

Looking Ahead - *rare* Moves Forward

Since celebrating *rare's* 10th anniversary, life has been extremely busy. And as 2012 draws to a close and I look back, I am very proud of the entire organization - the staff, volunteers, donors and partners – for all of our accomplishments together.

The year really began when we marked our 10th anniversary with a gathering for Volunteers and Supporters at the Cambridge Mill on December 6, 2011. It was a wonderful celebration and it provided the momentum to start *rare's* next decade.

In 2012, we have taken many important steps towards our vision. With increased research being undertaken on the Reserve, and facilities coming together to support our priority programs, we are well-positioned to fulfill our goal of being a world-class institute for long-term environmental research.

Admittedly, we can't do it all, all of the time. This is our first newsletter in quite a while but despite that fact, we have

By Susan Whelan
Executive Director, *rare* Charitable Research Reserve

not forgotten the importance of community engagement and partnerships. Please take a look at the following pages to see just a sample of what has been happening at *rare* in 2012. We would also encourage you to come out and visit or participate in *rare's* upcoming events to see the progress for yourself.

Photo by Peter Kelly



Executive Director,
Susan Whelan

I hope you enjoy this issue of The *rare* review and I sincerely thank you for your continued interest and ongoing support. Together, we are making a difference for our community.

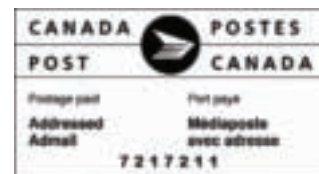
Kind regards,

Susan



Inside This Issue

Gardening guru gets engaged	2
Spear point found at <i>rare</i>	2
Environmental education at <i>rare</i>	3
Nature Notes	4
Water: Every drip counts	5
<i>rare</i> out & about	6
Waterloo County's first White Settler	8
Butterfly bonanza	9
Scholarship award winner	10
Donor Opportunities	11
Leadership	12



Gardening guru gets engaged

By Bob Burt

She has been the diva of the gardens and she's watched the community gardens at Springbank Farm grow and evolve from a modest beginning to a thriving community enterprise today.

But now, wedding bells are ringing and it is time for Amanda Newell, **rare's** Gardens and Buildings Project Coordinator, to bid **rare** and Springbank adieu as she prepares to begin a new life in Peterborough.

In a most fitting gesture, fiancé Tyler Chambers chose the recently constructed Pavilion at Springbank to pop the question.

"He chose it because he knows how I feel about the gardens and he wanted me to have those memories," Amanda said.

Amanda's first tour of duty was in 2007-2008, working as manager of **rare** organics. She came back in 2010 and served until the end of August 2012.

A lot happened under Amanda's watch. There was the transition from community-supported agriculture, where food was grown and sold to people in the community, to today's model that provides families and individuals with land to grow some of their own food, and children the chance to see and learn how food can be grown in a sustainable way.

Apart from the tremendous growth, the face of Springbank has changed starting with the construction of the Pavilion near the garden plots last year and continuing with the assembly of the North House and major improvements to the greenhouse this year.

Springbank is also home to a research project where University of Waterloo student Martin Kastner is exploring ways to restore meadows. Springbank was also chosen as one of several venues for Common Ground installations earlier this summer.

In addition to her work at the gardens, Amanda was also heavily involved with site supervision of the renovation and restoration of the old slit barn and farmhouse (now the **rare** ECO Centre) and the North House installation.

Her proudest achievement however, is at the gardens, not just the number of plots, but also the number of people who are engaged and who really care about what happens there.

As well as making wedding plans for next summer, Amanda hopes to pursue a new career in photography and look into becoming a Yoga instructor.

"I always thought I'd like to work for myself and now is the time to give it a go."



Departing Gardens Coordinator, Amanda Newell in the Pavilion

Spear point found at **rare** dates back 10,500 years

By John MacDonald

As an Archaeologist, volunteer and advisor to **rare**, I've combed just about every square meter of the Reserve's 900+ acres. My primary interest lay in the 130 archaeological sites found so far which are significant enough to be registered with the Province of Ontario. Additional numerous single artifacts have been found as well but are not registered.

