



Volume 38, Number 3  
Fall 2019

## Carpenter St. Croix Valley Nature Center

12805 St. Croix Trail S.  
Hastings, Minnesota 55033

Wisconsin Campus:  
300 E. Cove Rd.  
Hudson, Wisconsin 54016

Phone: 651-437-4359

[www.CarpenterNatureCenter.org](http://www.CarpenterNatureCenter.org)

*"The mission of Carpenter St. Croix Valley Nature Center is fostering a lifelong appreciation of the natural world through environmental education, habitat conservation and outdoor experiences."*

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## Field Notes

By Jen Vieth

As the sweltering dog-days of summer give way to crisp weather and vibrant autumn leaves, it's time to escape into nature. When life gets hectic, or there are big decisions looming, where do you go? Close your eyes and picture that space. Your breathing slows and your shoulders drop as you begin to relax. Is your favorite place unique to you? Or is it somewhere that invokes a deep connection, and **sense of place**, in all people that visit?

Widely interpreted, **sense of place** is defined as characteristics of a specific geographical location, or the perceptions about a place held by people. The Grand Canyon is a common landmark that inspires a sense of place. Other spaces are more personal. Through the years we have heard of many favorite places at CNC, where one can feel connected to the place and the natural world. Old yews planted by Mr. Carpenter create a hidden fortress which has been cherished by generations of youth. A weathered bench overlooking the wetland is a perfect place to watch the sun dip towards the horizon as you contemplate life. The grassy trail that meanders through the large spreading oaks in the savannah evokes a sense of belonging. Each location is unique in its sights, scents and sounds.



*One council ring looks out over "the bowl" and sits at the intersection of the Ridgeline and Goldenrod trails (top). The CNC habitat restoration team rest in the shade and admire their work on the prairie (bottom).*

As you wander the Wisconsin Campus trails, thinking of sense of place, you will come across the two new council rings. The distinctive circular feature was conceptualized by Jens Jensen, a landscape designer born in Denmark in 1860. Jens emigrated to Chicago, collaborated with Frank Lloyd Wright and began the "Prairie School of Landscape Design." To Jens the stone rings symbolized the bond between people and nature. Inspired by the traditions of Vikings, Native Americans, and the legend of the Knights of the Round Table, the stones are arranged in an equal ring, where there is no head of the table, no hierarchy, and all community members are of equal status.

Carpenter Nature Center's council rings are in sites that evoke a sense of place. One is nestled at the edge of the fragile remnant habitat, known as "the bowl." The plant and animal species in this unfarmed section have been present for over 100 years. The other ring is at the transition zone between towering conifers and the open prairie. The ring is situated at the southern edge of the central eighty-acre restored prairie, a favorite destination of hikers. The raised ring catches the breeze, providing a beautiful resting spot, some day to be shaded by mighty oaks.

As back-to-school season speeds up schedules, take a moment for yourself. Wherever your path leads you, relax and experience nature as it ebbs and flows around you. Absorb the soaring eagles on migration, the busy foraging bumblebees and the vibrant asters blooming in the prairies. Enjoy the connection to this beautiful place we all call home.





# Minnesota Campus Programs & Events

Hiking trails wind throughout the tall pines, oak savanna, restored prairies, wooded ravines, around the apple orchard, and along the river of our 425-acre Minnesota Campus located at 12805 St. Croix Trail South, Hastings, MN 55033.

ALL PROGRAMS REQUIRE RESERVATIONS—Please call 651-437-4359 to register



Paul Blanchard

## Bird Hikes

Sept 7 & Oct 5  
8:00—10:00 am

Learn to identify birds with local experts. Binoculars and field guides will be available to use or you may bring your own. Meet at the Visitor Center. Program Fee: \$6 or FREE for 'Friends of CNC,' SCVBC members and high school students.

## Public Bird Banding

Sept 27 • Oct 25 • Nov 22 • Dec 27

8:30 am—Noon

See birds up-close and watch the experts band birds at CNC. Banding runs continuously, so come and go as you please. Donations of birdseed appreciated in lieu of a program fee.

