



*A small bee, about half the size of a honey bee, is one of dozens of insects swarming the flowers of a winterberry shrub at the BFEC.*

# Praise Bee

**The happiness of the bee and the dolphin is to exist.  
For man it is to know that and to wonder at it.**

*~ Jacques Yves Cousteau*

Imagine approaching a crab apple tree overflowing with pink spring flowers. You close your eyes and lean in towards a blossom to inhale its fragrance, but are startled as your flower starts to buzz. You see a bee fly off, and then notice half-a-dozen flying in and out to neighboring branches. You become aware that you can hear *a lot* of bees creating a subtle roar like the snapping of a high-tension power line, and that you are in fact enveloped in their frenetically alive, vibrating sphere.

Often the work being done here is by the familiar honey bee. But look more closely, and you may notice tiny, metallic green bees, blonde bees, fuzzy bumble bees, or bees that look like wasps.

The honey bee is, by far, the most celebrated of the insects present, due in no small part to the sticky, sweet

by-product of its labors. Although a key pollinator for many trees and plants, it is an import from Eurasia. It surprisingly doesn't know how to pollinate a tomato or pumpkin quite as well as the busy, if somewhat-underappreciated pollinators that are native to North America.

The honey bee's American counterparts range from diminutive to alarmingly stout, reclusive to gregarious, stingless to potentially painful. Some make nests in pithy twigs, while others dig intricate tunnels and line them with cut leaves, only to be parasitized by yet other bee species.

This diversity is not surprising considering that there are approximately 500 species native to Ohio alone. While less obvious than the honey bee, we need them too, in ways large and small.

## FIVE HUNDRED STRONG

Honey bees are unique in their habit of forming large colonies. Indeed, their collective numbers and intricate social behaviors are what make them prized commodities in the agricultural world, enabling them to effi-

ciently pollinate large fields of crops like almonds and blueberries. Thousands of hives migrate by the semi-truck load across the U.S. every year to do just that.

The endearing bumble bee lives in a much smaller hive, though its lifecycle and social structure are just as fascinating. In early spring, the young queen looks from an abandoned mouse tunnel or similar cavity to raise her brood. She fortifies it with insulation and builds wax honey-pots to feed her young, and then lays half-a-dozen eggs that hatch into sterile female workers. Smaller than the queen, these workers care for the rest of the brood while the queen lays more eggs.

As summer wanes, the queen lays both male (drone) and female eggs. The females are all new queens which mate soon after they reach adulthood. At the end of the season, the old queen, sterile workers, and males die, leaving only the freshly mated young queens. They find a secure place to overwinter, and then emerge in the spring to start their own colony.

Members of the Halictidae bee fam-

ily, minute and metallic green or copper in color, are solitary. Some species will share an entrance into a nest (usually a sandy tunnel or rotten log) but rarely colonize together. They have earned the name “sweat bee” because of their proclivity towards lapping up salts and minerals from your skin, and their sting is a minor one, issued with tiny stingers and mild venom. Most members are “polylectic”, or generalists that collect pollen from a variety of plants.

Andrenid bees, on the other hand, are specialists, only emerging when their favorite spring flowers are in full bloom. The observant naturalist can spot these non-descript little bees in the springtime, visiting violets and other flowers. Members of this family are responsible for pollinating rhododendrons, azaleas, and laurels, all flowers that cannot be pollinated by honey bees.

There are other crops that honey bees work less effectively than some of our native bee species. Alfalfa, for instance, an important food crop for livestock, presents a particular challenge to honey bees due the shape of the flower. And while honey bees *can* pollinate squash plants, the specialized squash bee (pictured below left) beats them to the punch, gorging early in the day and then napping in the flower by noon.

Most bees have specialized hairs or hind-leg “baskets” in which they collect pollen, which is usually fed to young larval bees. Not so for cuckoo bees, which parasitize nests of other bee species. In the early spring, these cunning, wasp-like bees fly low to the ground in search of a nest left unattended by the rightful owner. Once a suitable nest is located, the cuckoo bee sneaks in and deposits an egg. The egg develops more quickly than the host’s eggs, and the voracious larva devours the host brood and remaining food supply.

cious larva devours the host brood and remaining food supply.

