Greenleaves

ISSUE #3, 2023 — Member Newsletter of **Bruce Grey Woodlands Association**

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BGWA.CA

Would you like to host a member tour of your woodland property?

Contact Jim Coles
jcoles@gbtel.ca
519-477-4539

Upcoming Board Meetings

November 14th
January 9th

Members Welcome!

Contact secretary@bgwa.ca to confirm format (virtual, in-person, hybrid) and location or zoom link.

Greenleaves is published by Bruce Grey Woodlands Association (BGWA) and distributed to members to provide information, guidance, instruction, ideas and opinions related to trees, woodland ecosystems, forest management, and recreation in forest settings in or relevant to Bruce and Grey counties.

BGWA's vision: Promoting healthy forests and ecosystems in Bruce and Grey Counties through education, recreation and sustainable management practices.

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President's Message

By Jim White

Dear BGWA members,

I trust that everyone has had a great summer. Our long hours of sunlight are clearly starting to change as fall gets closer. We got out camping a number of times to enjoy the Great Lakes region and Algonquin Highlands. Bikes, boots, canoe, and kayak all got exercise! We are off touring five national parks in Utah and Wyoming in September.

Our Events committee has an exciting schedule for the fall.

September 9th was a property tour hosted by BGWA member, Colin Reesor. Colin has planted an arboretum as well as a mixed nut and fruit orchard and the outing delivered on its promise to be educational.

September 30th will have been our Invasive Species workshop with guest speaker Lee Thurston (Grey County Forester) leading us through working test plots at the Derby Tract of different ways to eradicate European Buckthorn. There will be other species discussed as the property has other invasives.

On October 14th we are co-sponsoring with Bruce County and Saugeen Valley Conservation Authority a unique event in collaboration with Forest History Ontario (FHO). We will be traveling to see a number of sites in the area that have historic forestry significance. We will have Terry Schwan from FHO as our guest leader/speaker.

There are a few more event opportunities in the planning phase so keep an eye out for BGWA emails and website posts. We expect to have an updated brochure available this fall to promote membership in BGWA. If you know of any neighbours with forest properties, invite them to join our association!

This summer we received notice from Agriculture Canada and the Invasive Species Centre of the first of several confirmations that Oak Wilt was present in Ontario. Oak Wilt is lethal to particularly Red Oaks. The disease is caused by an invasive fungus that uses a beetle (Nitidulidae sp.) as a vector to spread the disease. In addition, in Southern Ontario we have had confirmation of Spotted Lanternfly and Hemlock Woolly Adelgid. Between Dutch Elm, Emerald Ash Borer, Asian Longhorn Beetle (Maples), Butternut canker, Beech bark disease, and now Oaks and Hemlocks, our forests are under serious threat. If I get the perfect storm of invasives I know my woodlot will need to be repurposed as a collection of glacial erratics! Seriously, we desperately need new tools in our toolbox of technologies to push back the impact of invasive species in forest ecosystems and to protect our forests. Thankfully, we are not suffering forest fire devastation as our northern regions are experiencing.

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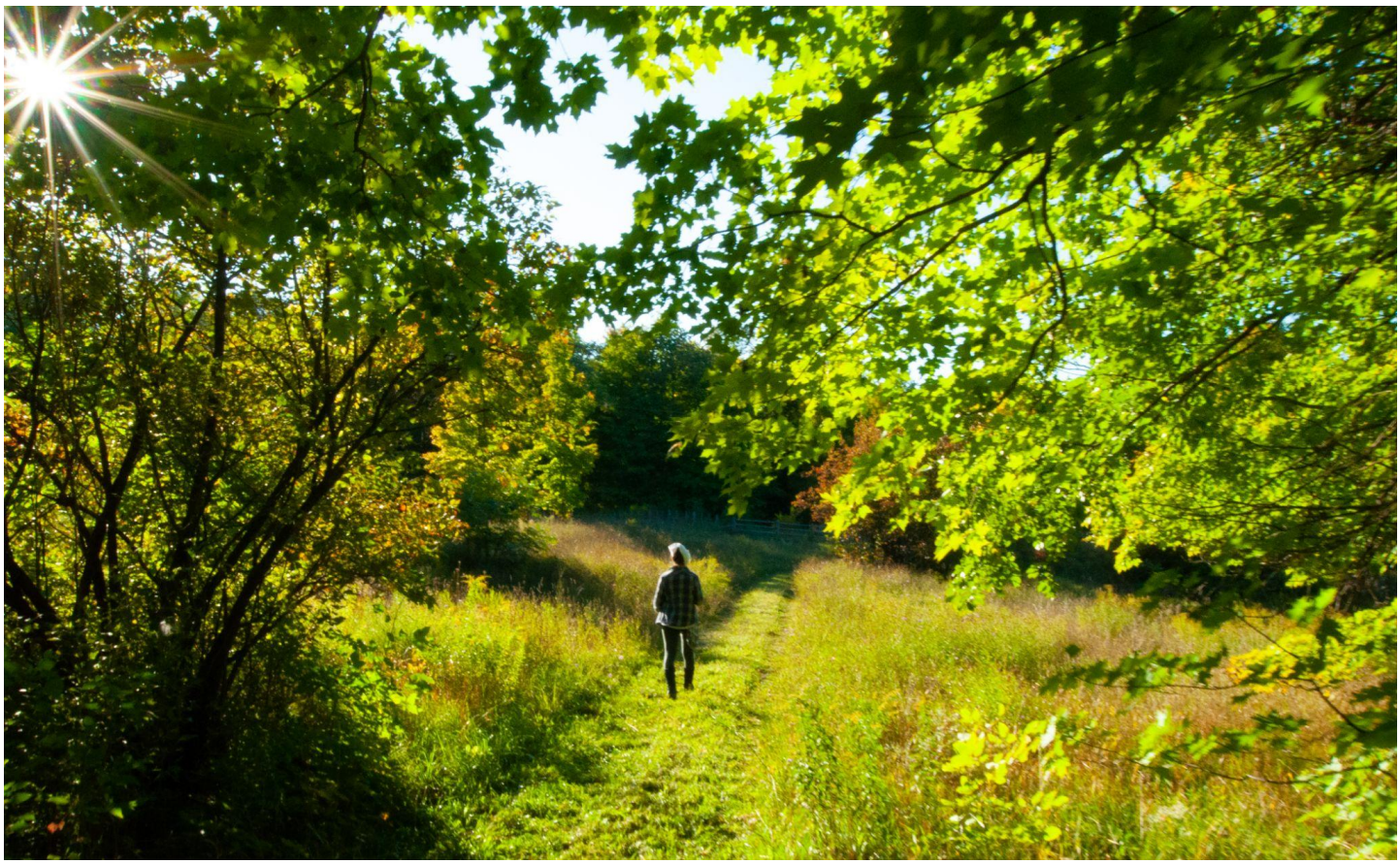
Our BGWA *Greenleaves* editor, Gary Kenny, and his partner have decided to relocate out of the Bruce Grey region. Gary has notified me that on an interim basis for 2023 he will continue his responsibilities as editor. Thanks Gary! We are in need of editorial assistance. The position is volunteer like all of our roles. The editor does not need to make the extra commitment of also being active on the Board of Directors. We are updating the job description for the newsletter editor. If you have any interest or know of someone with an interest and with editorial skills, please put she/he in touch with me urgently.