The registered sites range from single artifacts identifiable to a particular time period or cultural style, to hectare-sized villages. After more than ten years of intentional searching for sites, imagine my delight when one of the most significant artifacts found on the property was discovered by pure chance and during what can be considered ironic circumstance.

On May 2, 2011, I took Laura Robson (then Environmental Sciences Intern) on a hike so that Laura could learn more of the land's history and become familiar with the locations of some of the archaeological sites on the **rare** property. As the hike



Archaeologist makes rare find

Continued on page 9

Chain of Learning concept shines through at *rare's* summer camp

By Bianca Mancini



Campers on the front steps of North House

This summer at *rare*, we had six full weeks of ECO day camp – each week a little different from the other, thanks to the diverse landscape and our themed programs inspired by research and monitoring efforts done by others on the Reserve. Each day our campers were involved in exploratory hikes, outdoor and interactive lessons, environmental games and visits from special guests.

On 'Bird Day' we focused on owls and hiked to the artificial nesting platform out by the river which supports an osprey nest. Campers learned how to use binoculars and how to identify a bird by its song – important lessons for any young scientist or birder-in-the-making. Bird monitoring and bird banding are regular activities undertaken by volunteers and staff. The data tells us a great deal about things like habitat and migration. On this day though, the children were most enamoured with their glimpse of the osprey carrying fish back to the nest for the babies. What a beautiful sight.

The cliffs and alvars hike was one of my favourite outings with our campers this summer; campers could see the vast change of landscape before their eyes and explored the land's history, learning about people who used the land before us. Volunteer advisors John MacDonald and Chris Dalton have long-been studying the site's human occupation through archaeology.

We were lucky to be joined by Jenna Quinn, our then Ecological Monitoring Intern, on butterfly and insect day. Jenna focused on teaching the campers how she does butterfly assessment at *rare* and the importance of continuous ecological monitoring of key species that give us a better picture of the health of our environment.

A visit to North House with guest lecturer Dr. John Straube, building scientist and faculty of Engineering at the University of Waterloo, was another highlight. Dr. Straube oriented campers to cutting-edge and novel features that make North House push the limits of green-building design. Campers focused on the importance of quadruple-glazed windows facing south that would maximize the sun's energy in the winter months, full black out blinds on the outside on the windows to help contain heat gained during the day, and water kept in dark materials so the sun's energy can help heat the water. Our visit with Dr. Straube gave our campers a chance to make an important connection between academic research and its influence on our lives.

During Arts week, we were joined by local artist, Anne McLagan, who taught the campers how to use nature as inspiration on a variety of art projects. Anne incorporated her love of the outdoors into sketching lessons on both still life (for our younger campers) and live animals like the osprey at their nest (for our older campers).

Suffice it to say, all campers spent time outdoors, were re-connected with nature and explored meaningful environmental questions while simply enjoying the sounds and scenes of summer!

Campers at *rare's* summer camp listen intently as University of Waterloo researcher, John Straube explains special features at North House.



What can be discovered through the eyes of a child?

A dead STAR-NOSED MOLE was found in the forest off the Grand Trunk Trail.

In November 2011, Bill Wilson gave a presentation about BALD EAGLES and **rare** at the Glen Morris Library which in turn made a donation to **rare**. On Saturday, February 25, about 20 people registered for the **rare** BALD EAGLE WORKSHOP. Participants observed an adult Bald Eagle perched and in flight at the Crack WILLOW location above the Confluence prior to the illustrated talk by Bill Wilson at **rare's** Lamb's Inn.

The annual BALD EAGLE monitoring along the Grand River was discontinued this past winter after 10 years of monitoring along the Grand River from Kitchener to Brantford in conjunction with the Ministry of Natural Resources. Monitors, many associated with Friends of **rare**, continued to report sightings along the five km reach of the river through **rare**. Rob Unruh reported an early autumn sighting on October 1. Sightings were made on five subsequent dates in the latter half of October and seven of ten days between the 11th and 20th of November. Mid-November is the expected arrival time of overwintering eagles along the Grand. This past winter, fewer sightings were recorded within traditional wintering sections of the river through **rare** likely due to the mild weather: more ice-free reaches resulted in greater dispersal of eagles throughout the watershed.