## Migratory Bird Count and Hawkwatch

September 29 • 10:00 am—2:00 pm

Each fall, thousands birds migrate south to their wintering grounds in the southern U.S. and beyond. Our team of spotters will count migrants including raptors, songbirds, gulls, and other southbound birds. Come ask questions, check in on count totals, or participate in the count. Binoculars are available. Program Fee: FREE.



Jen Vieth



Wendy Hill

## Owl Banding

Oct 23 & Nov 6  
8:00—10:00 pm

Learn about the migration patterns of Saw-whet Owls. Join our naturalists as they venture out to band these mysterious birds of prey. Space is limited for this FREE program, so call 651-437-4359 early to reserve your spot. Program is weather-dependent.

## Preschool Storytime

Fridays • 10:00 - 11:00 am  
Sept 13 • Orchard Fun

Oct 25 • Costumes & Critters  
Nov 8 • Farewell to Fall  
Dec 6 • Winter is Coming

These programs introduce children ages 2-5 to nature in a fun and safe environment. Listen to stories, spend time outdoors, make a craft and meet CNC's live animals. Call ahead to register. Children must be accompanied by an adult. Program Fee: \$5 per child or \$3 for 'Friends of CNC.' No charge for adults.



Sue Plankis



Jen Vieth

## High School Ice Fishing Seminar

October 26 • 2:00—5:00 pm

Join local angling experts at CNC to learn tips and tricks to help prepare you for the upcoming ice fishing season. Learn about a variety of tackle and gear, how to scout the best fishing spots, discover new techniques for luring fish, and meet fellow anglers. Please call 651-437-4359 to reserve your spot. Program Fee: FREE.

## Home School: Birds

November 15 • 9:00—10:30 am

CNC's Home School Programs are created to offer students in home schools an opportunity to meet other children, take part in environmental education programs, and enjoy the outdoors. In this program, students will learn about bird identification and biology, and will have the opportunity to meet one of CNC's raptor ambassadors. Please dress appropriately for the weather. Program Fee: \$6 per student or \$4 for 'Friends of CNC.'



Lizzy Danich



# Minnesota Campus Programs & Events

If you would like to receive monthly email updates, please visit our website [www.carpenternaturecenter.org](http://www.carpenternaturecenter.org) to join our email list.



## Autumn in the Valley Gala

Sunday, September 8, 2019

4:00—9:00 pm

Guests enjoy tours of the trails, mingling near the gardens, silent and live auctions, beer tasting courtesy of Spiral Brewery, and dinner and open bar provided by Lake Elmo Inn.

Tickets: \$110 per person

To purchase tickets, contact Erika at 651-437-4359, email her at [erika@carpenternaturecenter.org](mailto:erika@carpenternaturecenter.org), or go to [cnc.givesmart.com](http://cnc.givesmart.com).



Mike Mann

## Raptor Release

Saturday, September 28 • 10:00 am—1:00 pm

Join Carpenter Nature Center and The Raptor Center of the University of Minnesota as they release rehabilitated raptors at CNC. Event includes hay wagon tours, kids activities, raptors on display, and a variety of education booths from area environmental organizations. This FREE event is enjoyed by all ages. Dogs are not allowed.

## Apple Festival

October 12 & 13 • 10:00 am—5:00 pm

Carpenter Nature Center grows some of the most delicious, healthy, and eco-friendly apples in the St. Croix River Valley. Come visit CNC to celebrate the harvest with hay rides, live music, live animal programs, apple brats, pumpkin decorating, bake sale, cider-making demonstrations, and more. Purchase jams, jellies, squash, honey, and more at our Apple Shack too. This FREE event is fun for the whole family.





## Orchard Overview



The CNC orchard began as the passion of Thomas and Edna Carpenter in the 1950's. Today, CNC is proud to be part of the robust orchard community in the St. Croix River Valley, offering 14 varieties of tasty apples. As a nature center, we are committed to growing the highest quality fruit in a way that is environmentally sustainable.