I truly hope that you enjoy reading this edition of *Greenleaves*. Every aspect of this production hinges on the skills and capabilities of volunteers. The number of articles and photographs and variety of topics relies on our local members for contributions. Longer newsletters reflect more contributions received from you, our members. We had several new contributors join the "authors" list last year. We hope you will find time to contribute again this year. For our regular contributors – simply thank you for taking the time and energy to share your insights and perspectives with us. Please send your contributions to: newsletter@bgwa.ca. I hope to see many of you out enjoying the learning experiences offered with our BGWA-sponsored events.



Kinghurst Forest trails. Photo by Valentine Makhouleen.

Forest Revelations

By BGWA member, Mark Zaborowski (with Bill McMartin)

Ten years ago, after walking my 25-acre property on Baseline Road near Flesherton with both foresters and professional ecologists, I enrolled in the Managed Forest Tax Incentive Program (MFTIP) with what I hoped would be "a light touch."

While forest professionals were recommending an improvement cut for the 85-year-old, even-aged forest, which would be followed by a lumber cut in 15-20 years, they also supported the following: wildlife monitoring, invasive species monitoring, trail and lane development, annual tree planting, small personal use lumber/improvement cuts of less than two acres for firewood, and ongoing education through the Ontario Woodlot Association and BGWA.

Each spring through the first 10-year plan (2012 -2022), avian ecologist Bill McMartin and I walked the property (hereafter identified as the Zaborowski property), Bill identifying birds by their song. What follows is Bill's analysis of these 10 years.

Determining trends in bird populations can be difficult unless you have a long history of data to work with. Apparent trends in short-term data can be misleading or meaningless due to local circumstances. For example, the conversion of agricultural land for residential building would suggest that grassland birds have declined, and urban garden bird populations are increasing, merely because the local availability of suitable habitat has changed.

Fortunately, we are aware of some continent-wide trends that can be confirmed using data from a modest time period. The Zaborowski property provides a 10-year history of the presence of breeding birds in an area where there has been little change in nearby land use over that period, using census methods that allow for reasonable comparisons of breeding populations among years.

The Zaborowski property is in Grey County, Municipality of Grey Highlands on Baseline Road with its entrance approximately 950m northwest of Grey Road 4. The 25-acre rectangle-shaped property is ~20 acres of hardwood forest and ~5 acres of regenerating old field. The forest (Table 1) is predominantly sugar maple while the old field has an extensive scattering of Hawthorn and senescent apple trees.

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Sugar Maple	Black Cherry	American Beech	Trembling Aspen	American Alm
White Ash	Yellow Birch	Ironwood	Basswood	Butternut *
Eastern White Cedar	Eastern Hemlock	White Spruce	White Pine	

Table 1. Tree species present at the Zaborowski property.
* Note: butternut has canker.

The property has seen several improvements over the last decade, including a gate at the access from Baseline Road, a graveled parking area, a ~400m graveled track from the entrance to the forest/old field ecotone and an 8ft x 12ft cabin near the end of the track. The total area of these improvements totals less than one acre.

About two bush cords of firewood have been taken off the property annually, mostly dead, deformed, or diseased trees and trees that needed to be removed for the improvements made. Tree planting has taken place in every year of the last 10, including plantings of White Pine, Black Walnut, Shagbark Hickory, Tamarack, Sycamore, Paper Birch, White Spruce, Eastern Hemlock, and Eastern White Cedar totaling approximately 1000 trees.

As part of a Forest Management Plan developed in 2013, there has been an annual census of birdlife present during the breeding season. For most years, this census took place in early June to capture the maximum likelihood of territorial singing by male songbirds. The census was conducted generally between 08:00 and 10:00 over the course of a slow walk from the entrance to the old field.

All censuses were conducted by a professional avian ecologist with experience dating from 1994. The presence of all birds observed was recorded, but those species highly unlikely to breed within the Zaborowski property were excluded from analysis. These included Canada Goose, Mallard, and Ring-billed Gull. Sixty-one breeding species were observed over this 10-year period.