Waterfowl overwintering at the Confluence included 38 BUFFLEHEAD in December 2011 of which 22 remained into early January 2012.

On January 6, Jason Bracey observed several "winter birds" on a visit to rare: BALD EAGLE, HORNED LARK, LAPLAND LONGSPUR, SNOW BUNTING, WHITE-WINGED CROSSBILL AND PINE SISKIN.

Exceptionally early wildflower blooms were noted by Julia Marko-Dunn during the March 2012 heat wave: SPRING BEAUTIES off the Woodland Trail and Thompson Tract on March 27; TWO-LEAVED TOOTHWORT on March 27 in the Thompson Tract; CUT-LEAVED TOOTHWORT, WILD GINGER and SHARP-LOBED HEPATICA on March 28 along the River Trail; and BLOODROOT at several locations on March 28.

A major irruption of RED ADMIRAL BUTTERFLIES on April 16 was observed by Peter Kelly and Julia Marko-Dunn. "They were everywhere from the George Street parking lot/Grand Trunk Trail to the Lamb's Inn parking lot while others dodged traffic all along Blair Road."

During bird monitoring on April 29, Jerry Guenther and Bill Wilson observed a flight of 81 BLUE JAYS over **rare** in a half-hour period.

Late April through mid-May is the time of year to enjoy spring ephemerals. The DeBruins kept notes of wildflowers encountered along the **rare** nature trail through the Thompson Tract and along the Grand Allée while monitoring birds mid-April to early May: WILD GERANIUM, SARSAPARILLA, LONG SPUR VIOLET, RUNNING STRAWBERRY in bloom, TWO-LEAVED TOOTHWORT, DOWNY YELLOW VIOLET, PURPLE VIOLET, RED TRILLIUM, WHITE TRILLIUM, SPRING BEAUTY, WOOD ANEMONE, EARLY MEADOW RUE, LARGE-FLOWERED BELLWORT AND YELLOW TROUT LILY.

NORTHERN PARULA is an uncommon but regular spring migrant in this Region. Jerry Guenther and Bill Wilson observed an early arrival of this warbler – May 2 – along the River Trail.

Ruth Kroft and Marilyn Armstrong report observing a SMOOTH GREEN SNAKE curled around and across the branches of a small shrub along the River Trail in summer 2011. On May 3, 2012, Julia Marko-Dunn observed this same species by the open meadow near the Osprey Tower.

On May 5 and May 12, Jerry Guenther and Bill Wilson observed 50+ and 28 LAPLAND LONGSPURS respectively, an uncommon winter visitor and migrant while monitoring the Sparrow Field/Tall Grass Prairie Research Field. Extreme dates for spring departure recorded for this species from this area is May 2-4 (Curry 2006).

This summer, two TRUMPETER SWANS and as many as four SANDHILL CRANES have been observed by several observers in flight over **rare**.

In late May, Ruth Kroft observed an AMERICAN WOODCOCK along the Grand Trunk Trail feigning distress to cause a distraction from at least one of its young spotted by Ruth at the side of the trail.

CHICK-a-per-weeoo-CHICK. Such a distinctive song coming unseen from dense shrubbery at field's edge grabs the attention of any birder. When birders with the field experience of Ruth Kroft and Andy Steinberg hear such a song they immediately respond: WHITE-EYED VIREO. One of the six vireo species to nest in Ontario, the WHITE-EYED VIREO is the only vireo to prefer shrub thickets to forest. Considered "hypothetical" in Waterloo Region this vireo is **rare** in Ontario, nesting only along the Lake Erie shoreline. Not satisfied with only hearing this first-time visitor to **rare** on May 26, both Ruth and Andy relocated it, not only hearing the White-eyed Vireo but seeing it as well – studying its yellow spectacles around obvious white eyes.

Continued on page 7

Water: every drip counts

By Bob Burt

If ever there was a trophy for innovation at Springbank Gardens, Sophie Gibbs would surely be a contender.

A first-year gardener at **rare** Charitable Research Reserve, Sophie designed and built her own drip irrigation system.

The inspiration, says Sophie, came from her experience at a smaller community garden last year where there was no water available at the site. Not one to be put off easily, Sophie hauled water in large glass containers from her high-rise apartment to the garden.