### "Taste of the Season" Apple Tree Sponsorships

Each spring as apple blossoms fall and small, green fruits begin to grow, apple lovers register to sponsor apple trees at CNC. For amounts ranging from \$150 to \$250 (depending on the apple variety), sponsorships include a \$100 donation to CNC, and donors receive 40 pounds of top-quality apples. These apples are stored at CNC in climate controlled coolers and ready for pick-up at the donors' convenience. This year, CNC offered a new "Taste of the Season" Sponsorship which, for \$250, includes a five-pound bag of eight different apple varieties; Zestar!, Sweetango, Honeycrisp, Haralson, Cortland, Honeygold, Regent, and Snowsweet. The registration period for 2019 Tree Sponsorships has now closed, but mark your calendar for April 2020, as we will be accepting registrations for next season at that time. For more information about Apple Tree Sponsorships, contact Erika@carpenternaturecenter.org.

### "Three Sisters" Garden

While the main focus of CNC orchard operations is growing apples, the orchard staff is also passionate about cultivating other plants. This year, a new garden was created to experiment with, and display the technique of companion planting. In companion planting, crops of different varieties are planted in close proximity to one another for mutual benefit. Planting in this way helps to facilitate pollination and the presence of beneficial insects, maximize use of space, and increase crop productivity through nutrient capture and sharing. Companion planting has been practiced for centuries by a variety of cultures, but one of the most well-known examples is the "Three Sisters." The moniker, Three Sisters, is a reference to the three, staple crops grown by Native Americans in North America: corn (maize), beans, and squash. The corn serves as a trellis on which the beans can grow, the beans capture nitrogen which enriches the soil to benefit the corn and squash, and the squash covers the ground in a way that suppresses the growth of weeds and helps to maintain soil moisture. Companion planting is an environmentally-friendly alternative to monocultures.



Sverre Sundgaard

### Giant Pumpkins

The pumpkin patch is a beloved corner of the CNC orchard. For years, families have enjoyed perusing the patch for the perfect orange orb to create their Halloween Jack-o-lanterns. This year, there are new residents in the patch: giant pumpkins! Already a hassle to lift, these big beauties will continue to grow during the autumn months, and will be displayed in their full glory during our annual Apple Festival. The pumpkins will be used for education purposes to teach children about plant parts and lifecycles.



Sverre Sundgaard

**DID YOU KNOW:** The largest pumpkin ever recorded by Guinness World Records was grown in Belgium and weighed a whopping 2,624 pounds!

### Opportunities to Pick-Your-Own Apples

The primary focus of CNC's orchard operation is education, and as such, we do not offer regular opportunities for the public to pick their own apples. That being said, there are two occasions each year when we open our orchard to those who want the experience of plucking fresh apples from the tree. The first opportunity will be on **September 28** during our Raptor Release, and the second will be on **October 12 and 13** during our Apple Festival.

## APPLE SHACK OPEN

September 5 – Thanksgiving

9:00 am – 5:00 pm\* daily

Apples • Cider • Pumpkins and Squash  
Honey • Syrup • Salsa • Jams and Jellies  
Tasting Opportunities • Recipes

*\*During the fall season, CNC front gates and Apple Shack will remain open until 5:00pm.  
All other buildings, parking lots, and trails close daily at 4:30pm.*

## Wisconsin Campus Programs & Events



Wildlife abounds in the prairie and wooded bluffs on our 300-acre Wisconsin Campus located at **300 East Cove Road, Hudson, WI 54016**. While this campus is currently without amenities, plans have been set in motion to build a facility to meet the needs of the community.

**ALL PROGRAMS REQUIRE RESERVATIONS—Please call 651-437-4359 to register**

### Bird Hikes

Sept 14 • Oct 12

8:00—10:00 am

Nov 9 • Dec 14

9:00—11:00 am

Learn to identify birds from the local experts of the St. Croix Valley Bird Club (SCVBC). Binoculars and field guides will be available to use or you may bring your own. Come to one or



Mark Ritzinger

all of the hikes. Meet at 300 East Cove Road. Program Fee: \$6 or FREE for 'Friends of CNC' and SCVBC members.

### Saw-whet Owl Banding

October 17 & 30

8:00—10:00 pm

Learn about the migration patterns of Saw-whet Owls. Join our naturalists as they venture out to band these mysterious birds of prey. Space is limited for this FREE program, so please call 651-437-4359 early to reserve your spot. Program is weather dependent.



