kehl, an educational and enjoyable entertainer. A fun day for young and old alike.



Musician Bill Kehl at Owl Fest 2012. Don't miss him at this year's Butterfly Festival. Bill combines fun and learning about the natural world with music and movement. A true educator and entertainer.

GETAWAY WITH THE DUNES: WAIKIKI BEACH

Saturday, November 9 ♦ 6:00 to 9:00 p.m.

Mark your calendars for this year's *Getaway with the Dunes* fundraiser! Join us in the Behringer Room at the Community House in Two Rivers and getaway to one of Hawaii's best beaches: Waikiki Beach. Silent and live auctions, Hawaiian themed appetizers and lots of fun! Details to follow.

Friday Morning Bird Walks

Fridays ♦ 8:00 a.m.

Join director Jim Knickelbine or a Woodland Dunes naturalist on a weekly route and help document the bird species at Woodland Dunes. Meet at the Nature Center and bring binoculars.

Enchanted Forest

Saturday, October 5 ♦ 4:00-8:00 p.m.

Owl Fest

Saturday, October 19 ♦ 4:00-10:00 p.m.

DON'T FORGET TO REGISTER FOR PROGRAMS

Simple, easy and greatly appreciated, call 920-793-4007, email kellye@woodlanddunes.org or stop in and visit.

Meet Emma



Hello my name is Emma Keese and I am the new summer intern at Woodland Dunes. I am a sophomore at Beloit College and am planning on majoring in Environmental Studies. I am originally from Bainbridge, a small island near Seattle. My interest in working for a non-profit organization in the area of environmental education and conservation stems from growing up where I observed many of the effects people's actions have on the environment. I am particularly interested in how issues such as invasive species and habitat destruction affect marine systems. I am looking forward to learning from Jim, Kelly, Jess and everyone else at Woodland Dunes.

Nature Notes

Hike Trillium Trail to see these magnificent trees.



As you bike or drive through the countryside, you will often see lilacs, peonies or daylilies growing wild in a field or clump of trees. If you explore further, you may find they are near fieldstone foundations, remnants of an abandoned homestead. Like many of the plants we consider natives, these stalwart survivors journeyed from distant lands, across desert, mountain and ocean, to take up residence in a brave new world. Now lonely survivors, they once were treasured reminders of home.

The common lilac (*Syringa vulgaris*), a member of the olive family, is native to the rocky hills of the Balkan Peninsula in southeastern Europe. From there, plants were carried eastward to Istanbul, where the Ottoman emperors ruled. The first description (1553) we have of a lilac is from Pierre Belon, who visited the court of Suleiman the Magnificent, sultan of Turkey. In 1562 lilacs were brought to Vienna by Ferdinand I of Austria's ambassador to the Ottoman court. Later cuttings were taken to Paris by the Archduchess Elizabeth when she became Queen of France.

From Paris, lilacs spread over western Europe and eventually reached the American colonies. In 1750 they were imported from England expressly for the wealthy Royal Governor Benning Wentworth and planted at his mansion in Portsmouth, New Hampshire. The enormous lilacs on Mackinac Island were thought to be equally old, possibly planted by French Jesuit missionaries in the 1600s, but in 2007 core samples showed these lilacs were planted in the early 1900s. Their size is due to the superb growing conditions for lilacs on the island.

The lilacs we find in nurseries today are far more varied than those of our ancestors. *Syringa vulgaris* has been hybridized with innumerable species from Asia and Europe, resulting in plants of every size, and blossoms from white through deep purple. Recently a reblooming lilac, 'Boomerang,' was introduced to mixed reviews. As one critic said, "Who wants to smell lilacs while they're carving pumpkins?" Given that all of the major retailers were sold out by the end of spring, it seems like a lot of people do.

Daylilies originated in eastern Asia, where they were grown for their beauty, medicinal value and food. The roots and crowns are said to be an antidote to arsenic, always useful. Although oral history records them being grown for thousands of years, daylilies were first mentioned in written records by Confucius.

Two daylilies, *Hemerocallis fulva*, tawny daylily and *H. flava*, lemon lily, were introduced to Europe

about 300 BC, carried from Asia to Europe by Silk Road merchants. By the eighteenth century, they had been brought to North America. Settlers who were busy building houses and cutting trees to make room for fields must have enjoyed the ease of growing daylilies.