"I tried to dump the water slowly, but most of it washed away and it wasn't nearly enough. I thought then that I would try to find an alternative," and she did.

What she came up with is a gravity fed system. An 80-gallon plastic barrel serves as the reservoir and half-inch tubes connected to the barrel feed into one-quarter inch tubes and then to a series of 40 spikes.

Each of the large plants in her garden has a dedicated spike; small plants like beans share a spike.

Sophie has a degree in biology and environmental science and took classes in alternative agriculture at university.

Her garden includes tomatoes, squash, green beans, turnips, cabbage, three kinds of peppers, and a variety of herbs, kohlrabi and beets.

"I like to eat fresh," she says.

The advantage of the drip system is that the water is directed at the roots of the plants where it will do the most good and none is wasted.

"The barrel empties over night. They say you should water less often, but deeply and that's what I think I'm doing. I'm happy with it. It has been a reasonable amount of time and effort, but I enjoy finding environmentally friendly ways to do things.

"It took time to work out the kinks, but it kept me busy and basically it worked."

Conserving water is important to Sophie and something she thinks everyone should be concerned about.

Sophie bought everything she needed minus the barrels at Lee Valley at a total cost of \$120 and she got the barrels free on line through Free Cycle. Looking back, she figures with better planning the cost might come down to \$80.

After a challenging experience at her first community garden last year, Sophie found Springbank this year.



Sophie Gibbs shows her drip irrigation system

"I spent the summer (last year) nursing along cantaloupe, tomatoes and cucumber and just when they were ripe they disappeared— just gone.

"I like it at **rare**," she says. "My experience here has been really great. I've met a lot more people, got some really good advice and the plots are twice the size."

When Sophie isn't gardening or canoeing, she works as a biologist for Bird Studies Canada, monitoring the presence or absence of birds or amphibians, based on what she hears or sees.

"It is a great job. I get to go to a lot of places and basically I go bird watching."



rare

out & about



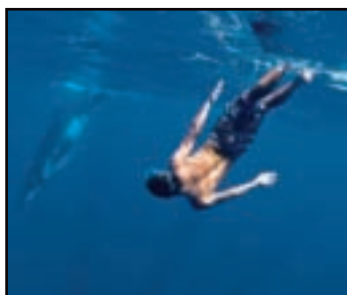
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Photo by C Seto of Guelph Mercury



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Photo by Peter Kelly



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Photo by Grambeau

Throughout the year, **rare** staff and volunteers have been keeping busy with various events and programs, both on the property and within the community. Here are some highlights from 2012 (beginning above centre and circling the page clockwise):

(1) A handful of staff shared what **rare** means to our region at the David Suzuki and Jeff Rubin "End of the Growth" tour in Guelph. (2) At the Cambridge Fall Fair, visitors learned about **rare** at our booth in the Dickson Arena. (3) Several volunteers and staff took part in spreading the word about **rare** at the International Plowing Match in Roseville. (4) Three staff and a volunteer attended the Ontario Land Trust Alliance conference in Orillia. (5) Students from China's Guangxi Institute of Botany were hosted by **rare**, learning about our water resources and management. (6) Students from the University of Waterloo School of Architecture toured the North House, designed in part by previous U of W students. (7) At the Fish Quill Poetry event at Wired Up Pugs Café Bistro in Cambridge, staff recited **rare** poetry. (8) Cowboys and cowgirls kicked up their heels at the Boots & Black Tie Barn Dance. (9) In cooperation with the Cambridge Galleries, **rare** was home to eleven Common Grounds art exhibits this summer. (10) Volunteer & consulting advisor, Ken Dance, introduced movie-goers to **rare** before the showing of, "Minds in the Water" at the Grand River Film Festival.



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Photo by Peter Kelly



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Photo by Peter Kelly



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Photo by R Ross



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Photo by Amit



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Photo by D Smith

Nature Notes (continued from page 4)



Osprey perched at **rare** with fish. August 26, 2012.
Photo by Rob Unruh.