A spring forest view on the Zaborowski property. Source: Mark Zaborowski.

A regenerating field on the Zaborowski property. Source: Mark Zaborowski.

Grassland birds are those species that have historically bred in open fields or grassland habitats. There has been a continent-wide decline in grassland bird populations due in part to the increasing amount of forest cover as natural succession converts abandoned agricultural lands into shrub thickets and eventually forests.

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At the Zaborowski property, grassland birds have included Eastern Meadowlarks, Brown-headed Cowbirds, Eastern Kingbirds, Chipping Sparrows, and Field Sparrows. Of these, none were present in 2023 and only Chipping Sparrows were present in 2022. The old field has become a shrub thicket, thereby removing breeding habitat for these species, consistent with the continent-wide trend. The end of cattle grazing in this area ~1985 would have allowed seedlings and saplings of shrubs and trees to avoid trampling by cattle. The process of succession away from grassland will continue, grassland birds will likely not return, and in time even Chipping Sparrows will breed elsewhere.

Aerial insectivores are birds that capture insect food items on the wing. They are Species-of-Concern because the intensive use of insecticides in agriculture and forestry seems to have reduced the abundance of their insect food resources. The affected species include Swallows, Flycatchers, and other species not relevant to this study. Barn Swallows have not been present since 2015, however all five members of the Flycatcher population historically present on site (Alder Flycatcher, Eastern Wood-pewee, Great Crested Flycatcher, Least Flycatcher and Yellow-bellied Flycatcher) are still regularly observed. While these results are contrary to a continent-wide trend, they may be explained by the absence of insecticide use on local forests, and the limited presence nearby of fields that might be treated with insecticides for agricultural purposes.

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A Red-bellied Snake found on the Zaborowski property, one of several small snake species found in and around Ontario's forests. Source: Mark Zaborowski.

Downy and Hairy Woodpeckers have not been present since 2020. Pileated and Red-bellied Woodpeckers were first recorded in 2022 and 2023 respectively, while Northern Flickers and Yellow-bellied Sapsuckers have each been present for five of 10 years. It's possible that the removal of dead and diseased trees for firewood may have reduced the availability of nest cavities for some woodpeckers. Other cavity-nesters (Black-capped Chickadee, Great Crested Flycatcher, House Wren, White-breasted Nuthatch) appear to be unaffected so there is no clear pattern among Woodpeckers and cavity-nesters.

Forest songbirds comprise the largest fraction of species observed on the Zaborowski property. There have been 10 species of Warblers, two of Vireos, three of Thrushes and four miscellaneous forest species, comprising 19 of the 61 species observed. Flycatchers and Woodpeckers are treated separately and therefore not included as forest songbirds.

Only three species, American Robin, Red-eyed Vireo and Rose-breasted Grosbeak were present every year. More commonly, the remaining species were present irregularly in six years or fewer of 10. Seven species were present in only one year. The number of forest songbird species varied from four to 10 annually, showing no indication of a trend. It seems that the presence of these songbirds is random except for the three species that were present every year.

In summary, the only clear pattern in groups of bird populations over 10 years has been the declining presence of grassland species.

A Spotted Newt found on the Zaborowski property, possibly having recently emerged from a wet area where the species lives in its early days of life. Source: Mark Zaborowski.

Biotechnology in the Forest

By BGWA member, Jim White

In the Spring issue of *Greenleaves*, I read with interest an article from a perspective on genetic engineering with regard to the American Chestnut. I wanted to learn more about the science. I have been able to access United States (US) Freedom of Information (FOI) documents that have been submitted by the university that developed this specific biotechnology for review by US regulatory authorities.

Based on my readings, the American Chestnut Foundation working in collaboration with The State University of New York - College of Environmental Science and Forestry (SUNY-ESF) has provided a series of scientific/legal documents to the United States Department of Agriculture (USDA), Food and Drug Administration (FDA) and Environmental Protection Agency (EPA). The documentation is a petition for determination of a non-regulated status for blight-tolerant American Chestnut. The applicant is the Director of the American Chestnut Research and Restoration Project. This application is a first for a forestry project in North America.

Agriculture and human medicine have a number of examples of applications and approvals for biotechnology from both the US and Canadian regulatory agencies. The science of biotechnology is evolving quickly.

