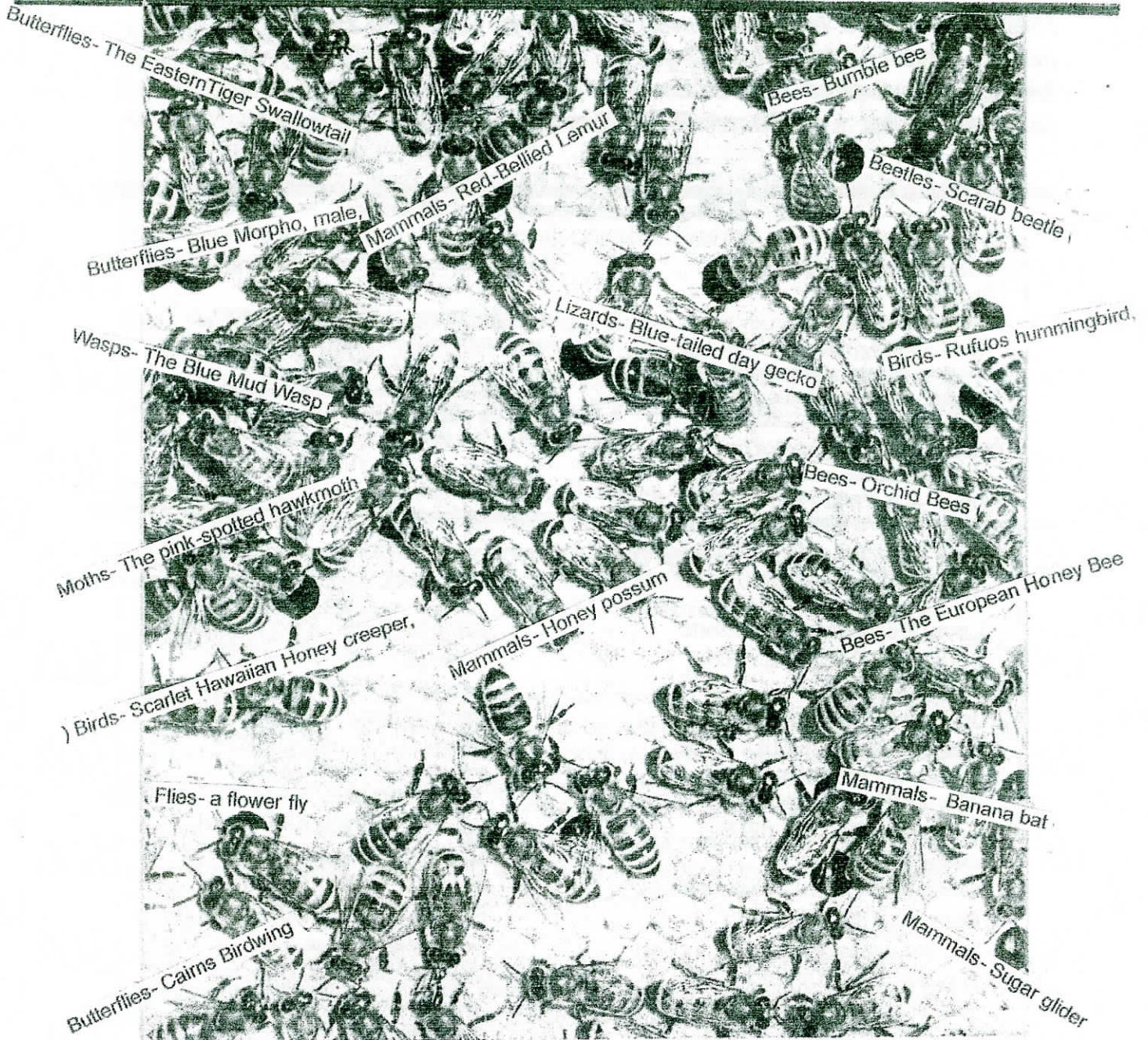


THE LOGJAM



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The World of the Pollinators

Our Mission Statement - "The Woodlot Association of Alberta's purpose is to promote leadership in sustainable forest management by encouraging the development of private forest by increasing awareness of their inherent social, economic and environmental values."

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SUMMARY OF OUR 21st ANNUAL GENERAL MEETING

Louise Horstman/Code

This year our AGM was held in the Morinville-St. Albert area on June 17 & 18th, with indoor business and presentations held at the Royal Canadian Legion Hall in Morinville. With our AGMs being held in June, it's not snow but rather rain that we now have to possibly contend with. Contrary to the forecast, the weather cooperated beautifully with our two field tours, one on Friday afternoon and one on Saturday morning. However, our members who attended from the NW region of the province may have had to detour around flood damage on their way home. We hope all was well when they returned home.

AGM Business

Thanks for services rendered in 2015 went to:

Laval Bergeron for being our tireless leader

Jurgen Moll for his role as communicator, including LogJam editor

Elton Kauffman for his role as treasurer

Christine Nofziger and **Karen Visser** for reviewing our year-end financials and also Karen for being our AWES liaison person.

Herb Cerezke for keeping our membership data up to date and keeping members informed of their status.

There was good news about the possibility of a change in the provincial assessment of woodlots. The Minister of Municipal Affairs has contacted the WAA about a possible change in the regulations which would allow woodlots with certain qualifications and producing certain items to be taxed as farmland. Further discussion between the board and Municipal Affairs on this matter is anticipated.