Encountering rare and unusual animal species is often a case of being in the right place at the right time. Another tact is to study the appropriate nature guides and references for the species one is seeking, visit the appropriate habitat during the time period it should be observed if present and undertake a thorough search. Jerry Guenther used the latter approach during a one-week period in late July to locate a SNOUT BUTTERFLY, a species at **rare** on his “must-see” list of unusual species.

On August 1, Emily Damstra, Carol Foxall and Gerrie Grainge spotted a CLEARWING MOTH on teasel at **rare**.

Walking quietly and observantly along **rare's** nature trail often has rewards. While on the Thompson Tract trail on August 19, Jason Bracey snuck up on three COYOTES on a RABBIT kill. Once they detected Jason, the coyotes bolted into the forest which in turn flushed a 12-point, buck, WHITE-TAILED DEER. On the same outing, Jason watched a RUBY-THROATED HUMMINGBIRD repeatedly buzz a RED-TAILED HAWK.

On August 20, Rob Unruh observed one of **rare's** OSPREYS eating a fish while perched.

An evening visit on August 22 provided Emily Damstra, Carol Foxall and Gerrie Grainge with a number of interesting sightings: MILKWEED TUSSOCK CATERPILLER on milkweed; mating AMBUSH BUGS on goldenrod; about 20 PUFFBALLS along the River Trail; and, two kinds of CARRION BEETLES on the carcass of a mole.

Spring departure of the overwintering BALD EAGLES is usually in late March and, for Spring 2012, departure-as-usual appeared to take place. During late spring and summer, however, two subadult Bald Eagles have been sighted along the river by a number of observers – a near-adult male likely in its fifth year and a four-year-old female in transition plumage. On April 17, Andy and Kim Kelly gave

a detailed description of these eagles perched along the **rare** cliffs. Later, photos were taken by Theresa Pero of the female in flight on June 1 near the cliffs. On August 31, Don Thomas photographed these two eagles on a gravel bar at the Confluence eating a fish – also viewed by telescope by Bill and Heather Wilson.

The comparison of these birds from April to the end of August highlights the gradual change in plumages during the birds' mid-year molt. According to bird records kept by Bill Wilson since 1971, this is the first year that a pair has “over-summered” along the river. Whether either of these birds is one of the overwintering birds is not known. Given the successful recovery of this species underway throughout eastern North America, the two present about **rare** this summer could have dispersed from any number of breeding sites, possibly one within the lower Great Lakes Basin.

Fall 2012, is Kevin Grundy's fifth year of bird banding at **rare**. Banding fall migrants began in mid-August and continues each weekend until the end of October. On Labour Day weekend, 229 birds were banded. Highlights included BAY-BREASTED WARBLER, SCARLET TANAGER, VESPER SPARROW and 10 species of warbler. At Springbank gardens, September 1, bander Brett Fried banded a hatch year CLAY-COLOURED SPARROW and, a first for **rare**, a CAROLINA WREN.



Gray Treefrog along **rare** hedgerow. August 2, 2012.
Photo by Anne McLagan.



Pair of Bald Eagles feeding upstream from the Confluence. August 31, 2012.
Photo by Don Thomas.



Have some **rare** finds of your own?

Should you wish to share, contact **rare Nature Notes** by emailing rare@reresites.org with “Nature Notes” in the subject line.

Nathaniel Dodge was Waterloo County's first white settler

By Bob Burt

It is 1799, the area where the City of Hamilton now stands was what has been described as a dismal swamp covered with heavy timber; Dundas had a saw mill and one dwelling; Ancaster had a few houses and was considered to be on the outermost edge of civilization.

Imagine then, the challenges Nathaniel Dodge faced when, in 1799 or 1800, he built a cabin on the west side of the Grand River, far beyond the limits of civilization and close to where the historic slit barn at **rare** stands today.

"Old Dodge" as he came to be known, was the first white settler in Waterloo County. Although he had been a millwright, he scraped out a living as a trader and trapper and later a carpenter.

More than a recluse living off the land, he became a significant landowner, buying 114 acres from Richard Beasley in 1800 and a second parcel after that from Benham Preston. In 1831, he was assessed for 268 acres of land.

In the early days, there would be little, if any contact with anyone other than trappers visiting the area and presumably the Natives that he traded with, or those he might come in contact with as they moved about the area. What is Blair Road today, near Blair, would have been an Indian trail then.