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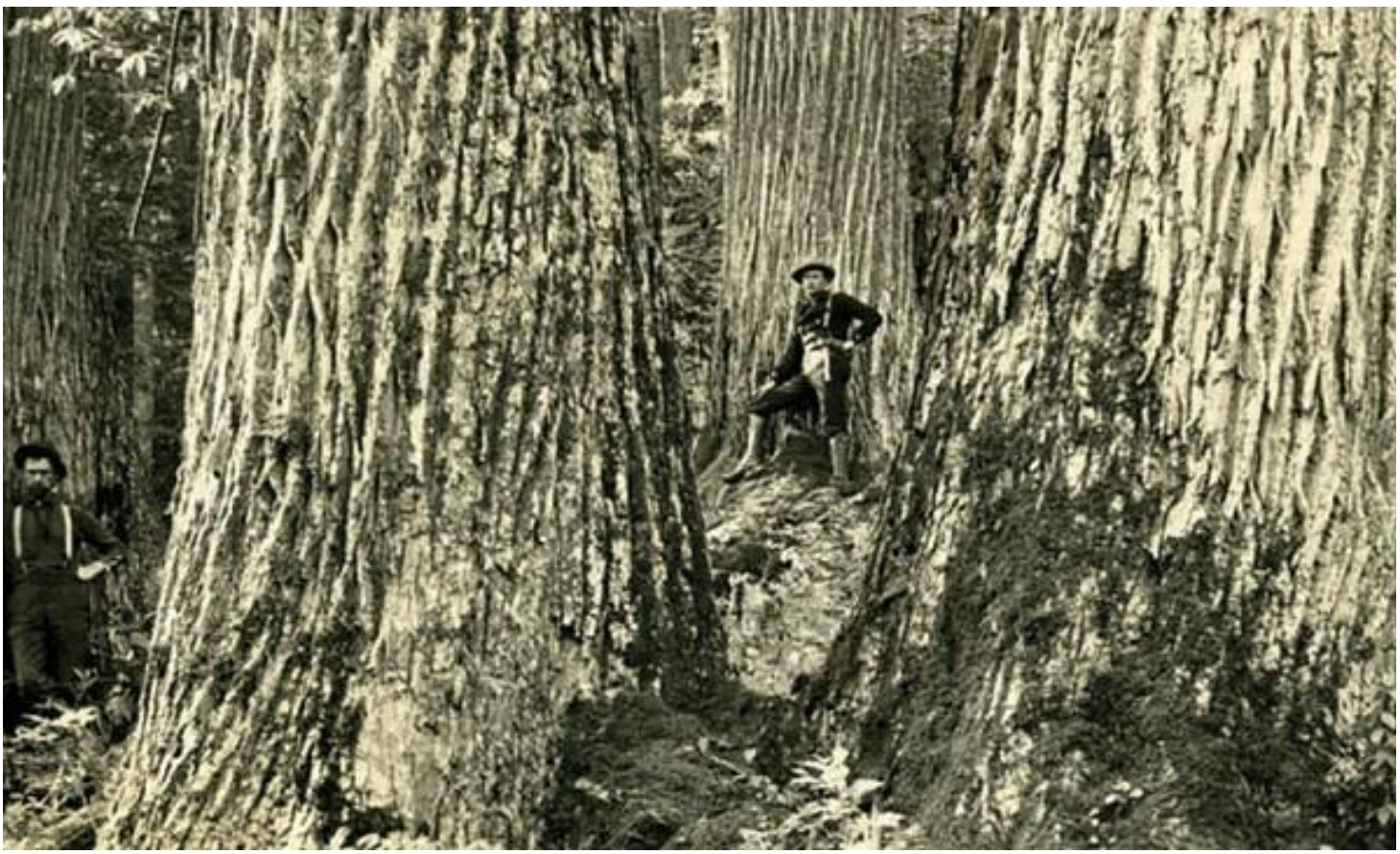

This picture, taken in the mid- to late 19th century, gives an idea of just how large and profuse the American chestnut tree was in North American forests.

My interest in the area of genomics and biotechnology should be disclosed. I spent a significant portion of my career working with organizations dedicated to advancing science in the field of biotechnology, most notably the University of Saskatchewan's Veterinary Infectious Disease Institute commercialization enterprise. We developed and produced the world's first sub-unit vaccines for use in animal agriculture. From first-hand experience the regulatory review process in both Canada and US is thorough, rigorous, and evidence based. Organizations wanting to license a new biotechnological innovation must demonstrate safety and efficacy of their intellectual property. In Canada, the review and registration processes involves: i) Health Canada, ii) Canadian Food Inspection Agency and, where applicable, iii) Canadian Environmental Protection Agency. Canadian and US regulatory systems are led and staffed by scientists with leading edge know-how in the applicable subject areas. It is not a political process.

Now let's have a look at the history of American Chestnut blight and the solution that SUNY-ESF have proposed to USDA, FDA, and EPA to assist in restoring an endangered species.

We know the American Chestnut population was decimated by a blight caused by a fungus in the early 1900s. The American Chestnut is native to the eastern US and Carolinian forests in southwestern Ontario. Grey and Bruce counties are not included in the Carolinian forest zone. Counties with Carolinian forests include: Brant, Essex, Elgin, Haldimand-Norfolk, Kent, Lambton, Middlesex, Oxford, and the Niagara Region.

The fungus, Cryphonectria parasitica, causes the blight by producing oxalic acid which the American Chestnut is unable to metabolize (i.e., break down for excretion). Oxalic acid is a common organic acid. True cereal crops such as wheat and barley contain the gene which enables a plant to produce the enzyme, oxalate acidase, that can metabolize oxalic acid. The selected gene was from wheat, the genetics of which are well documented. The research associated with the application for Blight-Tolerant American Chestnut (BTAC) involves the insertion of this gene into a specific region of the American Chestnut genome. The transgenic BTAC variety will be called Darling 58.

The years of scientific development included advanced gene therapies – see this link to the relevant FOI https://www.aphis.usda.gov/brs/aphisdocs/19-309-01p.pdf. Being 290 pages long, you might choose to read pages 3-5 of the executive summary.

The scientific review process also examines the "so what" of a proposed new technology. Specifically, what are the impacts for the BTAC and environmental ecosystems? The document provides results of research documenting the safety of gene stability in first and second generation BTAC trees, growth and photosynthesis rates, nutritional analysis of nuts, fungal blight tolerance, pollinator health, leaf litter decomposition, tadpole development and survival, native plant interactions, mycorrhizal impacts, and more.

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The “now what” of the submission examines the potential for increased genetic diversity of self-sustaining trees, wild-type, and genetic hybrids from the past 100 years of silviculture selection. Assuming the documentation satisfies the requirements of the USDA, FDA and EPA and an approval is granted in the US, we may expect a similar review by the Canadian regulatory agencies. The approval decision may or may not be consistent between the two countries. In any event, there is the potential for BTAC to naturally cross the US border in southwestern Ontario. Based on personal communication with USDA - APHIS officials, the agency expects to publish their final environmental impact statement shortly.