Wendy Hill

### Meteor Madness

November 16 • Dusk—Midnight

Escape the city lights and spend a relaxing night watching the Leonid Meteor Shower at CNC. This event will be held at the council ring near the parking lot on South Cove Road. Bundle up, bring your blanket and lawn chair, and enjoy the stars at your leisure. A small fire will be burning to warm cold fingers and toes. Hot cocoa will be provided to help keep you toasty from the inside-out. There is no fee, but please call 651-437-4359 to let us know you are coming. Donations to cover the cost of hot cocoa are appreciated.



Jeff Sullivan

**As we expand program offerings at our Wisconsin Campus, we welcome topic suggestions. Contact us with your input!**

## Environmental Endeavors Weekend

### Buckthorn Busting

October 26 • 9:00—11:30 am

Help manage invasive species by taking part in this service learning opportunity. Master Naturalist, Gladi Sippel, will teach participants how to identify and effectively eradicate buckthorn and will then lead crews out to the field for hands-on experience. In addition to learning about buckthorn, participants will also help with removal of Amur Maple. Engaging in this program will help CNC habitat restoration efforts, and participants will gain knowledge they can bring home and utilize for future invasive species removal. As a thank you for the hard work of Buckthorn Busting participants, lunch will be provided following the program. To register for this program, INCLUDING LUNCH, contact Gladi Sippel at sippeljg@baldwin-telecom.net.



Gladi Sippel

### Seed Saving

October 27 • 1:00—3:00 pm















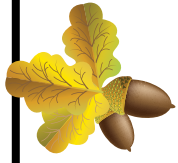
















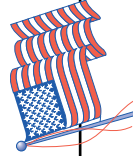








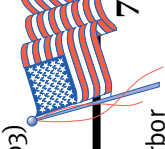
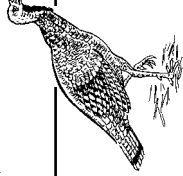
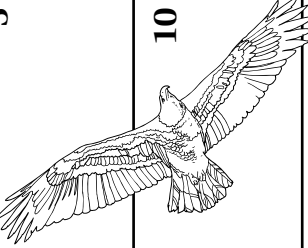
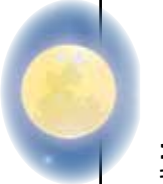

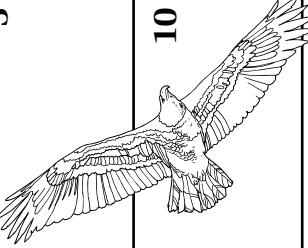



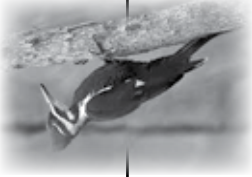



Join Tara Kelly, a Landscape Restoration Specialist with the Washington Conservation District, on a hike through the prairie to harvest prairie seed. Participants will learn how to identify and harvest seed from prairie plants including grasses, goldenrods and asters. Seeds collected during this program will be used to reinvigorate the prairie plant communities at CNC. Program Fee: FREE for Buckthorn Busting participants, \$6 or \$4 for 'Friends of CNC' if registering for this program only. **To register for the Seed Saving program, please call CNC at 651-437-4359.**





# 2019 Calendar of Events at Carpenter Nature Center

Phenology from 2018 (with additional entries from CNC's past phenology notes)