Within a couple years, Mennonites would begin, in small numbers, to move from Pennsylvania and settle at the confluence of the Speed and Grand rivers.

Life for the early settlers was tough and Dodge wasn't immune to the pain and hardship. In 1806, a fire that was meant to clear brush and forest from Samuel Betzner's farm went wild when the wind shifted. Before it was brought under control, Dodge lost two barns, and Abraham Bechtel, Abraham Stauffer and Jacob Bechtel all lost farm buildings as well. The Bechtels and Stauffer were among the first Mennonite settlers to settle in Waterloo Township.

Legend has it that William Dickson (who would go on to become the founder of Galt) and Absalom Shade spent a night at Dodge's cabin.

Dodge was hired by Alexander Miller to build a mill on Mill Creek in 1802. The structure was the first mill in the area. It was 24 by 28 feet and one and a half stories high and it stood at what would become the site of the Galt Armouries.

Miller ran the mill until 1812 when he abandoned it, some say because it didn't prosper as he had hoped and others suggest Miller's loyalties in the Revolutionary War were with the Americans and that caused him to leave.

At any rate, Absalom Shade took it over in 1816 and operated it until the more permanent Dumfries Mill opened in 1818.

It is hard to say with any confidence a whole lot about Nathaniel's time and place of birth or his family.

While most reports or records suggest he was from Pennsylvania, at least one claims him to have been born and raised in Massachusetts.

If the latter report – thought to have been put together by Dodge descendants – is to be believed, Nathaniel had a remarkable war record, having fought in the Revolutionary War before moving to Waterloo Township and settling on what is now **rare** land.

There is a record of a Nathaniel Dodge applying for a war pension in 1837 in New York State, but it is hard to say for certain that this is the same Nathaniel Dodge.

An official at the New England Historical Genealogy Society notes there were a number of Nathaniel Dodes born in Massachusetts at about the same time. Without more to go on, it couldn't be said for certain which one came to Canada.

A search at the Pennsylvania Genealogical Society didn't find any trace of Nathaniel there.

Waterloo Region Generations (an online service focusing on local history) indicates that Nathaniel was probably born between 1759 and 1769, married Polly Hoover who was born around 1790 and she was from Massachusetts.

It is thought that the two are buried at the site where their old log cabin stood.

Their son, also Nathaniel, died at age 22 and is buried at Blair Cemetery. The couple had a second son, Owen.

One web site posting suggests there were as many as five children.

The one fact that seems to be universally accepted is that Dodge was the first white settler in Waterloo County and it is thought that both he and his wife were buried on the property. But in the words of H.M. Bowman, writing in a 1922 issue of the Waterloo Historical Society journal, "there is no post or stone to show the spot where repose the ashes of the first known white settler of Waterloo."



Photo by Peter Kelly from the Blair Cemetery.

Butterfly bonanza | By Jenna Quinn

Even if you weren't looking, it was hard to miss all the butterflies this summer. The hot start to spring and mild winter temperatures brought many migrants our way, resulting in an irruption, or sudden increase, of butterflies. Particularly abundant in May, were Red Admirals (*Vanessa atalanta*), a medium sized butterfly with red bands, that arrived at Ontario in unprecedented numbers, with many more species following.

For the fifth year, butterfly monitoring took place at **rare**. With over 7,500 butterflies observed and 52 different species, it was certainly the best year for butterflies so far. Three species never before seen on **rare** property were observed: the Baltimore Checkerspot (*Euphydryas phaeton*), Variegated Fritillary (*Euptoieta claudia*), and Silvery Checkerspot (*Chlosyne nycteis*). All three are considered rare in Waterloo Region.

Canada's largest butterfly, the Giant Swallowtail (*Papilio cresphontes*), has made **rare** its home using Northern

Prickly Ash (*Zanthoxylum americanum*) along the Grand River as a host. It truly is a sight to see this large dark butterfly, with yellow bands, fly by while walking down the Grand Trunk Trail. First observed at **rare** in 2010, it has subsequently been sighted over 100 times during monitoring.