Biotechnology and genomics impact our daily lives. You might find it interesting to know that in North America 92 percent of all soybeans, 95 percent of all canola, and 90 percent of all corn are products of biotechnology. Soybeans, corn, and canola and the myriad products derived from processing these plants are staples in our diets. Do you know anyone that relies on insulin for a healthy quality of life? Insulin is a product of advances in biotechnology.

If you have an interest in biology, I encourage you to read and consider the scientific documentation in the FOI regarding the SUNY-ESF. While it is impossible to know every possible consequence, it is possible to rule out many hypothetical risks. Given the challenge of what appears to be an endless number of invasive pathogens in our forests, biotechnology may hold the key to novel positive impacts on the forest environment.

The prickly outer shell and brown nut of the American Chestnut. Source: Bing Images

The Ecological Importance of Forest Snags

By Gary Kenny, BGWA member

Snag – a term with multiple and sometimes curious meanings. In Australia snag represents a sausage, also called a snarler or a snork. To Newfoundland fisherfolk gasping at empty nets, it can mean apoplexy accompanied by a few choice expletives. Some deer hunters think of snags as the secondary branches of antlers.

To woodland ecologists, snag has a very different meaning. They are standing dead trees that, while broken, weathered, and in some stage of rot, represent the future of healthy forest ecosystems.

Snags embody something of the forest past and present. Their sloughing bark and rotting heartwood speak of once great forest sentinels, maybe a stout-of-girth and towering Maple, Beech, Oak, or Pine. Yet in their inexorable decay they hold the promise of new life in the forest. Snags are dead trees, yes, but in a curious kind of way, very much alive.

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Two forest snags, one showing cavities excavated by Woodpeckers, the other demonstrating fungi at work breaking down the inner tissues of the dead wood. Source: Gary Kenny.

That forest ecologists think of snags as “wildlife trees” underscores that snags aren’t really dead at all. Life flourishes in the form of insects and fungi that feed on the decaying bark and wood. Birds, especially Woodpeckers, excavate the wood in search of food and in so doing create crevices for insects to nest and cavity nesting sites for other birds and mammals. Tall snags are used as hunting perches for predatory birds, and fallen snags house invertebrate life and are foraging sites for numerous birds and mammals.

Snags in the Bruce-Grey region, for example, are habitat for Woodpeckers, Bluebirds, Wood Ducks, Great-crested Flycatchers, Chickadees, Nuthatches, Barred Owls, Screech Owls, Hawks, Vultures, Bats, Grey Squirrels, Chipmunks, Raccoons, Possums, Weasels, Fishers, Porcupines, Frogs, Snakes, Salamanders, Honey bees, Mason bees, Wasps, Spiders – and more.

From the time a standing tree dies until it falls to the forest floor, it’s a magnet for an abundance of wildlife. Ecologist Charles Elton once observed that “dying and dead wood provides one of the two or three greatest resources for animal species in a natural forest…if fallen timber and slightly decayed trees are removed the whole system is greatly impoverished of perhaps more than a fifth of its fauna.”

Fungi play a critical role in facilitating the decay of snags and fallen logs. Without decaying wood there would be no fungi, an organism essential in breaking down wood tissues. The winter 2022 edition of Greenleaves, which can be accessed at the BGWA website, included an annotated and colourful photo essay, “The Wonders of a Decaying Log,” that features some of the many species of fungi found in the forest.

Large conifers – Cedar, Spruce, Tamarack and Pine – apparently tend to make the best snags. They rot more slowly than deciduous trees such as Aspen, Birch, and Cherry. The snags of large dead deciduous trees including Maple, Beech and Oak can stand for many years.

Some visitors to public parks, enculturated to an urban manicured look, view snags as eyesores. Ontario Parks officials report receiving complaints about snags that make the forest look “ugly.” With their appreciation of forest ecology, the officials are more likely to see in the snags something of extraordinary value, even beauty. They know intimately what they contribute in vital ecosystem services necessary for forest renewal.

Of course, snags along public forest and other trails can be a danger to passersby and should be removed. A decaying tree near a home or roadway can also be a potential hazard.

As one unnamed Ontario Parks official put it, remember, “we are balancing offering recreational opportunities for our visitors with protecting our natural spaces from human impact, urban development, and other environmental threats…We know that some of our visitors may expect manicured grassy areas with tended garden-like paths when they visit us, but that is not what we do.”

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In recent years, as the science of forest ecology has further developed, snags have resurged in their ecological importance. In some forests, managers actually mark wildlife-prolific snags and designate them for protection and for purposes of public education. Some foresters suggest that woodland stewards maintain at least five snags per acre as a strategy to help ensure forest regeneration and integrity.

While snags may be resurging in the forest, they remain a rare feature in homeowners' gardens. That's something science journalist Jenny Morber would like to change: "Every house I have inhabited was once a forest. I have displaced resiny Pines, giant Oaks, Honey Locust and Poplar, Cedars, Douglas Fir and Bigleaf Maple. Not once have I inherited a snag."

Some homeowners commission artists to chainsaw sculpt dead hardwood trees on their front lawns into attractive artworks and treat them against rot. But your forest variety snag is not a desired part of front yard landscapes.

Morber bemoans the stigmatizing of snags. A snag "breaks and crumbles," she says. "Its skin sloughs. It shows its innards, almost obscene…A snag does not flower or fruit, reproduce or grow. It disintegrates. It reduces. A snag's offence is that it is a dead thing."

