



Victoria Woods: Old Growth Forest in The Arboretum

by Professor Alan Watson, Director

Victoria Woods, located at the eastern edge of The Arboretum at the corner of College Ave and Victoria Road, is a maplebeech climax forest, typical of the Great Lakes-St. Lawrence forest region. What is not so typical about Victoria Woods is that it is an old growth forest. What is an "old growth" forest? The Ontario Ministry of Natural Resources suggests a combination of eight criteria to determine if a forest is "old growth". Victoria Woods exhibits at least five of these criteria:

- large old trees for species and site complex stand structure characterized by wide variation in tree size and spacing, with multiple canopy layers and canopy gaps
- large dead standing trees and accumulations of downed woody materials, tip-ups and mounds
- forest system near or in late succession or "climax" stage
- few or no signs of human disturbance

Evidence of these criteria includes:

- very tall (>25m) 180 year old Sugar Maples (Acer sacharrum), limbless for two thirds of their height. These trees pre-date confederation, were sizable trees in 1874 when the Ontario Agricultural College began and were 70+ years old at the end of Queen Victoria's (Victoria Woods' namesake) reign in 1901.
- great variety in the sizes of trees in Victoria Woods, with subdominant trees growing under the higher, more mature canopy.
- forest floor of pits and mounds formed when large trees are blown over by the wind. The reason that we don't see large trees greater than 200 years old in Victoria Woods is that the forest is in a low lying area and the ground water is close to the surface. This results in relatively shallow rooted trees that are less wind firm and eventually blow over

before they reach their 250th birthday.
majority of seedlings and saplings Sugar Maple (*Acer sacharrum*), the dominant species in the forest. These seedlings and saplings will replace the older maples that are thrown by the wind or that die of old age, thus continuing the species makeup of the forest. That is, the forest system is in a climax stage.

• centre of the forest shows little evidence of human disturbance. In 1907 Professor (continued on page 2)



Trilliums in Victoria Woods (photo by A. Watson)

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CHANGING LIVES IMPROVING LIFE



By Barbara Parke, Volunteer Coordinator

The Arboretum has a variety of areas where volunteers can assist staff, expand their knowledge of trees and plants and have an opportunity to meet fellow enthusiastic nature lovers.

2008 has been a busy year for all the many Arboretum volunteer groups.

The Plant Sale group has been hard at work under the watchful eyes of both Lig Taurins and Sean Fox.

These Auxiliary members start their work approximately mid March each year and their effort continues up to the date of the annual Auxiliary Plant Sale...which is held the second Saturday of September each year. Of course there is a bit of post Plant Sale work to complete, as well.

Volunteers do seed cleaning and

(continued from page 1)

E.J. Zavitz fenced the perimeter of the forest to prevent cattle from grazing. Certainly the forest has seen changes in the species composition including the loss of the American Chestnut (*Castanea dentata*) in the 1930's and American Elm (*Ulmus americana*) in the 1960's. The loss, or reduction, of species continues this century with the general decline in America Beech (*Fagus grandifolia*).

There is other evidence of the old growth nature of Victoria Woods in an 1873 hand-drawn map drawn of the future site of the Ontario Agricultural College. At the corner of College Ave and Victoria Road is the representation of a forest; a remnant of the vast forest that was growing in this area when John Galt of the Canada Company arrived in 1827. germination. Once the seedlings have sprouted, they will be potted up by the volunteers. Bare root plants, both herbaceous and woody, are also potted up, along with any donated plant material. Once the plants have been potted they are tenderly cared for... watered, weeded and repotted if the plant is root bound.

Of course, with our abundant rainfall in June and July this year the plant sale volunteers didn't need to spend as much time watering. But then the weeds were huge this year...so more effort was required removing those pesky devils.

Caring for these plants is a labour of love for our Plant Sale volunteers. You can see the pride on their faces when the crowd of customers arrives at the Hilton Centre on the day of the sale...in fact, many customers are lined up with their wheelbarrows and boxes an hour or so before the gates open. Volunteering is fun...a great way to stay active and allow individuals to give back to their community. If you'd like to consider joining The Arboretum Auxiliary, please give me a call, drop by the OAC Centennial Arboretum Centre or send me an e-mail.Telephone: 519-824-4120 extn 53615 or e-mail: <u>bparke@</u> uoguelph.ca



Norma Fear weeding (photo by B. Parke)

That Victoria Woods was left uncut is fortuitous for The Arboretum.