### COLONY COLLAPSE CLUES

Aside from our sheer admiration and love of azaleas and zucchini, we celebrate our diversity of bees because they provide us with a bit of insurance. Indeed, this is one reason why diversity is important in so many arenas: it provides an alternative should you lose that one basket that contains all of your eggs.

The honey bee, figuratively speaking, carries a huge basket when it comes to our country’s food supply, responsible for one out of every three bites of food that you take. A world without honey bees might mean one with drastically fewer apples, avocados, and peaches, to name just a few products. Sadly, this prospect is not so far-fetched due to colony collapse disorder.

*Continued page 4*

## To Bee or Not to Bee



The insect world is full of deceivers. Unbound by ethical dilemmas, they have widely adapted the technique of impersonation to gain fame and fortune, rewarded in the form of food and offspring.

Not only do flies and wasp visit flowers along with bees, they at times mimic bees to more easily elbow their way to food. A fly may gain protection by pretending to be a stinging insect, while a wasp, which preys on other insects, may seem more benign.

The insect pictured above left is, in fact, a bee. Pollen clings to hairs on its body, which wasps and flies lack.

Bees and wasps also have two sets of wings and long antennae.

The identity of the wasp, pictured center, is given away by the fly in its clasp, as well as its slender waist. The insect pictured right: a fly. How to tell? It has one set of wings, stubby antennae, and no pollen-carrying hairs. The eyes of some flies also may nearly meet at the top of their heads.

Pick up a more tips and an easy bee identification guide at: [oarc.ohio-state.edu/ale/images/Bee\\_ID\\_guide.pdf](http://oarc.ohio-state.edu/ale/images/Bee_ID_guide.pdf)

# On the Ground

by Facility Manager David Heithaus

Spring certainly couldn't be bothered to hang around very long this year, so here we are in summer again, sweating and mowing and watering... and mowing and sweating... and watering.

## PRAIRIE ESCAPES TORCH

The quick passing of spring wasn't lamented for its moderate temperatures and sweet smells alone. For the first time since its seeding, the BFEC prairie was not visited by the pyro-fairies this year. Despite our best laid plans, weather conditions and schedules did not allow us to implement the time-honored and extraordinarily awesome management strategy of setting nine acres on (carefully controlled) fire.

While I'm sure I've mentioned that prairies needn't necessarily be incinerated *every* year, I'm not sure I ever truly intended to deviate from the torch. But the winds were not to be controlled and those sweet, steady southerlies gusting to 10mph (perfect for controlling our burn) only showed up twice: once on a day that we burned elsewhere and then on a day where it began to rain ten minutes before show time. We'd decked the RTV 900X out as a fire truck and everything...

So keep an eye on the prairie this summer- the results of not burning are already apparent in the number of unwelcome woody species sprouting amongst the grasses and goldenrod. It makes me nervous but like any experiment, you can't know the results until you run the tests... even if running the tests means sitting around in the rain watching the prairie not burn. I'll be working on permits for next time while the summer assistants are working on digging out all the berry, autumn olive and box elder.

Some of the woody species poking

their branches up through the grasses aren't as annoying as others. In fact, some of them are actually oaks. Despite what conventional wisdom might suggest about trees exposed to inferno every spring, these hardy pioneers have stored just enough energy in their roots to make a go of it should we ever fail to assault them. Like this year.



*The prairie grows this year without its annual spring torching, evidenced by some small oak trees braving to peek up among the grasses.*

Impressed by their fortitude and unable to eat their hearts to gain their courage (trees, I am told, do not have actual courage-containing hearts); we have decided to attempt a relocation to the hillside leading up to the pines. Ten years in the arena of fire being enough, they have earned their place in the stands. If the transplant goes well, they can spend the rest of their lives watching BFEC staff cook their young from on high.

## OAK TREES: STEMS OF STEEL

If they survive the transplant as well as they have their roastings, they won't be alone up there. If you recall, that entire area was planted

with red, white, black and scarlet oaks as part of our first teaming with the US Fish and Wildlife Service. The plan at planting four years ago was to allow successional vegetation, much of it invasive rose, to grow up and around the young trees.