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But every snag, as long as it isn't posing a danger, is "a treasure," she says. It's "a decaying monument, a sculptural element, a teaching tool, a food source, a shelter, a lookout post, a home."

Ontario Parks actually encourages urban homeowners to leave non-dangerous snags and fallen wood where they lie and to "embrace the 'messiness' of your backyard." If there's a dead tree on your property, cottage lot, or lawn, it too is an important resource for urban wildlife, even if your neighbour may not think so, Ontario Parks says.

That's a wonderfully eco-friendly sentiment. Maybe as the general population becomes more aware of forest ecology, we'll see some "wildlife trees" in front and back yards in our towns and cities.

BGWA Event Report: Reesor Farm, Arboretum, and Woodlot

By Lloyd Holbrook, BGWA member

On September 9th, 15 people enjoyed an informative tour of Colin and Dianne Reesor's farm near Walkerton in Bruce County. The event was sponsored by BGWA. Over the years the Reesors, with Colin's extensive technical knowledge on growing trees, have established a beautiful arboretum of various tree species, some uncommon and some bearing fruit and nuts, around their house and outbuildings as a complement to food production from the farm's arable land. Following is a short report on the day by BGWA member, Lloyd Holbrook. .

At the Reesor Farm, Colin showed us photos of the homestead when he purchased it in 1977. At that time there were no trees around the house. We saw a wide variety of trees that have been planted over the years by Colin and Dianne. They included English Oak grown from acorns given out by the Royal Family, to many varieties of apple and pear trees the fruit of which event participants sampled.

We also observed Sweet Chestnut, Carpathian Walnut, and Heartnut trees. The Reesors decided long ago that, just as their farmland can grow an abundance of food, so can the land around their house and outbuildings.

Also growing on the Reesor farm are many ornamental trees including Red Bud, Blue Spruce, Copper Beech, and Ornamental Pear. Native Oaks and Maples also grow in abundance. Trees were also planted to help control wind and snow and can clean the air as well. A windbreak of Spruce and Hybrid Poplar surrounds the property and shelters the other trees.

The Reesors emphasized that spaces around a farmhouse and outbuildings can be conducive to growing rare native plants which can be important habitat for birds, butterflies and other beneficial insects, and small mammals.

The tour concluded with a visit to the Reesor's farm woodlot which included a few butternut trees and a mature pine plantation which is regenerating well into a hardwood forest. Colin also talked about the attributes of poplar lumber, and demonstrated a dual-action wood splitter and spoke about its pros and cons.

The day ended with refreshments courtesy of Colin. Thanks to Colin and Dianne for hosting the tour and especially to Colin for the great technical information on all the trees.

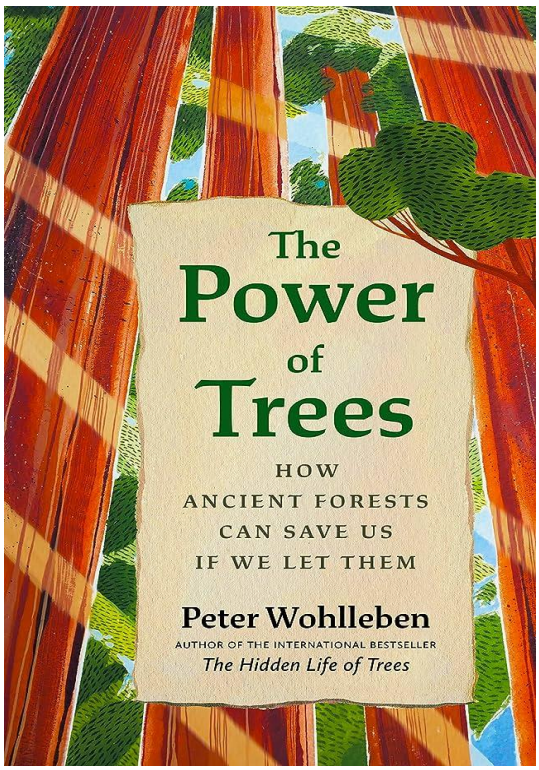
To Improve Forest Management, Think of the Life Below Ground

By Cindy Prescott and Sue Grayston

In this article from The Tyee, the authors demonstrate that half of the biodiversity in forests is unseen because it lives below ground. The organisms that comprise that biodiversity are miniscule in size, but their importance to the ecosystem is enormous. And what we can't see, the authors say, could be a critical response to climate stress.

https://thetyee.ca/Analysis/2023/08/16/Improve-Forest-Management-Life-Below-Ground

Book Review



In his best selling book, The Hidden Life of Trees, *forester and author Peter Wohlleben revealed astonishing discoveries about the social networks of trees and how they communicate. Now, in* The Power of Trees, *he turns to their future, with a searing critique of forestry management, tree planting, and the exploitation of old growth forests.*

https://www.theguardian.com/books/2023/may/07/the-power-of-trees-peter-wohlleben-review-forests-climate

QUIZ: Trees of Note in Ontario

By BGWA member, Lloyd Holbrook

For this issue of Greenleaves, BGWA member Lloyd Holbrook crafted a quiz that features some of the province's most notable trees, one of them located in Bruce County. Can you answer Lloyd's questions? Answers can be found on the next page.

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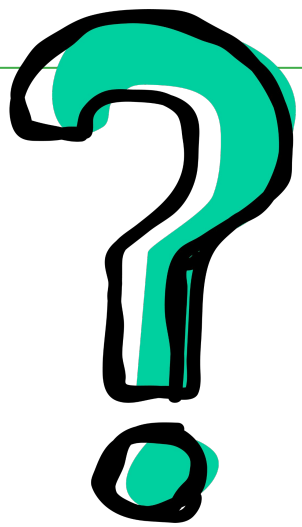
1. What species is the especially large, and regionally famous, tree located near Hepworth in Bruce County?