The species we are most likely to find at old homesteads is the orange daylily (*H. fulva* fm. *fulva*). It quickly escaped the garden and naturalized. Because it is found growing wild everywhere, many people believe it is a native.

Today we have thousands of daylily cultivars to choose from. These cultivars are all clump-formers, making them excellent garden plants, while the orange daylily, *H. fulva* is rhizomatous, and potentially invasive. Beware!

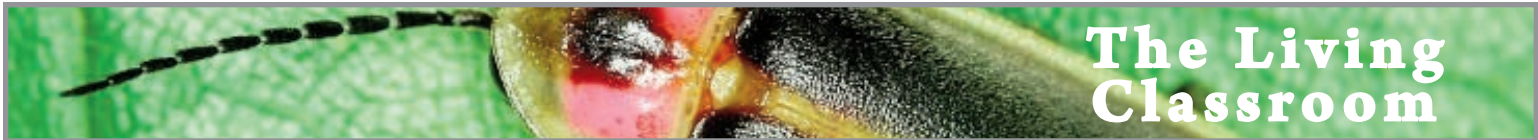
Few other ornamental plants go back in history as far as the peony, which in China has been cultivated for more than 4000 years for medicinal purposes,. It was frequently mentioned in the Classical herbals; in the Middle Ages, Benedictine monks recorded the introduction of peonies to monastery gardens north of the Alps.

Peonies are native to Asia, Southern Europe and western North America. The European peony, *Paeonia officinalis*, is one of the oldest cultivated species, and can still be found in the wild there. Once Chinese herbaceous peonies (*P. lactiflora*) and tree peonies reached Europe, they became popular for ornamental and breeding purposes. Cross-breeding the fragrant *P. lactiflora* and the European common peony resulted in most of our familiar garden peonies.

The first peonies brought to America by the colonists were forms of *P. officinalis*, the European peony that here has been called the Memorial Day peony. Along the east coast, this species can still be found, but the peonies we find at old homesteads here are likely to be the popular crosses of the mid-nineteenth century. Today we have a wide choice of herbaceous peonies with stronger stems and blossoms in shades of whites, pinks and peaches, plus yellows in intersectional crosses.

When we moved to Winghaven we found gnarled, crooked lilacs, planted too close to the building to do well; old-fashioned peonies, now being shaded by encroaching woods, but still blooming each June; and orange, long-stemmed daylilies that spread to form large, glowing patches of color. They have value as survivors, but when I am planning additions to the garden, I make my choices from their glorious descendents.

Susan Knorr, Editor Emeritus, Board Member



The Living Classroom

Fireflies are a common insect found at Woodland Dunes. Different populations peak throughout the summer.

Education Update

The first five months of 2013 have been busy for the Woodland Dunes education staff both those paid and unpaid. Four school programs have run during this time, Winter World, Maple Syrup and Forest Ecology, Amphibmeander, and Water Wonders along with adult education and family programs. In total 1949 people have attended an educational program. More important than quantity is always quality. Here are some comments and fun from the teachers, students and program participants.

From the students:

One of the most precious moments for Mary Savage, one of our TNs who runs the Maple Syrup "boiling station": A little boy eagerly walked in (to the boiling station area) and grabbed a seat on the bench. Grinning ear to ear he said, "I was so excited about being here today, I hardly slept a wink last night!"

After going on the Marsh Trek, a point in the Water Wonders field trip where students put on water boots and hike into the marsh to learn about its important functions like storing and filtering water, a fourth grader from Koenig exclaimed. "That was the best! I am going to remember this day forever!" Comments like these make hauling the boots out to the end of the boardwalk each morning worth every second.

At an Earth Day event we had some animal furs out, muskrat being one of them. A kid asked me what they eat and I told them they eat cattails. The child looked at me shocked and it took a moment for me and his mom to realize he thought I had said cat's tails. Not the plant cattail. I quickly had to explain myself. Woodland Dunes reputation could have been ruined if the child went around saying he heard muskrats eat cat's tails at Woodland Dunes.