Theoretically, this would minimize deer browsing until the trees could become established. Most of the hillside had been brush before the project and we figured that one growing season would be all the time required to hide most of the new oaks. On the section of the hillside that we historically mowed, we anticipated that successional shrubs would take longer to establish and that the oaks planted there would be less likely to survive the hoofed onslaught.

To confirm or deny at least part of that story, Kenyon's spring ecology class, led by Dr. Drew Kerkhoff, braved ticks, poison ivy, sun, thorns, other ticks and more, differently-colored ticks to conduct a survival census of the oaks in the area.

To my astonishment, between 85-90% of the trees without cover are still alive and kicking... botanically speaking. While almost all of them showed signs of deer browsing, they had still averaged about nine inches of growth over the past four years. Not an overwhelming pace but how well would you grow in four years if a giant grazing creature nipped off your limbs and head every few months? Oaks really are a pretty tough set of species. Fire? No problem. Drought? Just kills the competition. Giant limb-eating beasts with doughy eyes? Yeah, we got that. Let's hope their counterparts hiding amongst the rest of the mess on that hillside are doing half as well!

While we're on about oaks, let's zip across the river to the Givens' Grove. While we're experimenting

*Bees, continued from page 2*

Honey bee colonies have been dying, or collapsing, at random, all over the globe, puzzling the scientific community and beekeepers alike. In 2007, commercial bee keepers reported losses ranging from 30% to 90%, and the USDA has reported persistent losses in the 30% range in subsequent years. A wide host of factors has been called into the investigation room for questioning, including viruses, parasites, poor food due to loss of habitat, cell phone radiation, genetically modified crops, pesticides, or some combination of these factors.

A promising new study published in the June, 2012 *Bulletin of Insectology* points to a nicotine-derived pesticide called imidacloprid. Introduced in the early 1990's, this class of pesticides is now widely used on corn, grains, and vegetables. Even though colonies in the study fared well after three months of low-level exposure, 94 percent had died-off by the six month mark, indicting long-term build-up as a possible culprit<sup>1</sup>. Outcomes from other studies have also found that the pesticide renders bees more susceptible to fungal infection<sup>2</sup>.

## IN SUPPORT OF BEES

While performing the lion's share of the work pollinating our food and flowers, bees are certainly not the

only pollinators out there. Joining the army of bee species are flies, beetles, wasp, birds and butterflies (see page 2 for more on pollinating insects). Here at the BFEC, we promote pollinators of all stripes and their various preferences for room and board through conservation of diverse habits like prairie, farm field edges, forest, and wetland habitats.

The BFEC is also helping by participating in NASA's HoneyBeeNet research project, thanks to the help of local volunteer project coordinator Jason Bennett. Jason and other volunteers weigh the BFEC bee hives daily to measure honey production, which corresponds very closely with blooming and "nectar flow" of local plants. Researchers can use this data to determine if bloom dates are changing due to urbanization or climate change.

Data collected so far from this project, combined with historical data, have shown that spring bloom dates of major honey bee nectar plants such as honey locust and maple trees have been slowly inching up. In Maryland, researchers report that since the 1970's, spring bloom dates are arriving about one month earlier. Their concern is that relationships between plants and animals, including bees and all manner of other

wildlife, could be thrown out of sync.

To read more about the project, visit <http://earthobservatory.nasa.gov/Features/Bees/bees.php>, or contact Jason at [bennettj@kenyon.edu](mailto:bennettj@kenyon.edu) to volunteer.

Luckily, honey bees don't object to monitoring because it's conducted at dusk after they have settled down to rest in the hive. The droves of bees and other pollinators of the BFEC Wildlife Garden are also amenable to observation. The garden is great place to see them at work thanks to our focus on native plants, which often provide them with better food sources than imported varieties. Pick up a butterfly guide at our kiosk on your way into the garden, or try this short bee identification guide: [http://www.oardc.ohio-state.edu/ale/images/Bee\\_ID\\_guide.pdf](http://www.oardc.ohio-state.edu/ale/images/Bee_ID_guide.pdf)

Better yet, try attracting pollinators at home by bringing a pen and paper to jot down plants that catch your fancy from the labels that accompany our plants, or ask us for a native plant list for attracting butterflies.