2. What is the tallest tree in Ontario, and how tall is it?

3. What species of tree in Ontario is the largest in diameter?



Answers to quiz

1. What species is the especially large, and regionally famous, tree located near Hepworth?

Answer: The Sauble Elm. It is one of Ontario's largest White Elm's and is growing beside the Sauble River between Hepworth and Sauble Beach. The tree has a circumference of 7.6m (25ft) and a height of 43m (140ft). It probably survived early logging because it was too big to be cut with crosscut saws and maybe also too big to drag or transport to a local lumber yard. The tree was infected with Dutch Elm Disease in 1967 and died a few years later. A ring count showed it that germinated from a seed in 1701.

Unfortunately, because of a disease introduced to southern Ontario by humans, the Bruce-Grey region lost one of its largest and best adapted trees. Hope for the region's remaining White Elms is offered by some indication of resistance in some remaining trees, as well as the University of Guelph's recovery project. Disease-resistant cultivars are now available for purchase and planting through the project. For more information visit:

https://arboretum.uoguelph.ca/researchandstewardship/elmrecovery

The wood of the White Elm is cross-grained making it tough to split. Today, elm is used for flooring, furniture, hockey sticks, musical instruments, boat frames, and more.

2. What is the tallest tree in Ontario, and how tall is it?

Answer: An Eastern White Pine located near Arnprior is 47m (154ft) tall. The next tallest species is a White Spruce at 39m (127ft) in Hastings County, and next again is a Red Pine at 37.5m (123ft) in Algonquin Park.

The tallest deciduous tree in Ontario at present is a White Elm growing near Sault Ste. Marie. It's 37.5m (123ft) high. Next tallest is a Cottonwood located near Chatham at 35.4m (116ft) tall.

3. What species of tree in Ontario is the largest in diameter?

Answer: Apparently, at the time of the arrival of settlers, the largest tree in diameter was the Sycamore. The largest deciduous tree in North America (United States) is indeed a Sycamore at 4.6m (15ft) in diameter. There are many historical records of giant Sycamore trees in Ontario, as well as some other species. In current listings, a Cottonwood near Chatham is the largest in diameter at 265cm (8.6ft), and then second is a Sycamore near Alvinston with a diameter of 263cm (8.6ft). In Ontario, Sycamore trees grow mainly in the Carolinian zone, but they also grow well in Bruce-Grey. However, the species is apparently not reproducing well naturally and so is becoming less common. The Sycamore can live for 350 years or more.

Ontario Sycamore tree. Source: Government of Canada

Question for a Forester

Question from Jim White, BGWA member

“I took this photo of a White Pine tree. Are the rust-coloured needles an indication of rust or a sign that the tree will shed some needles in the fall?”

Response

By Mike Fry, Registered Professional Forester, BGWA member

Thanks for the question about what is affecting your White Pine tree. There is clearly something happening with the needles turning brown. There are several things that could be affecting your tree, from a canker or mold to an abiotic factor such as dry conditions.

When I get questions like this, I normally try to ask some questions to rule things out. These questions would normally include:

- What is the species of tree? Knowing the precise species first will reduce the range of issues. In this case the questioner has helpfully told me that the species is an Eastern White Pine.
- Where is the tree located in relation to a road? Road salt is pretty harmful to many trees.
- What time of year was the photo taken? This one is clearly in the summer. Having this information can help to determine if the damage is caused by winter or summer factors.
- Is there anything else going on with the tree? Do the branches/trunk have anything unusual growing on them?

With such information, if nothing clearly pops to my mind, I will either try to come out to look at the tree in person, or if this is not possible, have the individual send me some more photos showing specific parts of the tree. Also, behind the scenes, I reach out to people who are much smarter and have more experience than I do. Most of these people are members of the BGWA!

As with many things in life, traveling the world of forestry, forests, and environmental management is an extremely rewarding journey. You can feel like you have a handle on things, and then someone asks a question that can stump you. I have come to find that forestry is one of those professions that, the more you learn, the more there is to learn.

Pest alert!

New Invasive Species, Oak Wilt, Found in Ontario and Canada for the First Time

In June 2023, the Canadian Food Inspection Agency confirmed the presence of Oak Wilt (*Bretziella fagacearum*) in Niagara Falls, Ontario after receiving reports of symptomatic trees in the area. This is the first known case of Oak Wilt in Canada. The loss of Oak trees would be felt in both urban and natural spaces as oaks are in many backyards, parks, woodlots, and forests.

Oak wilt is a fungal pathogen that spreads through the vascular system of infected Oak trees, restricting the upward movement of water and nutrients. The leaves of infected trees can wilt and drop without these resources, resulting in complete defoliation early in the spring and summer.

Red Oak species are particularly vulnerable to Oak Wilt and can die in as little as two weeks after infection. While White Oaks can slowly develop the signs and symptoms of Oak Wilt, the infection is far more apparent in Red Oaks. The leaves of infected trees will have brown discolouration starting along the leaf edges that moves inward towards the middle margin. Discolouration, wilting, and defoliation are all typically seen higher in the crown first but will move downwards as the disease progresses.

Another common sign of Oak Wilt on dead Red Oaks are vertical cracks in the bark, which are created from underlying pressure pads that form as the fungus grows. Please note that there are many factors that may cause discoloured oak leaves and other symptoms of Oak Wilt, including drought.

Economic Impacts

A study from 2020 estimates the value of standing Oak timber in Eastern Canada at $126 million. The estimated cost of removal and replacement of impacted Oak trees is between $266 to $420 million.