From the teachers:

Great job! The day after our field trip I couldn't believe everything that the students still remembered! They loved it!

We really appreciate the great job that you do at Woodland Dunes. It is a very educational and enjoyable field trip for our 4th graders.

Family Nature Activity: Natural Art

Andy Goldsworthy is an inspirational artist and one that is fun to emulate. Check out some Andy Goldsworthy books from the public library to share with your kids. Then challenge everyone in your family to make a piece of artwork following Andy's rules of only using natural materials. When finished take a gallery tour of the creations. Photograph them to create cards or wall art for your home. Send your pictures to Woodland Dunes. We will print some in our next newsletter.



Walking through ridge and swale habitat students compare the plant life that make their home in the swales and those that favor the ridges, teaching the students about the different growing preferences for plant life.



Students learn the three important components to look for when identifying wetlands: water, soil and plants. A comparison between wetland and dryland soils starts their exploration hike as they search for wetland habitat.

Ugly “Bugs”

When people think of summer, they think of fun on the beach, vacations, and most important, not having to go to school. But there’s one thing all people seem to have in common. They don’t want “bugs” to interrupt their fun. While many people think the little creepy-crawlies of the natural world are disgusting pests, they can actually be very useful. If we humans got rid of the animals we think of as pests, there could be some horrific side effects. Here are a few examples of some critters we should definitely learn to live with, and a few misconceptions that come with them.

Spiders: Yes, it’s true. The multiple eyes and long legs can be a little creepy, but they’re perfect for helping the spider catch its prey. They generally eat insects, or other spiders.

Most often, spiders weave intricate webs, so that their food gets caught in the sticky strands. However, there are others, like the jumping spider, that stalk their prey almost like a cat does. When they get close enough, they pounce! Some spiders in other parts of the world can be dangerous, which is probably the source of arachnophobia (fear of spiders). Don’t worry, most Wisconsin spiders are harmless. They just help keep the numbers of other “bugs” down to a manageable level.

Ants: Despite what most people think, it would take forever for little tiny ants to carry away an entire picnic. In the summer you might find them crawling around in your kitchen looking for food. The trick is to put all food away in tightly sealed containers, so it doesn’t smell like something tasty. Try to stay away from harmful pesticides. Remember, ants are only trying to find food for their colony, and sometimes we leave out the perfect things to eat. Try watching ants outside, when they find something to eat. They cooperate well to get the job done!

Ladybugs: We all know the smell of a scared ladybug. Not only is it awful to us, but that smell comes with a vulgar taste that animals can’t handle, either. It’s a ladybug’s defense system. The bright colors on their backs are a warning that they don’t taste good, so animals stay away. Many people think that ladybugs are useless, and they only come to stink up our houses in winter. What they don’t realize is that ladybugs could be keeping their garden plants alive in the summer. Ladybugs dine on a diet of aphids, small bugs that feed on the stems and leaves of many plants.

A plant that is infested with aphids could die, unless the little bugs are removed. Lucky for the plants, ladybugs are ready and willing to chow down on their aphid problems. Most of the ladybugs we see today are a type known as the Asian Ladybird Beetle. They were introduced in the United States to eat a certain type of aphid on pecan trees. However, they spread, and now they compete with the native ladybugs.

Mosquitoes: No one likes getting mosquito bites, but our blood just happens to be part of their life cycle. Now, a lot of people feel that the world would be better if there were no mosquitoes, but that isn’t true at all. While mosquitoes bother us, and other species whose blood they suck, mosquitoes are a vital part of the diet of many species that a lot of people like. After all, everyone likes the sight of a bright colorful dragonfly! Mosquitoes make up a large portion of the average dragonfly’s diet. Bats also dine on these pesky insects in the evening hours. Numerous species of birds also eat mosquitoes. Even fish benefit from eating the eggs and larvae of the mosquitoes, while they are growing up in the water. If you really don’t want to deal with mosquitoes, try putting up bird and bat houses, and if there is a pond nearby, plant natural species that will attract dragonflies.

There are insects that most people love, like butterflies, moths, and dragonflies, but often we forget how important the ones we don’t appreciate are to the ecosystem.

Without these and many other species of ‘ugly bugs’ it would be hard for other species to thrive. Let’s try to have some peace with these creatures this summer!