1: <http://www.sciencedaily.com/releases/2012/04/120405224653.htm> 2: [http://en.wikipedia.org/wiki/Colony\\_collapse\\_disorder](http://en.wikipedia.org/wiki/Colony_collapse_disorder)



.....  
*Ground, continued from page 3*

with the duck, cover and wait [many, many... many] years strategy on the south side of the preserve, the Grove is being more intensively managed to reduce the impact of invasive plant species. Seeing how well they've grown on the uncovered section of the pine plantation hill, our plan in the Grove is to pit the oaks against the deer without the benefit of cover and save on invasive spread and clean up down the line.

We recently removed almost all of the multiflora rose from the area and it's really looking sharp. With the

exception of some Canada thistle and a smattering of invasive plants that have gained a foothold on the steep, wooded hillside, things are looking good for keeping that corner of the preserve a 'locals-only' area. Once our summer assistants make their way through the prairie, we have transport ready to take back that hillside.

On a final note, isn't it past time you visited the Wildlife Garden? No matter how many times I think that Jill and the team have reached the apex of what's possible out there, I find

myself corrected. Not only is the garden itself in phenomenal shape but Melissa's Garden is rocking, the farmhouse beds are gorgeous, the natural play space is amazing and even the oft-lamented woodland garden has been resuscitated. Get down to the garden area today- you won't regret the journey! If you see Jill or summer student staffers Kate, Maddie and Tim, sit in stupefied awe of the creators and be thankful that the eye is a narrow passage into the mind - lest yours be entirely blown by the splendor.

## NEWS from the BROWN

### STALKING A PICNIC NEAR YOU: YELLOWJACKETS

If you read our cover story, you learned that wasps are predatory, visiting flowers to dine on the assemblage of their vegetarian brethren busy collecting nectar and pollen. But as carnivores, why do they find your soda at the Labor Day picnic so irresistible?

While it's true that wasps hunt insects, they feed their prey to their young. Yellowjackets are actually omnivores; adults eat nectar, carrion, or your peanut butter-and-jelly, as do their offspring once they mature. By summer's end, the newly expanded population (parents plus offspring) becomes a horde of self-gratifying sugar fiends. Imagine a room full of toddlers having a free-for-all with a bucket of Twinkies, *along with* their parents, who have mysteriously lost all impulse control.

So don't take it personally - it's not that wasps simply like you (if your glass is half full), or have decided to ruin *your* picnic (if your glass is half empty). It's just best to keep that bucket of Twinkies under wraps until after frost.



### LATE BLOOMERS



Before you angrily shake your fist, between sneezes and through bleary eyes, at the goldenrod flowers that will start blooming in late August, please hear our plea for our favorite underdog. We love it for its brightness, as other plants in the garden turn brown and crinkly, and because it is a key plant for many pollinators, including our 500 species of Ohio native bees. It offers a burst of nectar and pollen just when these insects need it as they ready for winter. And the fact that bees (like the bumblebee pictured here) collect its pollen proves its innocence with allergy flare-ups. Those sneezes are caused by wind-born pollen, like that of rag weed (feel free to direct your scorn here). But goldenrod pollen is heavy and sticky; it is moved by pollinators to other flowers and to hives (where it is fed to young), not by wind to your nose.

### BFEC FLOURISHES WITH STUDENT STAFF

The purple coneflower with its spiky, luminescent-orange center, the bee balm with its flamboyant mop of burgundy hair, and the compass plant with its tropical-sized leaves and ten-foot tall flowers are just a few of the stars of the Wildlife Garden that owe their fame to supporting staff. Facility & Program Assistant Jill Kerkhoff has whipped the garden into shape this year with the help of superb summer student staff: Kate Moore '12 (pictured here), Maddie Thompson '12, and Tim Ladwig '13. The crew will also be de-thorning invasive species on the preserve and working with kids at our camp before their summer is through.