The loss of Oak trees could reduce biodiversity, habitat, and food for wildlife, as acorns are an important wildlife food. Oak Wilt may also result in significant losses in environmental services as Oak trees help to stabilize slopes, limit soil erosion, and reduce air pollution.

Continued on next page...

Prevent the Spread

- Do not prune Oak trees from April to October when sap beetles are active. Sap beetles can spread the Oak Wilt fungal spores on their bodies from infected trees to healthy ones as they move around in search of food.
- Do not move firewood. Fungal mats could be present under the bark of firewood and be unintentionally spread to new areas.
- Be on the lookout for Oak Wilt, particularly when living in or near border cities. Oak Wilt has spread throughout 24 US States, several of which border Ontario.

Report

- Report all possible detections to the Canadian Food Inspection Agency immediately.

Additional Resources

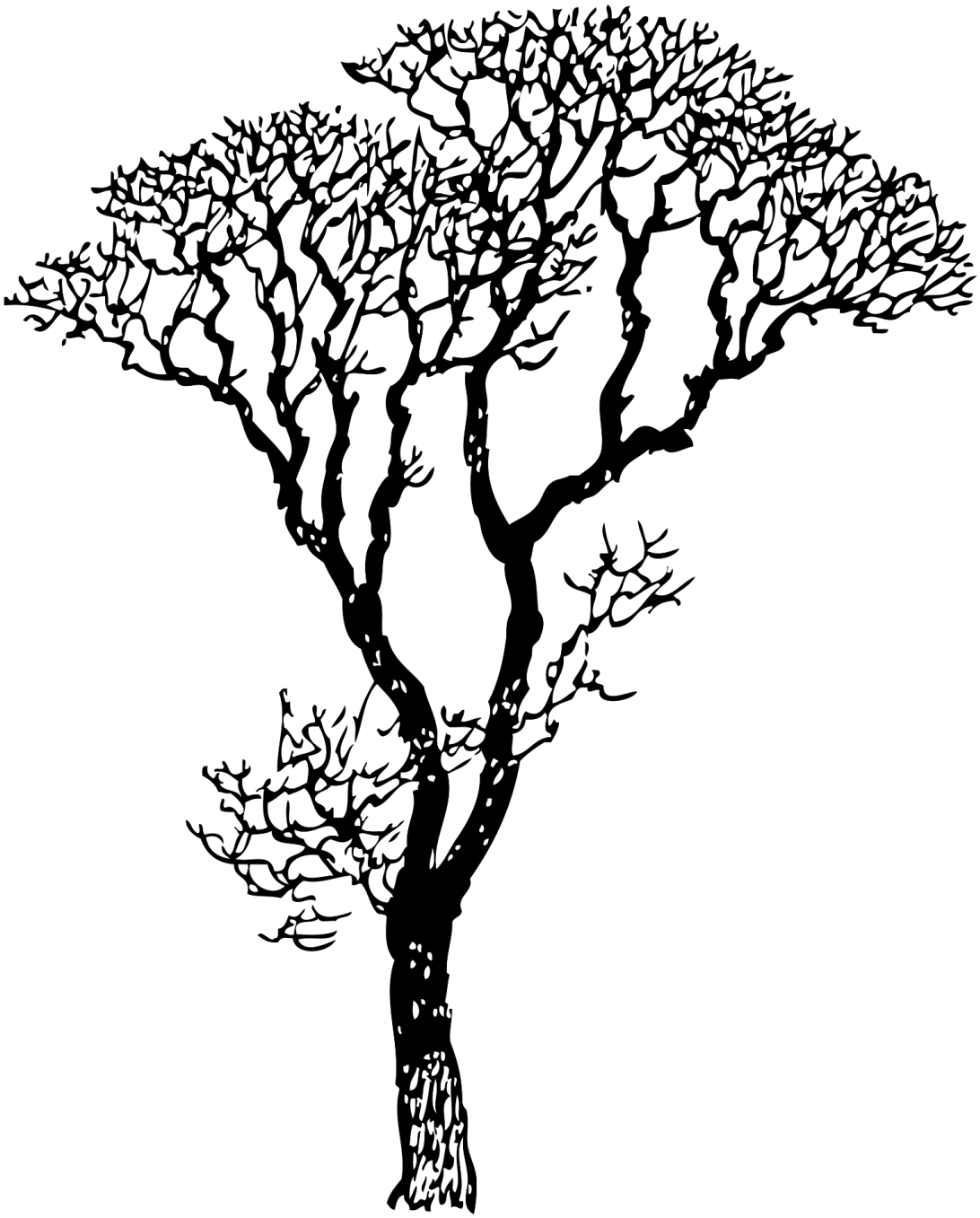
- Learn how to identify the signs and symptoms of Oak Wilt. For more information on oak wilt biology, spread, prevention, and management, visit the Invasive Species Centre's Oak Wilt Species Profile and Oak Wilt Training course.
- Oak Wilt will be a feature at the 2024 Invasive Species Forum, taking place February 12-15, with the theme of Empowering Action. Learn more here.
- Visit the Canadian Food Inspection Agency website.
- Join our mailing list to receive updates on upcoming events and webinars.

Three signs of Oak Wilt in Oak trees. Source: Canadian Food Inspection Agency

Children's Corner

Based on a idea provided by BGWA member, Melena McGregor

In Ontario we experience and enjoy four distinct seasons: winter, spring, summer, and fall. In each of these seasons the trees around us - especially deciduous trees - look different. Imagine that the tree pictured below is growing in one of the four seasons. What might it look like? What might it look like in winter? In spring? In summer? In the fall? With copies of the tree image below, color and/or decorate the tree, one for each of the four seasons.



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