Though the Monarchs (*Danaus plexipus*) have now left, making their way to Mexico for the winter, it won't be long before they will be returning to **rare** along with a plethora of other butterflies for us to see. Who knows what rare butterflies will make **rare** a home next summer.



Jenna Quinn photo of a Tawny Emperor at **rare**

Spear point found at **rare** dates back 10,500 years

continued from page 2

progressed we stopped at a location along the River Trail where a single non-diagnostic artifact had been found several years earlier in the woods, and just where we stopped a spear point lay exposed on the trail between my feet.

That spring had been an exceedingly wet season. The spear point was still embedded in the soil, but the rains had washed away any dirt that had previously covered it. The artifact discovery is important because this artifact is the oldest ever found on the property by at least 1,000 years and represents the only artifact found at **rare** from the Paleo-Indian period, when the first peoples occupied southern Ontario post glaciation.

The point is complete, approximately eight centimeters in length, 3.5 cm wide at its mid-section and 8.7 millimeters in maximum thickness. From the mid-section, it tapers to a rounded tip at its distal end and tapers more gradually toward its proximal end leaving a straight base. The edges appear to have been pressure flaked leaving parallel flake scars when finishing the shaping of the point.

From the shape of the point, I am conservatively estimating that it is 10,500 years old. At that time the climate would have been colder than now, and the vegetation would have had a boreal forest make-up; more spruce than pine. With this discovery - definitive evidence that people were on the **rare** lands during those early times - I am more excited than ever to continue to search for a Paleo habitation site on the property.



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Scholarship award winner studies meadow restoration

By Bob Burt

If you're a gardener or regular visitor to Springbank Farm, you might have seen Martin Kastner wandering near the Pavilion.

Martin is the winner of the \$4,000 **rare** Scholarship Award and is studying meadow restoration at plots of land both at **rare** and at the Huron Natural Area in Kitchener.

"The basic idea is to look at meadow restoration and the first thing to look at is the soil. Both areas have been farmed and that will have effects on the soil. Generally, what happens in old farm fields is they are open to invasive plants and eventually will become forest."

Martin's work looks at ways of restoring meadows and improving on what is already there to provide habitat for birds and pollinators.

He smiles as he walks through a healthy patch of Black-Eyed Susans that he planted at **rare**.

The idea, he says, is to look at the soil for nutrients and at **rare** the nutrient level is good except for nitrogen that was probably leached out when the area was farmed up until 2007.

"I came up with a number of treatments to improve the soil. One was to add a natural fertilizer and another idea was to add legumes and plants native to meadows."

Lupine and milk vetch were examples of plants used to increase nitrogen levels. Bio-char, a form of powdered charcoal considered to be a cutting edge form of soil amendment, was also used.

"It is incredibly inert and lasts for centuries, sort of a one-time soil amendment. It increases moisture retention (a big plus this summer) and seems to alter the physical quality of the soil."

Different treatments were applied to different plots but the seeds were the same for each.

Martin's work involves harvesting some of the plants, and monitoring the soil for moisture, temperature and abundance.

It is still hard to say which treatment is the best, Martin says, adding that he is still gathering data on the vegetation and hasn't yet taken the soil samples for this year.



Martin Krastner at Springbank

"It does seem, however - and this is still preliminary - that the biochar treatments may be better at retaining moisture than the other treatment," he said.

Once all the data has been collected, Martin will file a report with **rare** and get on with the task of writing his thesis.

Martin is finishing work for his degree in Environmental and Resource Studies at the University of Waterloo. An outdoorsman, Martin is a runner, rock climber and traveller who has raced in Cape Breton, hiked in California and scuba dived in the Yucatan. When he isn't racing, hiking or scuba diving you might well find him curled up with a good book.

What a difference a year can make! What a difference YOU could make!

As 2012 winds down, this year's progress can best be illustrated by a map that links our facilities – our growing hubs of activity! First the washroom building on the back of the Resource House opened, bringing with it an amazing increase in student visitors. Then the Springbank Community & Education Gardens Pavilion was finished. Now the 1840s Lime Stone Slit Barn is all but complete and the Resource House is not far behind. This complex is **rare's** ECO Centre. And as if that wasn't enough, North House came to **rare**. Designed by three top Canadian universities, North House is a green model for living sustainably – a prefabricated, solar-powered house that produces more energy than it consumes.