Spider	Mosquito	Dragonfly	Aphid
Ant	Ecosystem	Moth	Ladybug

Screaming Tomatoes Thoughts on Plant Consciousness

Look for prairie flowers along Coneflower Trail in late summer.

L. Ron Hubbard, founder of Scientology, caused a stir in 1968, certainly among vegetarians, when he suggested that tomatoes “screamed” when sliced.

I am not aware of any evidence he offered for his observation, or even if the scream was recorded. But, screaming tomatoes certainly could capture our attention, and carries the logic of plant feelings and consciousness to the extreme.



Plants maximize their reproductive success by cleverly hiding their seeds in various structures, and often use sweet tasting fruit to entice an animal to help move the seeds to a new site. Since the fruit is the tomato’s way of distributing its seeds, why would the fruit scream if the intent of the plant’s reproductive process were indeed being accomplished? For certain, the scream isn’t being heard by the one with the knife that is in the act of butchering the fruit in preparation for seed dis-

persal. This article attempts to explain this “scream,” and whether plants, like animals, are capable of feelings, or indeed of consciousness, and if the scream and feelings are related.

AHEAD OF THEIR TIME

The idea that plants have feelings and/or are conscious has been part of human conversations since Aristotle. He postulated that a plant has a “vegetal soul.”

However, Aristotle believed that plants are incapable of sensation. Erasmus Darwin (Charles Darwin’s grandfather) went a bit further, and suggested that plants, in fact, have irritability and volition or the expression of will.

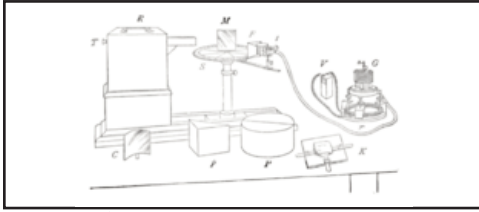
These qualities hint that plants are capable of some kind of conscious activity. The first real scientific attempt to address this question was performed by the Indian scientist Sir Jagadish Chandra Bose, who was both a physicist and a plant physiologist, working in the early part of the 1900’s. (See the figure, showing a drawing of the apparatus he designed to record the movement of plants, and which also demonstrated electrical or neural-like activity in plants.)

His work showed that plant tissues produced electrical responses similar to animal tissues when stimulated. However, his critics suggested that his findings were inconclusive. Some even interpreted his work as just providing support for Hindu beliefs of consciousness which are applied to animals but also may be applied to plants. Unfortunately, profound work can be initially ignored, only to be rediscovered later when the climate of thought changes. Such seems to have been the case with Gregor Mendel, the father of genetics, as with Jagadish Bose and many others who were ahead of their time.

CELL COMMUNICATION

How do electrical and hormonal/chemical events come together to answer the question if plants have feelings or are conscious? All living cells, including bacteria, have the potential for electrical activity since all cells are surrounded with an electrically charged cell membrane. The inside of most plant and animal cells is negatively charged. If the cell membrane is disturbed by a stimulus this electrical charge is

ANTHROPOMORPHISM: Often words, although they are our means of communication, can be at the root of misunderstanding and argument. In conversation, we often give human characteristics to nonhuman animals, and in this case to plants. Words like feeling, intelligence, consciousness, or concepts like discrimination between self and others can fall into an anthropomorphic trap. The biologists working with these mechanisms know what is meant, but others can extend the meaning beyond its original intent, blurring the understanding. Just because the same word is used, doesn’t necessarily mean that it is understood in the same way by all. Physiologists use the word irritability to mean responsiveness to the environment. For example: when a jellyfish bumps into an object as it swims about, it redirects its swimming efforts and ultimately frees itself of the obstacle. And, as we are now aware from Bose’s study, plants too respond to the environment with electrical activity demonstrating irritability. But, does irritability necessarily mean that the jellyfish or plant feels, or is conscious? I would argue that feeling or consciousness is a complex integrative activity requiring more than just receiving information from the environment and responding to it, as witnessed by a swimming jellyfish. Integration requires a system of decisions, including memory of past experiences that goes beyond a stimulus/response event implied in irritability. That plants show irritability does not mean integration processes were required or that the plant has experienced feeling. If integrative processes are not involved in the response of a plant or animal, such as using past experiences in a meaningful way, feeling or consciousness is probably not happening.