Victoria Woods offers a direct connection to great hardwood forests that flourished in eastern North America in pre-European times. The Arboretum is fortunate to contain an old growth forest community that offers opportunities for the casual visitor to experience a forest like few others in the area and opportunities for researchers to learn more about relatively undisturbed forest ecosystems.



Trout lilies beside American Beech in Victoria Woods (photo by A. Watson)



by Sean Fox

Certainly not a tree, sometimes a shrub, and often a vine, poison ivy is a plant that has an historic connection with humans – albeit an unpleasant one. You may be surprised to know that we have cultivated a poison ivy plant in our World of Trees Collection here at The Arboretum. Despite its nasty reputation, and to cast bewilderment of its inclusion aside, I must say that this woody plant is just as worthy of a spot in our collections as any of the other magnificent trees and shrubs that you'll find at The Arboretum, and let me explain why.

Poison ivy is a member of the Anacardiaceae family, with other members including cashews, mangos, smoke trees and sumacs. Across its range in North America this plant can take on many forms. Here in Southern Ontario, it is most often vine-like and scientific name Toxicodendron the radicans ssp. radicans applies. In other parts of the continent there is variation in the leaf characteristics as well as the form of the plant and therefore many regional subspecies may be found. Some literature even classifies this plant as *Rhus radicans* due to the similarities it shares with other members of the Rhus (sumac) genera. However, this plant has some unique chemical properties that many unfortunate souls have come to know well, including yours truly.

Poison ivy's toxicity comes from the urushiol oil that is present in the sap. When in contact with the skin, this oil can cause severe dermatological reactions. Once absorbed, an allergic reaction can cause a skin rash to break out throughout the body. This most often causes uncomfortable itching, but in severe cases, this rash can take the form of swollen, oozing blisters that require medical attention. So why would we include such an offensive plant in our collections here at The Arboretum? Well, as it turns out, our collections are meant to educate and poison ivy just happens to be one of the plants that people most want to learn to identify, for obvious reasons. This plant is enclosed in a cage with signage that describes its identification characteristics and provides a warning against touching its leaves. Visitors can come get a close look at the trifoliate leaves: three leaflets make up one complete leaf with the terminal leaflet having an extended stalk. This extended stalk makes it easy to differentiate from other trifoliate plants in our area.



And many of you will know that our World of Trees Collection is not the only place to find poison ivy. It grows all across Ontario and North America, and despite the problems that it can cause for humans it is a very important part of our ecosystem. Many animals such as deer, bears, rodents and at least 55 species of birds will feed on the leaves and/or the white clusters of berries that are ripe in the fall.

The best way to deal with poison ivy's inconveniences is to learn how to identify it properly and confidently. With this knowledge you can always be sure to avoid this plant, or to be aware to wash soon thereafter if you have come in contact with it. From personal experience I have learned that if you do wash quickly (I recommend rubbing alcohol, followed by soap and water), you can avoid any sign of a rash. And also from experience, I have learned that if you don't take this plant seriously and don't wash well after exposure, then you'll have to deal with the itchy consequences! On the grounds at The Arboretum you will also find two of poison ivy's natural remedies, sweetfern (*Comptonia peregrina*) and jewelweed (*Impatiens capensis*). You can learn to use these plants to help neutralize the urushiol oil if you're ever in a pinch.

So, I encourage you to get to know this plant, but not too personally. When viewing it with caution you will really start to appreciate this native gem as its spectacular fall color and bright white berries make it just as ornamental as many of our more beloved plants. As you'll know, when walking through the woods with friends, there is often debate about what plants are truly poison ivy and what are not. So, I ask you to take advantage of this unique opportunity to view this plant that we have identified and labeled for you so that you'll never forget its appearance again!



(photo by S. Fox)

Arboretum Interpretive Internship

by Elizabeth Boileau

This summer, The Arboretum has This summer, the rules. I have to admit that I had never even heard of it before last year, being from Gatineau Quebec. However, after having taken a few distance courses through the University of Guelph, including Nature Interpretation, a course taught by Prof. Alan Watson, I was eager to find out more about it. I obtained the position of the Interpretive Naturalist Intern for the summer and was given a chance to apply the theory learned in my university course work, and to learn so much more! I have had wonderful opportunities like learning from some very knowledgeable naturalists, visiting other interpretive sites and participating in The Arboretum's educational programming both as a participant and as a leader!