<b>September</b> 1 13 hrs and 14 mins of daylight	2 Labor Day 	3 	4 	5 Apple Shack Opens 119 lbs of honey harvested at CNC ('00) 	6 	7 Bird Hike – MN
8 Autumn In The Valley Gala	9 	10 	11 Patriot Day	12 Many Eastern Cottontail Rabbits on lawn 	13 Preschool Storytime: Orchard Fun – MN Full Moon	14 Bird Hike – WI
15 Red-headed Woodpecker sighted	16 Common Milkweed going to seed	17	18 Three Golden-winged Warblers sighted	19 	20 	21 Snow flurries reported at MSP ('95) 
22 80-90 White Pelicans flying overhead	23 Autumnal Equinox	24 	25 Picking Fireside and Honeygold apples ('97)	26 	27 Public Bird Banding – MN	28 Raptor Release – MN 1,180 migrating Blue jays counted
29 Raptor Count and Hawk Watch – MN Rosh Hashana and Navaratri begins	30 	<b>October</b> 1 Squirrels eating dandelions	2 90 degrees in Hastings ('97)	3 	4 	5 Bird Hike – MN
6 Dark-eyed Juncos have arrived for Winter	7 Six Cooper's Hawks sighted	8 Draconids Meteor Shower peak Yom Kippur Begins	9 	10 	11 Morning flurries	12 Apple Festival – MN Bird Hike – WI
13 Apple Fest – MN Full Moon 	14 Indigenous People's Day	15 	16 American Toad sunning 	17 Owl Banding – WI 	18 	19 30+ Eastern Bluebirds at Front Gate ('98)
20  	21 Orionids Meteor Shower peak	22 	23 Owl Banding – MN 	24 	25 Public Bird Banding – MN Preschool Storytime: Costumes and Critters – MN	26 High School Ice Fishing Seminar – MN Buckthorn Busting–WI
27 Prairie Seed Collection - WI	28 Trumpeter Swans flying south ('02)	29 	30 Owl Banding - WI	31 	<b>November</b> 1 Very late Baltimore Oriole sighted 	2 Very late Baltimore Oriole sighted
3 Central Standard Time resumes	4 	5 Election Day 	6 Owl Banding – MN	7 Ice on pond 	8 Preschool Storytime: Farewell to Fall – MN 	9 Bird Hike - WI
10 	11 Veteran's Day	12 Full Moon	13 47 birds banded ('09)	14 Chipmunk eating below bird feeders ('96)	15 Home School Program: Birds - MN	16 Meteor Madness - WI Bald Eagle perched in nest
17 Leonids Meteor Shower peak	18 	19 Raccoon scat on sidewalk ('96)	20 Deer tracks in Circle Garden ('12)	21 	22 Public Bird Banding - MN	23 
24	25 	26 Cooper's Hawk caught and banded ('03)	27	28 Thanksgiving Day (CNC Closed)	29 St. Croix River frozen all the way across	30 Northern Harrier over prairie ('03) 
<b>December</b> 1 	2 Coyote spotted by Savannah Trail	3 	4 	5 Opossum behind raptor enclosures 	6 Preschool Storytime: Winter is Coming	7 Pearl Harbor Remembrance Day
8	9 Five Northern Flickers sighted	10 	11 Full Moon	12 	13 Geminids Meteor Shower peak	14 Bird Hike – WI
15	16 7-year-old Blue Jay banded ('05)	17 18 Bald Eagles by Prescott bridge ('02)	18	19 Still no ice on St. Croix River ('01) 	20 	21 Winter Solstice Ursids Meteor Shower peak
22 Hanukkah Begins	23 	24 Christmas Eve	25 Christmas Day (CNC Closed) 	26 	27 Public Bird Banding – MN	28 8 hrs and 48 mins of daylight
29 100+ European Starlings by Admin Building ('06)	30 New Year's Eve	31				



# People Profiles

As a 501(c)(3) non-profit organization, Carpenter Nature Center heavily relies on the support of dedicated volunteers, hardworking interns, a passionate Board of Directors, and generous donors. On behalf of the staff at CNC, we would like to take time to express our gratitude for the contributions of just a few of the individuals who help us serve the communities on both sides of the beautiful St. Croix River.

## BOARD OF DIRECTORS

Dan Baasen  
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Alan Maloney  
Clare Neenan  
Linda Polglase  
Sverre Sundgaard

## Volunteer Spotlight

### 2019 Volunteers of the Year—John & Gladi Sippel

In this issue we are pleased to shine the spotlight on our Volunteers of the Year, and this year the award goes to the duet of John and Gladi Sippel. John and Gladi started volunteering for CNC in 2010, and together they have put in over 1000 hours. John and Gladi have helped with special events and a boatload of office work and mailings. On the Wisconsin campus, they have assisted with bird hikes, owl prowls, and have done a great deal of work removing buckthorn. Thank you, John and Gladi, for giving your time, talent, and dedication to CNC. Your “Can Do” attitude and willingness to pitch-in along with your humble demeanor makes you a great asset to our volunteer corps, and we thank you from the bottom of our hearts. Congrats!