Bose's apparatus used to record the movements of plants.

briefly lost, but then it is immediately reestablished. Adjacent cells can use this momentary change in electrical activity as a signal, and depending on how these cells are organized, the communication process has begun. Either a hormone-like chemical can be released or a second cell can be electrically excited by this process. In either case, information moves from one cell to another, and a response to the stimulus or disturbance results. However, is this electrical activity, or the release of hormone-like substances considered feeling or conscious activity in either a plant or animal? This is where our words quickly befuddle the message, and argument ensues. (See box on anthropomorphism.)

THE SCREAM IS FOUND

Let us return to the screaming tomatoes, and approach the scream from the result of current work. Ian Baldwin of the Max Planck Institute for Chemical Engineering and James F. Cahill of the University of Alberta believe they have discovered the scream and how it is perceived. Their work is with a scrawny looking plant, the Wild Tobacco (*Nicotiana rustica*) that is found from Mexico through western U.S. into Canada. The plant is seemingly uninteresting, and like many plants of the Nightshade family, is pollinated by several species of Sphinx or Hawk moths

(*Manduca sp.*). As we know, the tobacco plants produce the very popular recreational drug nicotine. Interestingly, wild tobacco plants produce 10 times the nicotine that cultured plants produce. Nicotine is a poison to most insects. However, when nicotine does not work as a deterrent to predation, as is the case with the larvae of the Sphinx moth, the tobacco plant turns to another stratagem for its defense. The plant releases a hormone-like chemical signal. Baldwin and Cahill believe that this signal is the "scream." This signal attracts a parasitic wasp to the plant, which lays its eggs on the Sphinx larvae, spelling doom for that larva munching on the tobacco plant. The interesting part of this recruitment process is that the tobacco plant actually recognizes the insect that is dining on its leaves by the chemical makeup of the larva's saliva. In response to these salival chemical signals, a specific attractant is released by the tobacco plant, which recruits a predator of the insect that is feeding on its leaves. And, this is accomplished without a functional brain, as we know.

The "scream" of the plant, as Baldwin and Cahill suggest, seems to be an inaudible release of chemical "fragrances" or hormone-like substances that arouse plants and animals to respond as if a command or order had been given. We originally thought that plants were just competing for the available resources. We now know that the story is much more complex and certainly much more interesting than we imagined, making us wonder if Aristotle was indeed correct with his suggestion

of a vegetal soul. Animals, we know, use hormones and neural events, which are entwined to provide feelings and consciousness. And, even though we have found hormonal and electrical or neural-like events in plants, the integrative activity needed for feeling and consciousness has yet to be described. Until that happens, we cannot say for certain that plants have feelings or are conscious. Perhaps the real struggle we have is in explaining our own consciousness. Since biologists haven't done a very good job of explaining human consciousness, it remains a daunting task to explain consciousness in plants. Now, what is a vegetarian to do?

Acknowledgements. Again Peter Weber, Professor Emeritus/SUNY Oswego performed his magic and gave polish and clarity to the article. And our son Charles provided resources and understanding to gaps in my understanding of critical issues presented in this article.

Charles Sontag, Board Member, Professor Emeritus



Blackburn's sphinx moth (*Manduca blackburni*) a native to Hawaii that uses tree tobacco (*Nicotiana glauca*) and commercial tobacco (*Nicotiana tabacum*) as a host plant.

Leopard frogs are common visitors to the butterfly garden pond at the main headquarters.

Dragons and Damsels: Odonata at the Dunes

According to a New York Times article dragonflies might be the most deadly predator in the animal kingdom. They have exceptional eyesight and their four wings can maneuver individually allowing them to hover, fly backwards, upside down and reach speeds of 30 miles per hour. These abilities help them catch 95% of the prey they pursue. Compare this to only a 50% success rate in great white sharks and 25% in lions. We are fortunate we are too big to be considered prey, in fact they do not even bite, a myth many believe to be true. Last year Ken Tennesson a dragonfly and damselfly expert, visited and was excited about the variety of species he found at Woodland Dunes, including a rare species in Wisconsin: the Southern spreadwing damselfly (*Lestes australis*.) Thanks to the new website wiatri.net/inventory/odonata, you can send in pictures and report findings, experts will view the photos and if possible help with identification. We are hoping to get some photos from the preserve this summer, if you get any great photos from Woodland Dunes, please send them to kellye@woodlanddune.org.