How You Can Help

No doubt by now you have heard us talk about how the **rare** ECO Centre will support the children's environmental education portion of our *Chain of Learning*. We call it "Every Child Outdoors" (ECO) and it signifies a goal that we are asking the community to adopt with us. Getting children outdoors and active in nature year-round has proven benefits to health and well-being. Not only do children, youth and their families benefit immediately, but they also learn about the natural world around them, where their food comes from and, to think critically and ask their own important 'why' questions. They also learn how to be mentors in protecting the landscape that so shapes our lives and communities.

We need your help for that last push to get both the **rare** ECO Centre and North House construction projects finished, up and running.

To provide the best experience, we have an urgent need for equipment such as microscopes, water quality testing kits, GPS units, and so forth. Furnishings for the classroom, research lab space, and education tools in the barn are also needed. Your donation, no matter the size, can change the lives of these young observers and experimenters.

Until we reach our Campaign goal, every donor will be listed as a member of our Founders Club, with names recognised in perpetuity. Please add your name now and watch for grand opening news! Join our Founders Club – and help us get *Every Child Outdoors*.



To send in a donation, fill in form and cut here.



Yes – I want to support **rare**!

Name _____ Telephone _____

Mailing Address with City and Postal Code _____

Giving Options

☐ I'll help **rare** now and every month. I would like **rare** to receive my pre-authorized monthly donation of \$_____ to be automatically withdrawn on the 15th of every month using:

☐ Payment from my chequing account ("VOID" cheque enclosed) **OR** ☐ Credit Card

OR

☐ I am enclosing my one-time gift of:
\$20 \$50 \$100 \$250 \$500 or \$_____

☐ I have enclosed my cheque payable to:

rare Charitable Research Reserve
1679 Blair Road
Cambridge, ON N3H 4R8

Tel. (519) 650.9336
Email: patti.leather@reresites.org
www.reresites.org

☐ Please charge my gift to: _____ VISA M/C A/E

Card No. _____

Expires _____ Signature _____

☐ Please add my email address to receive e-news from **rare**: _____

☐ Please add my name to your list of Founders, to be displayed permanently at **rare** upon completion of the capital campaign. I'd like my name displayed as: _____



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Doug Larson, Professor Emeritus, College Biological Sciences, University of Guelph

John MacDonald, Archaeologist

Alan Morgan, Faculty Member, Earth Sciences, University of Waterloo

Stephen Murphy, Professor and Associate Chair, Undergraduate Studies, Environment and Resource Studies, University of Waterloo

Martin Neumann, Supervisor of Terrestrial Resources, Grand River Conservation Authority

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Bill Wilson, retired Teacher; Naturalist; Bird Monitoring Coordinator, *rare* Charitable Research Reserve

Brett Woodman, Terrestrial and Wetland Biologist, Natural Resource Solutions Inc.

International Ambassadors

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David Buckland, founder, Cape Farewell www.capefarewell.com; director of Art from a Changing Arctic

Ed Burtynsky, Photographer; subject of award-winning documentary, *Manufactured Landscapes*

Seyvern Cullis-Suzuki, Environmental activist; speaker; television host; author

Ron Dembo, Founder, Zerofootprint www.zerofootprint.net

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Valerie Hall, President, Stonefields Management Inc.

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Keith Martin, Chartered Accountant, Community Volunteer

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Paul Ross, Partner, KPMG Waterloo

Hugh Thompson, President, Cambridge Towel; CEO Thompson Centre for Art and Design

Volunteer and Consulting Advisors

Bob Burt, Writer-in-Residence

Ken Dance, President, Dance Environmental Inc.

Joy Roberts, retired, Consultant and Community Volunteer

Ian Rowett, Bookkeeper (retired)

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Sophie Gibbs, Grounds and Gardens Keeper (part-time)

Kathi Gingrich, Receptionist and Office Administrative Assistant

Patti Leather, Director of Development & Community Relations

Bianca Mancini, Education Specialist

Julia Metelka, Grounds and Gardens Keeper (part-time)

Roger Oei, Senior Accountant

Jenna Quinn, Research Coordinator

Allison Walker, Education Assistant