My favourite area in The Arboretum is the Gosling Wildlife Gardens. It contains five gardens which showcase different ways that backyards can be made wildlife-friendly. They range from the Butterfly, Hummingbird and Moth garden filled with beautiful blooms all summer long and all sorts of insects, to the Native Ontario Plants garden which contains only native plants (including the Eastern Prickly Pear Cactus!). Walking through the gardens is inspirational and will no doubt make you want to get to work on your garden to try and attract some of the wonderful wildlife you will see in the Gosling Wildlife Gardens. Frequent visitors of the gardens include rabbits and groundhogs, garter snakes, a vast array of birds, butterflies, frogs and much more! These gardens are not only a great place to take a stroll but provide ample subjects for drawing, painting and photographing.

Moreover, the Gosling Wildlife Gardens was the main site of the weekly program I led, Nature Discovery Wednesdays. This is an interpretive program where participants of all ages can learn about the Arboretum's natural history through various hands-on activities. Each week, the group explored a new topic, such as butterflies, geology, plant evolution, fungi, etc. Response to the program was great! In a world of paved streets, shopping malls and office cubicles, it's no wonder that we are trying to get back to nature and enjoy the simple things in life like smelling the flowers and listening to the birds. Parents also delight in finding activities to do as a family where everyone can learn as they have fun!

It is also important to note that support for the Arboretum not only helps with maintenance of the grounds and plant collections, but helps to provide valuable opportunities like this internship, which helps young professionals like myself gain experience and start a career. I know I leave Guelph with fond memories and a head filled with knowledge!



Elizabeth with a dragonfly friend! (photo by C. Earley)

Arboretum Booklets

Who is visiting your feeder? Hooray for Mosquito Eaters!











The Arboretum University of Guelph \$5.00 each

Your purchase supports Arboretum programs.

Contact Bev Healy at 519-824-4120 ext. 52358

Watch for future booklets on Wildflowers, Shrubs, Pollinators and more!





photos by J. Brierley, K. Egressy and C. Earley



by Lig Taurins

mong the many wonderful native species of milkweed to grow in a butterfly garden, Butterfly Weed (Asclepias tuberosa) may well be at the top of the list. Unlike Common Milkweed (A. *syriaca*) which has a tendency to spread aggressively by underground rhizomes, Butterfly Weed is a well behaved, taprooted plant which won't take over a flowerbed. Other non-invasive, native milkweeds which are also spectacular attracting plants include butterfly Whorled Milkweed (A. verticillata). Swamp Milkweed (A. incarnata) and Purple Milkweed (A. purpurascens).

Butterfly Weed is unique in the Milkweed Family because the sap in the stems and leaves is not a milky latex but a colourless watery juice and the leaves have an alternate rather than an opposite



arrangement along the stem. The root of Butterfly Weed was used by First Nations People as a cure for pleurisy and other pulmonary ailments, giving it its other common name, Pleurisy Root. Despite these reported medicinal uses, most parts of the plant, as for all milkweeds, contain cardiac glycosides which are poisonous to humans and livestock if eaten in large quantities.

Butterfly Weed is a herbaceous perennial with spectacular bright yellow to orangered flowers that bloom from June to August. The flowers are borne in showy clusters or umbels at the tops of the flowering stems. Each flower is supported singly on a short stalk or pedicel, all of which are of equal length and arise from a common point in each umbel. The flower has five sepals and five petals which are bent downward. As in all milkweeds. the flowers are unique with an additional floral series called the corona. The corona is quite elaborate and takes the shape of five erect hoods which crown the petals. Associated with each hood is a short horn or beak which points towards the centre of the flower. The anatomy of the flower is highly modified for insect pollination which may explain the presence of so few fruits on milkweed plants.

The brilliant orange flower colour and the copious amounts of nectar attract numerous butterfly species including Painted Lady, American Lady, Monarch, Red Admiral, swallowtails, fritallaries and hairstreaks. Along with other milkweeds, Butterfly Weed is a specific larval host plant for Monarch and Queen butterflies. The familiar white, yellow and blacked stripped Monarch caterpillars feed on the leaves and ingest the cardiac glycosides which make their flesh distasteful and unpalatable to most predators, thus protecting them and the adult butterfly from predation. Butterfly Weed also draws hummingbirds and the Hummingbird Clearwing moth for nectar.

Butterfly Weed prefers well-drained sandy soils and grows best in full sun to light shade. Its native habitat includes prairies, meadows, dry fields and open woods. In Canada, its natural distribution occurs from Ontario to Newfoundland. Butterfly Weed can be propagated by seed or root cuttings. Seeds germinate easily and uniformly if given 90 days of moist, cold stratification at 4°C and are then surface sown at 21°C. The seeds require light to germinate.