The Southern spreadwing damselfly holds its wings out rather than folded back along the body like many other damselfly species. At rest dragonflies hold their wings perpendicular to their bodies, an attribute that can help when deciphering dragons from damsels.



Prairie Burn

In April we conducted a prescribed burn on about 55 acres of the native grassland (prairie) habitat at the northwest corner of the preserve, along Woodland Drive. Part of this acreage has been enrolled in the Conservation Reserve Program, which is designed to encourage landowners to put agricultural land into permanent vegetative cover, protecting the soil and benefiting wildlife. In our case, the management plan called for a burn in the 6th year.

Fire has always been an important part of many ecosystems, including native grasslands. The plants there are adapted to fire – their deep root systems are able to survive most burning. They are also dependent on fire to control invading brush and trees, and on the nutrients that are released from burned plant residues. Fire also prevents decomposing plant material from accumulating to such a depth that seedlings have a hard time becoming established.

Due to the size of the area to be burned, we worked with the Wildland Fire program at Fox Valley Technical College in Appleton. As training for future wildfire-fighters, they and their instructors, with all the appropriate equipment, came and conducted the burn

in late April. We had a perfect day for the burn, a very good burn plan, and 11 students plus 3 instructors on site. Fire breaks had been mowed by the Manitowoc Co. Highway Dept., which owns a mower capable of clearing a 20-foot-wide swath. A break was mowed around the perimeter of the burn area. Then the site was ignited from the downwind side to create an area that was already burned before the upwind side was ignited. In this way the fire can be allowed to sweep across the grassland, stopping where it reached the back-burned areas. The burn crew moved with the fire, igniting some areas, and controlling the fire in others. The process took about three hours to complete, and there were no surprises. Birds that were signing on the site returned within a few minutes after the burn was done – with the cold spring it appeared that few if any had already started to nest. We found several coyote dens on the site, but the animals were either underground or had moved off during the burn.

In a few days the site started to green up, and after two weeks it was covered by green growth. We look forward to tracking wildlife on the site, and looking at the change in the habitat as a result of the burn. We will also be conducting burns on adjacent areas the next couple of years, as to conserve animals we didn't want to burn the entire site at once.



The Harold W. Alyea viewing tower is officially open! The ribbon cutting and dedication took place at the Bird Breakfast and Migration Celebration on Saturday, May 11th. We were delighted to welcome the Alyea family and friends along with members of the Krivacek family. Donations from the Alyea family made the tower construction possible and donations in memory of “Doc” Krivacek were used to purchase the scope mounted on the second story of the tower. Thank you for making this an extra special event!

Woodland Dunes Receives Funding for Habitat Restoration and Outreach

Woodland Dunes recently received funding from the West Foundation to initiate a habitat restoration and outreach program. This program will benefit land owners along the Lower West and East Twin Rivers by providing education, monitoring opportunities and support for land restoration projects such as invasive species removal and the replanting of appropriate, native species.

If you are a property owner on the Lower West or East Twin River, please let us know if you have *Phragmites* on your land (see right). If you do, please contact Jim at 920-793-4007.



Two Rivers High School students Austin Greenwood, Sean Sheahan and Rachel Glaser have been busy building a chimney swift tower for their advanced biology class. The tower will soon be mounted on the Woodland Dunes barn.



The osprey are nesting on a platform close to the nature center. They can easily be viewed from the viewing tower or the grounds around the building. They've been very entertaining to observe!

Volunteer Spotlight

Osprey can be seen nesting both on the platform above the West Twin River and on one near the headquarters.

Spring Volunteer Spotlight Ellen Lewellen



The first time I met Ellen, I was a new volunteer at Woodland Dunes and I observed her teach a Water Wonders class. I was impressed with her enthusiasm and her ability to engage students and build rapport with them. Since that day, Ellen has continued to impress me with her positive attitude and willingness to volunteer at events, education programs and fundraisers, always with a big smile. She serves on the Board of Directors and Development Committee and also chairs the Human Resources Committee. Thank you Ellen for your hard work and dedication to Woodland Dunes!