## Meet our Donors

### Marigayle Alvey

Originally from Indiana, Marigayle Alvey and her husband, Brenton, have lived all over the country. They moved to Hastings in December 2012, and first came to CNC that winter for the Masters of the Sky program. As an animal lover, when offered the chance to participate in the 2016 Masters of the Sky Donor Night, she jumped at the opportunity. Not only did Marigayle and Brenton donate to benefit the World Bird Sanctuary, they also generously adopted one of CNC’s animal ambassadors: our Peregrine Falcon. Since then, they have sponsored both the Peregrine Falcon and Red-tailed Hawk.

When asked what continues to draw her to CNC, Marigayle said, “I need green!” She loves to come to the nature center to walk her dogs, spend time amongst the trees and flowers, and center herself mentally and emotionally. Being at CNC helps her to reduce stress, and the peace she finds in nature helps her to get through life’s challenges, both big and small.



Marigayle holds Eurasian Eagle Owl, Trevor, from the World Bird Sanctuary at the 2016 Masters of the Sky Donor Night. Photo Credit: Jeff Fischer.

In her free time, Marigayle loves to ride motorcycles with her husband to experience the beautiful scenery across the country. She realizes though, that not all people have the resources to travel and experience nature, which is why she and Brenton are so passionate about supporting CNC. They want all families to have access to safe and educational experiences outdoors. Thank you, Marigayle for your enthusiasm and dedication.

# People Profiles

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## Meet our Interns

### Jake Dale

Jake Dale is a student at Upper Iowa University majoring in Conservation Management and minoring in Earth Science. He is interested in natural resources. Over the course of the summer, he enjoyed learning about the various ecosystems at the nature center as well as how the apple growing process works. In his free time, Jake plays baseball at Upper Iowa, runs a small business called Driftless Area Guide Company, and trout fishes.

### Allie Ott

Allie Ott was one of our environmental education interns for the summer. She is a senior at the University of Wisconsin-Stevens Point majoring in biology and minoring in environmental education. Her interest in teaching children about the natural world is what drew her to Carpenter Nature Center, but the wonderful people, campers, animal ambassadors, and gorgeous hiking trails are what won her over. She was thrilled to spend her Friday mornings with the bird banders and the rest of her week with the campers and school kids in the outdoors. She was most excited to learn about the native birds and plants in the area, because they differ from her hometown in Milwaukee, WI.

### Rachel Roberts

Rachel Roberts is a student at St. Olaf College studying Environmental Studies, with an emphasis on the Social Sciences. This was her second summer interning at CNC. In 2018, Rachel was an Environmental Education Intern. This summer, she served as the Outreach Intern, a new internship position at CNC. She is very passionate about teaching others the value of our planet, especially because it was a teacher that first inspired this value in her. In her free time, Rachel enjoys playing with her dog, Ellie, and spending time with friends and family.

### Anders Santelman

Anders Santelman is a junior at the University of Minnesota Duluth studying Environmental Science. He is an officer of the Environmental Science Club at his University. He grew up in Hastings, and attending field trips to Carpenter Nature Center was his favorite part of the school year. Anders enjoyed learning about the plants and animals that are native to the St. Croix River Valley, and assisted with the assembly of a Motus Wildlife Tracking System at CNC. When Anders isn’t at his cooking job, he likes to spend his free time playing soccer, walking through the woods, and building computers.

### Tyler Warwick-Mick

Tyler Warwick-Mick is a student at University of Wisconsin- Eau Claire studying Biology and Psychology with a minor in Chemistry. They have a passion for animal behavior and plan to attend graduate school for further studies. In addition to working at CNC as an environmental education intern, Tyler enjoys helping with events at their local library, going out to eat with their friends, and watching cheesy ghost shows with their mom.

### Tess Zahradka

Tess Zahradka joined the CNC team as an Environmental Education and Communications Intern in January 2019. She is a recent graduate from Winona State University with a Bachelor’s of Science in Ecology. Her time at CNC has made her a ‘Tess of all trades,’ developing numerous skills that are part of her everyday tasks. Never in a million years did she think she would have the opportunity to handle raptors and love it. The internship shed new light on a career in environmental teaching. She hopes to continue working with raptors and giving kids their “ah ha!” moment in nature.