Red Milkweed Beetle on Butterfly Weed (photos by L. Taurins)

The glowing orange flowers of the Butterfly Weed are irresistible to butterflies, hummingbirds and people. This native wildflower is one of numerous flowering plants enticing visitors to the Gosling Wildlife Gardens at the University of Guelph Arboretum.

Creature Feature Spatterdock Darner

Rhionaeschua mutata

by Chris Earley

Tsually this part of the Green Web newsletter is about a creature that vou can come and see at The Arboretum. but not this time. In fact, the chances of you finding a Spatterdock Darner here at The Arboretum are pretty slim. That's because this large and flashy insect has only been found here once. On June 23 of this year, I was heading from the Arboretum Centre to the Information Kiosk to lead a tour. I took a long route to get there so I could hike along the Ivey Trail towards the Taylor (Nature) Centre and look for dragonflies. I've been a dragonfly fanatic for the last few years and this route has been one of the most productive areas for finding new species. As I approached the Taylor Centre, I could see a large darner dragonfly perched on an old weather station near the patio. After I caught it, I took a few photos of it so I could identify it later as seven similar-looking darner species occur here at The Arboretum. I wasn't quite sure what species this one was and it just didn't seem to look like anything I'd caught before. After its photo shoot, I let the bug go on a nearby tree trunk and hurried off to lead my hike.



Spatterdock Darner

That afternoon, I looked closely at the dragonfly photos on my computer and realised that this beastie appeared to be a Spatterdock Darner. Now this was a cool find. Just to make sure, I had my identification verified by dragonfly guru and U. of Guelph grad Colin Jones of the Ontario Natural Heritage Information Centre (NHIC). The NHIC manages

the records of the Ontario Odonate Altas, odonates being dragonflies and damselflies. As of 2002, Spatterdock Darners had been found in only two places in Ontario and the records from the Waterloo area were over 20 years old. This lack of records gave the Spatterdock Darner a rank of S1. S ranks are a provincial guideline to measure how common a species is. The levels are:

- S1 Critically Imperiled
- S2 Imperiled
- S3 Vulnerable
- S4 Apparently Secure
- S5 Secure

Of over 170 Ontario species of dragonflies and damselflies, the Spatterdock Darner and 20 others are listed as S1 species. As well, the Spatterdock Darner is listed as a high priority candidate by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), meaning that it may be protected under the Species at Risk Act in the near future.

The Spatterdock Darner isn't the only rare dragonfly species found in The Arboretum. Here are a few other recent records.

Unicorn Clubtail	S1/S2
Green-striped Darner	S2
Clamp-tipped Emerald	S2
Rusty Snaketail	S 3
Williamson's Emerald	S 3
Eastern Amberwing	S 3



Unicorn Clubtail

We all know that The Arboretum is a special place, but knowing that rare species like it too confirms that our site is an important one. So, while you may not see a Spatterdock Darner or another rare creature on your next Arboretum visit, it's nice to know they are there.

Newsflash - just before the printing of this newsletter, David Lamble caught and banded an Acadian Flycatcher in The Arboretum. This songbird is an endangered species in Ontario and this is the first record of one in The Arboretum.



Clamp-tipped Emerald (photos by C. Earley)

Dragonflies are IN!

After learning how to identify birds, many naturalists are now turning to dragonflies as their next wildlife group to be familiar with. Dragonflies are fun because most species can be identified fairly easily if you can catch them - and catching them is fun! The Arboretum offers an all-day Dragonfly and Damselfly Workshop where you can learn how to catch and identify these flying predators. As well, we have a new booklet called "Dragonflies of The Arboretum" for only \$5 + GST (see page 4). So, jump on the dragonfly bandwagon and get to know another group of creatures who share The Arboretum with us.

The Arboretum

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Accepts Donations!

The Arboretum needs to raise over \$400 000 each year. That's over a \$1000 a day! There are a number of opportunities to donate including dedications such as trees, benches, gardens, arbours and endowments as well as undesignated donations.

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Every effort has been made to acknowledge each donation. If you find that your name is missing, kindly inform us and the oversight will be corrected in the next issue of *The Green Web*. Thank you for your support.



Growing Trees from Seed by Henry Kock is now available! Call your local bookstore to see if they carry it.

Due to other demands and time constraints, John Klironomos has resigned as Arboretum Research Coordinator. We welcome Karen Landman, Department of Landscape Architecture, who has accepted this position.

Cover panel photos by J. Brierley, S. Fox and C. Earley

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