Student managers Claire O'Connell '13, Lily Miller '13, Scott Chernoff '12, and Simon Szybist '14, joined the BFEC team during the last school year, assisting with community and student outreach and residing at the BFEC Farm House. This coming fall, we're looking forward to the arrival of Emily Palmer '13, Jill Hanley '13, Aisha Simon '15, and Maddy McGrady '15. With warm weather and a slower academic schedule, fall is the perfect time to plan events to help connect Kenyon students with their Knox County home. Coming in September - a student tubing trip down the Kokosing!



# Calendar of Events

All events are free, open to the public, and start from the BFEC Resource Center at 9781 Laymon Road unless stated otherwise. For additional information, contact us at 740-427-5050, [dohertyh@kenyon.edu](mailto:dohertyh@kenyon.edu), or visit <http://bfec.kenyon.edu>

## Family Adventure Days - First Saturdays, 1-5pm

Join us for a different adventure every month! Check out an exhibit, chat with staff, go on a scavenger hunt, or try a craft. Visitors are free to explore the center, peruse our library, or borrow equipment like nets and binoculars.

- July 7** **Blooms & Butterflies** – see what’s flying in the Wildlife Garden, which features native plants and dozens of butterflies attracted by their blooms.
- Aug. 4** **Flying Dragons**, otherwise known as dragonflies, buzz around the ponds like fighter jets in late summer. See them on land and net them in “submarine” form in the ponds, where they live before maturing into flying insects.
- Sept. 1** **Prairie** – catch the last of summer among golden, towering prairie grasses at their finest, often full of hungry caterpillars marching towards a spot to hibernate.
- Oct. 6** **They All Fall Down** – as trees light up the hillsides with color, what better time to come for a walk? Try a scavenger hunt to explore leaf shapes and color and make your own tree I.D. guide.

## Sounds & Sights of the Night – Thursday, July 12, 8:30pm

Enjoy the cool night air as we explore for animals that warm up as the sun goes down. Start off with a 2-mile hike at dusk to look and listen for animals like bats, moths, owls, and frogs. Then relax to admire the skies with Kenyon Professor of Humanities Tim Shutt starting at 9:30pm. Bring a blanket or chair and admire the season’s constellations as you listen to mythological stories about the stars. Call the BFEC in the event of inclement weather for event status.

## Kokosing Creeking - Thursday, August 9, 7:00pm

**Laymon Road canoe access.** Cool your heals in the Kokosing River! Take a short hike and wade in to discover the diverse life of our state scenic river and how it is used to measure the river’s health. All ages welcome. Please wear water shoes or old sneakers for walking in water. Meet at the Laymon Road canoe access parking lot. *From downtown Mt. Vernon, follow S.R. 229/Gambier St. east 4 miles. Turn right onto Laymon Road, and immediately right into canoe access parking lot.*

## Garden Tour – Sunday, September 9, 2:00pm

Tour the Wildlife Garden to discover late-blooming native plants, which are especially important to honey bees and other pollinators as they prepare for hibernation. Watch bees and butterflies in action and learn tips on establishing your own wildlife garden.

## Fall Harvest Festival - Saturday, October 20, 2-5pm

Celebrate the season with this FREE family event. Activities include wagon rides, live music, kids harvest races, farm animals and produce, bonfire, cider press, pumpkin decorating with OSU Extension Master Gardeners, and the Knox County Nature Photography Contest show.

## Miller Observatory Open House - last Fridays,

**9pm.** Kenyon Professor of Physics Paula Turner hosts an open house on last Fridays of the month. Open houses are cancelled in cloudy weather. Please dress warmly. Contact Paula with questions at [turnerp@kenyon.edu](mailto:turnerp@kenyon.edu). **Directions:** From Mt. Vernon, follow S.R. 229/Gambier St. east 4 miles. About ¼ mile before reaching the S.R. 308 / Laymon

*Calling All  
Photographers!*

### **Knox County Nature Photography Contest**

Get your cameras humming now for this community contest celebrating our local landscape.

The tentative submission deadline is October 15<sup>th</sup>. A contest show and public-choice voting will take place during the BFEC Harvest Festival on Saturday, October 20<sup>th</sup>. Look for contest rules (available in August) at <http://bfec.kenyon.edu>.