We ask each of the volunteers to answer a few questions about themselves and volunteering at Woodland Dunes.

- 1. How long have you been volunteering at Woodland Dunes?* About 20 years - Former Teacher Naturalist, Ruth Perry, invited our family to Woodland Dunes for the first time around 1987 culminating in my small daughter holding a live bird in her hand. A few years later I joined the ranks of the TNs and have been volunteering ever since.
- 2. What made you decide to volunteer here?* Friends who were Teacher Naturalists were always talking about how much fun it was. Since I have always loved nature and had spent a lot of time with youth through scouting and church groups, it was a natural fit. (Moral: The best way to add new members & volunteers is for current Dunes lovers to be enthusiastic and spread the word.)
- 3. What do you most enjoy about being involved at Woodland Dunes?* Hmm. That's a tough question because I am committed to the Dune's environmental and teaching mission, AND I really enjoy spending time with the other volunteers and the children we teach AND time spent snowshoeing the trails, tapping maple trees, or seeing a student's excitement at discovering a salamander – how can a person not love that?
- 4. What else do you do in your free time?* My other volunteer passion is my church, where I am also involved on the Board, Personnel Committee, singing in the Praise Band, cooking, and many other roles over the years. I am a quilter, a reader, and along with my husband Don, an avid cyclist, canoeist, and cross country skier. We have 3 grown children and 2 grandchildren (so far) and when they are in town, Woodland Dunes is one place we always go.

Event Support

Dash at the Dunes Volunteers

Barb Bahnfleth
Bill Bahnfleth
Jean Biegun
Boy Scout Troop 925
Donna Drexler
Lou Ann Gray
Patty Gray
Marty Gregory
Jon Henry
Chris Jagodzinsky
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Tom Kocourek
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Susan Knorr
Dean Lester
Ellen Lewellen
Dolly McNulty
Dave Nickels & Timing Crew
Susie Polk
Lucy Zeldenrust

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Tom & Betsy Kocourek
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Fricke Printing Service

Thank You

The following reflect gifts, donations and memberships received through May 15th

Bird Breakfast Volunteers

Joe Bernhart
Kathy Bernhart
Lyn Brouchoud
Donna Drexler
Lou Ann Gray
Bill Hoeltke
Traci Hoeltke
Susan Knorr
Barb Kussman
Donna Langman
Nancy Leigh
Don Lewellen
Ellen Lewellen
Jeannie Miller
Susie Polk
Jim Powers
John Woodcock
Julie Woodcock
Lucy Zeldenrust

Sponsors

Aegolius Bird Club
Browns of Two Rivers
Hawkins, Ash, Baptie and Company,
Wisconsin Public Service

Grants

Dominion Foundation, solar panel
project
Focus on Energy, solar panel project
Kohler Foundation, children's room
enhancements
Northeastern Wisconsin Great Lakes
Sport Fisherman, boardwalk
extension
Two Rivers Water & Light, solar panel
project
Walmart Foundation, education
program
West Foundation, habitat restoration
and outreach

Special Donations

Jim Knickelbine donated his \$500
Champion of Water Resources
Protection award.
Chuck Sontag donated his \$2,000

Champion of Champions award.
Tom Tittl created a beautiful wooden
sign for the Dorothy R. Starr Butterfly
Garden gate

Donations to Solar Panel Project

Don and Brend DeBruyn
Harold and Nancy Just
Edgar and Judith Stuntz

Donations for Harold W. Alyea Tower

Jack and Laurel Alyea
Robert & Kathryn Gahl
Jeff Gordon, SMI, Inc.
Green Construction
Jon & Annette Herny
PDJ Cutting and Fabricating

Matching Funds

IBM

Monetary Donations

Fred & Charlotte Alyea
Christopher Baugniet
Ice Age Trail Foundation, Lakeshore
Chapter
Donald & Dolores Janda
Albert & Theresa Kearney
Natures Own Gardners
Dan Mitchell
Jim Powers
Ronald Ratajczak
RiverEdge Galleries
Pam Rossano
Wisconsin Bowhunter's Association,
Scott Barner & Dick Luchsinger