Back row (from left): Allie Ott, Anders Santelman, and Jake Dale. Front row (from left): Rachel Roberts, Tyler Warwick-Mick, and Tess Zahradka.



## Get Involved at CNC

If you are considering contributing to CNC, check out these giving opportunities, and visit our website for information about becoming a 'Friend of CNC,' adopting an animal ambassador, planned giving, and more.

### Volunteer Corner

A **Volunteer Information Meeting** will take place on Tuesday, September 17 at 7pm in the Visitor Center. This informal meeting is for those interested in becoming a CNC Volunteer; it is a time to see how your interests match with our needs. Please call ahead to let us know you will attend.

**Adopt-a-Highway Cleanup** will take place on Monday, September 16 starting at 5:30pm. Trash bags and safety vests will be available. If you are able to help, bring your gloves and your favorite litter stabbing tool and let's make the roadside clean for all the fall events.

The **Raptor Release** will take place on Saturday, September 28. We will need lots of volunteers to do various tasks like directing cars to parking areas (need lots of help here), giving out information, helping in the Apple Shack, and directing people to the release site. Please call if you are able to help – we really need lots of volunteer help with this event. Did I stress enough that we need lots of help on this day?

This fall, **Apple Fest** takes place on October 12 and 13 and it is another great opportunity to help your favorite Nature Center. You can volunteer for one or both days, bake something for the Volunteer Bake Sale, or you can do both (we really like that kind of help). Please come out and be part of the fun.

If you are interested in helping with any of these events, please call 651-437-4359 and ask for Alan, the Volunteer Coordinator; or email Alan@CarpenterNatureCenter.org.



### Memorials & Honorariums

We wish to express our appreciation for the following gifts:

#### In Honor Of

*Jennifer Vieth from Ron & Audrey Kintzi*

#### In Memory Of

*Stan Allison from Leila Allison*

*Donna Buck from Donald Buck*

*Tom Bump from Michelle Bump*

*Richard Gustafson from Katherine Cram*

*Bernice Johnson from Karen Neenan*

*Martin Kellogg from Gordon & Josephine Bailey, Keith & Judy*

*Leary, Susan Richards, and Jen Vieth & Family*

*Miles from Randolph & Karen Huppert*

*Ted Samolytz from Sheri Samolytz*

*Gene Starz from Elaine Tonolli*

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*Marsha Travis, Jen Vieth & Family, David & Sara Wuest, M.*

*Barbara Ziegenhagen & Patrick Higgins, and Jim & Dixie Zietlow*

If you are interested in contributing to CNC on behalf of a loved one, contact Erika Jensen by calling 651-437-4359 or emailing Erika@carpenternaturecenter.org.

## CNC Wish List

Carpenter Nature Center is in need of the following items in good condition:

- Paper Shredder—contact Erika Jensen for details
- Seat Covers and Floor Liners for Outreach Van—contact Jessie Eckroad for details
- Pocket Knives—contact Alan Maloney for details
  - Black Sharpie Markers
  - White Cardstock
  - Gallon Jugs of Bleach
  - Flash Drives
  - Black Oil Sunflower Seed

## Science at CNC

Communicating the most accurate, up-to-date information is of paramount importance at Carpenter Nature Center. Whether the subject is global or local, big or small, we are committed to teaching people of all ages about the multiple facets of the natural world.

If you enjoy this article and want more nature news, please subscribe to our monthly e-newsletter.