# Thank You to...

## Our Members *April-June 2012*

### FRIEND

William Barney III  
 Geoffrey & Lori Brown  
 Kevin & Denise Conway  
 Florence Short  
 Ian & Charlotte Watson

Jody Forman  
 Eric & Judy Holdener  
 Jennie Jacobson & Jim Huang  
 Ann & Sam Laudeman  
 John & Rebecca Lowther  
 John & Jill Paul  
 Marilyn & Geoffrey Stokes

Dean Sheldon  
 David Wiesenberg

### DONOR

Barbara Hules

### FAMILY

James & Marlene Carter  
 Barry & Brenda George

### INDIVIDUAL

Rosemarie Lehane  
 Margaret Raasch

## Our Volunteers

**In the office, classroom, gardens and on the trails:** Pam & Steph Harman, Kenyon Land Lords Club, Brad Perkins, Jon Minard, Brian Zimmerman

**Earth Day Festival:** Steph Harman, Rebecca Metcalf, Sarah Goslee Reed, Allen San-

derlin, Zach Sawicki, Knox Community Hospital volunteers, Medical Reserve Corps, Kenyon College Chapter of Theta Delta Phi

**Field Trip Leaders:** Thank you to the 40 Kenyon student and community and volun-

teers who helped us bring over 400 elementary students to the BFEC this spring.

**Earth Day Challenge Marathon:** Our sincere thanks to the 250+ volunteers whose contributions made the event possible!



# Support the BFEC

**Membership is based on the calendar year. Now is the time to join or renew for 2012!**

There are many reasons to give, including the satisfaction of knowing you're a part of critical environmental education and conservation programs. Receive preferred access to popular workshops, a hard copy of our newsletters, and 10% discount on bird seed. Please use the form below or payment envelope to send your contribution today, and thanks!

**Membership level:** Student \_\_\_ \$20    Individual \_\_\_ \$35  
 Family \_\_\_ \$50    Friend \_\_\_ \$100    Patron \_\_\_ \$250  
 Benefactor \_\_\_ \$1000 +

**Amount enclosed:** \_\_\_\_\_

My check, payable to Kenyon College, is enclosed

Please bill my \_\_\_ Visa or \_\_\_ MasterCard

Card number \_\_\_\_\_ Exp. date \_\_\_\_\_

**Mail to:** BFEC, P.O. Box 508, Gambier, Ohio 43022

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State, Zip Code \_\_\_\_\_

Telephone \_\_\_\_\_

Email \_\_\_\_\_

Your donation is tax deductible as allowed by law. The Brown Family Environmental Center at Kenyon College is a 501c(3) nonprofit organization.



# Brown Family Environmental Center at Kenyon College

9781 Laymon Road, Gambier, Ohio 43022 ~ (740) 427-5050 ~ <http://bfec.kenyon.edu>



## *Our Mission*

The BFEC at Kenyon College exists to engage Central Ohioans of all ages with nature, and to support the goals of Kenyon College by conserving the natural diversity of the Kokosing River valley and providing opportunities for education and research.

## *Co - Executive Directors*

E. Raymond Heithaus, *Jordan Professor of Environmental Studies & Biology*  
Siobhan Fennessy, *Associate Professor of Biology*

## *Facility Manager*

David Heithaus

## *Program Manager*

Heather Doherty

## *Facility & Program Assistant*

Jill Kerkhoff

## Upcoming Events

Thursday	July 12th	Sounds & Sights of the Night
Saturday	Aug. 4th	Family Adventure Day: Flying Dragons
Thursday	Aug. 9th	Kokosing Creeking
Saturday	Sept. 1st	Family Adventure Day: Prairies
Sunday	Sept. 9th	Garden Tour
Saturday	Oct. 6th	Family Adventure Day: They all Fall Down
Saturday	Oct. 20th	Fall Harvest Festival

## **Knox County Nature Photography Contest**

*Deadline: Monday, October 105th*

Prizes awarded!  
Adult & Children's Divisions  
Contact us for contest rules



*Details inside & at <http://bfec.kenyon.edu>*

DATE MAILED: July, 2012  
CONTAINS DATED MATERIAL

**Brown Family Environmental Center  
at Kenyon College**  
P.O. Box 508, Gambier, Ohio 43022