Donations

Scott Barner, lock box for bat monitor
Bernie Brouchoud, fossil carbon dating
Eagle Optics, one pair binoculars
Fricke Printing Service, posters for Bird
Breakfast & BioBlitz
Mary Jo & Jim Hoftiezer, two pieces of
art & education materials

Bill Lewis, plants for the prairie
Doris Magyar, 72 pair of work gloves
Green Construction, sand and gravel
Roberta Ott, ski boots
PDJ Cutting and Fabricating, design
time for tower sign
Radandt Sons, sand and gravel
Mary Stegman, bag of bird seed
Ron Ratajczak, step stool for kids' room
Tom & Betsy Kocourek, stuffed
woodcock, 3 brace and bits
Ellen Eldredge Tate, 2 framed prints
Stan Tekiela, book for library
Bob Walkner, 2 brace and bits

Memorials

In memory of Florence Spindler

Robert & Deborah Bonk

In memory of David Schaap

Jeffrey & Janet Kohn

In memory of Dolores Fanslau

Jeffrey & Janet Kohn

In memory of Raymond E. Holschbach

Stephen Holschbach
Robert & Deborah Bonk

In memory of Jean Rahmlow

Lambrecht
Lorin Lambrecht

In memory of Virginia Brandt

Norma Schoss
Mike & Peg Mueller
Edward & Helen Hintz
Dorothy Wilson & David
Johnson

In memory of Emil Schleis, Jr.

Carol Martin

Adopt An Owl

Jeffery Sauer

Thank You

Red-spotted Purple butterflies can be seen in the fields and butterfly garden at Woodland Dunes.

Fund Drive

Ronald Ratajczak
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Mary Ellen Sampe
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Cindy Lupin & Mike Pinto
Stephen Miller

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Funding from corporate sponsors, Woodland Dunes members, donations and grants help support our school programs. Two fifth graders (above) from a Green Bay school are observing and identifying invertebrates collected from the pond in the Water Wonders program. By identifying these critters, students can calculate the biotic index of the pond and gain a better understanding of the health of the pond ecosystem.

Wish List

Black oil sunflower seed
Butcher paper
Crayons
First Aid Kit

Kids hammock for Little Wings
Niger seed
Paper towel
Power drill
Two well - working printers
Toilet paper

Ways of Giving



Red-spotted Purple butterflies can be seen in the fields and butterfly garden at Woodland Dunes.

Earn Rewards for Woodland Dunes at MC Sports

MC Sports is giving back to the community and is teaming up with Woodland Dunes. Next time you're at MC Sports, enroll in their ACTIVE REWARDS points program. This program is a no cost, no catch, points program. For every \$1 you spend, you earn 1 point. Once you reach 500 points, you receive a \$15 MC Sports gift certificate. Additionally, for every 10 points you earn, Woodland Dunes will also get a point. Woodland Dunes will receive a \$250 gift card for MC Sports once 250 points have been reached. This gift card can be used to purchase equipment for the education programs or be used in a fundraiser. When you join, let the cashier know that you want to be affiliated with Woodland Dunes. MC Sports is located off Calumet Ave. in Manitowoc at the Harbortown Mall.

Help Raise Money for Woodland Dunes Every Time You Search the Internet

I recently joined GoodSearch.com to raise funds for Woodland Dunes. GoodSearch is a free search engine that donates one cent to a charity of your choice, each time you use it to search the Internet. It is easy to set up on your computer – you simply create a user name and password, make GoodSearch your homepage and pick Woodland Dunes as your charity. I've already earned Woodland Dunes \$6.14 in the short, six weeks I've been using it! Additional money can be earned for Woodland Dunes if you use GoodShop. If you shop online at certain stores such as Amazon, they will donate a percentage of each sale to Woodland Dunes. Again, this is easy to use! Woodland Dunes will receive a check in November of each year. Just think, if just 50 of our members did this and earned an average of \$2.00 per month, that can add up to \$600 by November! For more information, visit www.goodsearch.com. Please consider making GoodSearch your search engine of choice! Thank you!



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