### A2 + Bee2 = C2

By Communications Intern Tess Zahradka

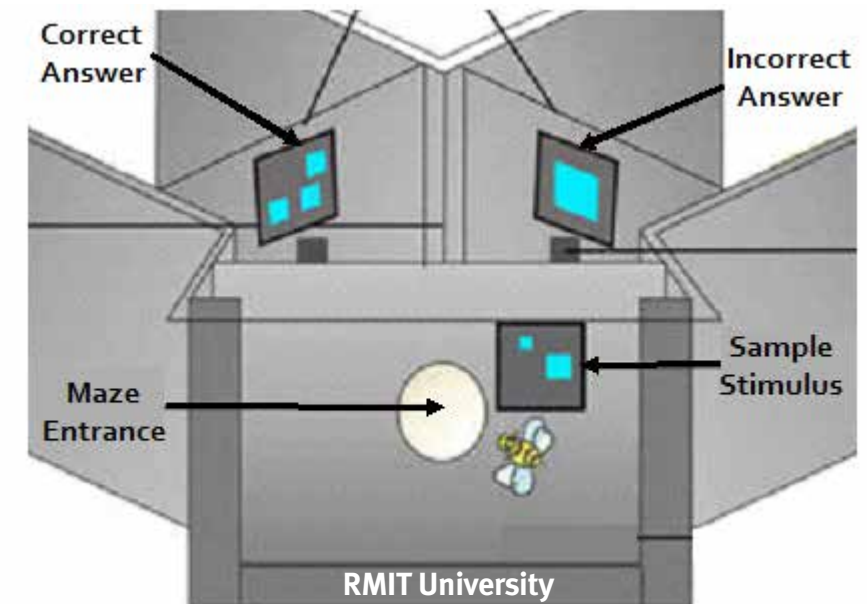
"1, 2, 3, I can count like a bee," may be a new way kids begin to learn math. Recent studies from RMIT University in Melbourne, Australia have confirmed honey bees, *Apis mellifera*, can do basic math. It's not groundbreaking arithmetic, but evidence shows bees can be taught to recognize colors as symbolic representations for addition and subtraction.

In the experiment, 14 individual honey bees were sent one at a time through a Y-shaped maze. There the bee encountered a picture with a certain number of shapes that were either all yellow, representing subtraction, or all blue, representing addition. One side of the maze had a picture with an additional shape and the other side had a picture with one less shape. Bees then flew to the picture that corresponded to the correct answer. Bees that correctly 'added' one shape when seeing blue or 'subtracted' one shape when seeing yellow were rewarded with sugar water. The bees got the right answer 63-72% of the time, a much better outcome than random guesses.

Bees have a large amount of neuroplasticity, which is the brain's ability to develop new connections of neurons throughout its life. Scientists have theorized that, over time, a bee's tiny brain has evolved to be able to process its environment quickly. Two major adaptations within their eyes help them understand which flowers to collect pollen and nectar from. Bees along with other insects, such as butterflies, see in the ultraviolet light spectrum which is undetected by human eyes. Under a UV black light humans are able to see the additional colors of flowers insects are seeing.

Another adaptation bees have is a compound eye structure. Unlike the human eye which is made up of one single lens in each eye, there are multiple structures called ommatidium (oh-ma-tid-e-um) that create a picture. The bee sees an overall blurry mosaic image of the world around it because the lens doesn't have one focal point. This allows them to process colors and movement more quickly than humans. This gives them the advantage of pollinating quickly and detecting movement, such as your swatting hand.

The top image illustrates the structure of the RMIT experiment. Bees were put into a "decision chamber" which contains the "sample stimulus." In this case, the image with two blue elements indicates that the bee ought to "add" and choose the image in the maze with three elements. Once the bees entered the maze, they had to choose between two images, and if they got the correct answer, they were rewarded with a drop of sugar water. Not only can bees easily distinguish between the colors yellow and blue used in the RMIT experiment, they can also see in the ultraviolet light spectrum. This means that, while our human eyes see a simple yellow dandelion, bee eyes can see different colors which direct them toward the center of flowers where nectar can be found (bottom left image). In addition to having two, large, compound eyes (bottom right image), bees also have three, small simple eyes located on the top of their heads.





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## Location and Hours

Carpenter Nature Center is a 501(c)(3) private, non-profit organization with property on both the Minnesota and Wisconsin sides of the scenic St. Croix River.

For more information about our properties, please visit [www.carpenternaturecenter.org](http://www.carpenternaturecenter.org).



### Minnesota Campus

12805 St. Croix Trail S.  
Hastings, MN 55033  
(651) 437-4359

**Hours:** 8:00am – 4:30pm daily

**Trails, buildings, parking lots, and front gates  
close daily at 4:30pm**

Closed Thanksgiving, Christmas Day,  
New Year's Day, and Easter.



### Wisconsin Campus

300 East Cove Road  
Hudson, WI 54016  
(651) 437-4359

**Hours:** Open year-round from sunrise to sunset