Elections brought a new member to the Board, **Karen Visser**, and two new "old" members who had served in previous years and then taken a break – **Gordon Kerr** and **Warren Stewart**. We are very pleased to have them back. Continuing to serve are **Laval Bergeron**, **Jurgen Moll**, **Elton Kauffman**, **Herb Cerezke**, **Harry Krawchuk**, **Larry Nofziger**, and **Harry White**. **Louise Horstman** retired from the Board after serving for more years than she cared to count.

Update from Our Partner Organization (Agroforestry and Woodlot Extension Society)

Jeff Renton, AWES Coordinator, reported on the status and activities of AWES and asked WAA members to provide our suggestions regarding a woodlot management planning workshop and template being developed (see below).

In addition to the WAA, AWES currently has ten other members from several sectors (including ALPac, DMI, Vanderwell, the Alberta Conservation Association, Capital Power, and several counties). More are being sought.

AWES now works primarily through municipalities. The Society is developing a Riparian Area Restoration Manual, designing shelterbelts and a guide to shelterbelt maintenance, and planting about 70,000 trees annually, mainly in riparian areas.

To meet the many requests received for site consultations, AWES is developing a two-day workshop on woodlot management planning. The planning template for this workshop will be posted on their website (www.AWES-ab.ca) for public use when completed. Jeff asked **WAA members to contact him with any suggestions for the template or workshop (j.renton@awes-ab.ca)**.

Speakers

Interspersed with the business session we enjoyed presentations on various topics:

Dr. Elisabeth Beaubien showed us some of the results of thirty years of the volunteer Alberta PlantWatch program and the many uses of flowering dates. A warming trend was clearly demonstrated by the flowering dates of many of the species that are tracked. She welcomed all WAA members to join the volunteer program (for details see Plantwatch.naturealberta.ca).

Don Harfield, Team Leader of Thermochemical Processing at Alberta Innovates (previously Alberta Research Council) gave us a presentation on Biochar and its many uses for energy production and soil amendment.

Toso Bozic of Alberta Agriculture gave a lively talk about the coming provincial carbon levy.

Dr. Peter Murphy, Professor Emeritus at the University of Alberta, gave a slide show with historical photos and descriptions of the earliest gristmill-powered sawmills in the St. Albert area.

Darrin Humber, RPF, led a discussion about the potential use of various tree species on woodlots.

Tours

Ward and Jo-anne Middleton gave us a tour and description of harvesting methods at their sea buckthorn plantation north of Morinville.

John Bocoock provided a tour of the CFS Wood Fibre Centre and the solar energy barn at the Bocoock farm and University Research Station in St. Albert.

And Lastly

We would be remiss if we did not mention the excellent lunches and dinner which were prepared by Morinville Legion chef and WAA member Ira Austin.

Sincerest thanks to Timberland for providing our special door prize of a \$75 gift certificate.

**Reminder to members who did not attend:
Memberships run from AGM in June to the following AGM, so send your membership renewal form in now**

President's report

Laval Bergeron

Hello everyone,

This past season has been hard on feelings if you will, first a drought which got very scary for fires followed by floods «snow » which was hard on crops and woodlots. Hopefully these extremes are behind us..

We just had our first spring AGM. I thought it was well attended, although there is always room for more. Very well organized, great speakers, tours and that is thanks to Louise Horstman, our very long standing secretary. Louise will not be on the board anymore and will be greatly missed. Good news is she is replaced by not one but three new board members which you will find out who they are in the AGM's report. So now our new board of directors consist of eleven fine souls and that tells me that this association is very much alive. « a little short of money but I'm confident it will sort itself out »

Great news is we are in the Municipal Affairs office. They know we exist. After meeting with different levels of gov't we are now in discussion to figure out what constitute a « woodlot ». Two days ago I attended an open house here in Peace River, the Minister was not there :(but had the opportunity to speak to several of her people, my MLA, and everyone had heard and knew that this ? of woodlots has to be answered. About two weeks ago they sent us an offer, it was discussed at the AGM, and are now working on the counter offer, (the way we see it) and anxious to see how it goes.

Very exiting time for WAA.

We will keep you posted either by Logjam or the group email.

Have a good green long summer

not - GOOD-BYE - just - SO LONG

The Board would like to thank Louise for the many years of dedicated service as a member on the board and all the numerous positions she filled from managing the "free trees" project and being the secretary for many years. But she is not totally retired as she has been working on the WAA getting a shift at a casino which she will continue working on, with good luck I hope as we can use the funds.

CHARITY

*There is so much good in the worst of us,
And so much bad in the best of us,
That it ill behoves any of us
To find fault with the rest of us.*

UNKNOWN

Up Coming Events

Board of Directors - Teleconference

July 25, 2016

August 29, 2016

September 26, 2016

All calls are at 7 pm

There are also some events that are hoisted by other organizations that are posted on our web - site, so maybe check it periodically, as you may find a course that could be a benefit to your operation.

New satellite programme aims to cut down illegal logging in real time

TORONTO, March 2 (Thomson Reuters Foundation) - Taken from outer space, the satellite images show illegal loggers cutting a road into a protected area in Peru, part of a criminal enterprise attempting to steal millions of dollars worth of ecological resources.

With the launch of a new satellite mapping system on Wednesday, governments and environmentalists will have access to hard evidence of these types of crimes almost in real time as part of a push by scientists to improve monitoring of tropical deforestation.

Tropical forests nearly the size of India are set to be destroyed by 2050 if current trends continue, a study warned last year, causing species loss, displacement and a major increase in climate-changing greenhouse gas emissions.

Prior to the launch of the Global Land Analysis and Discovery (GLAD) alerts, researchers would have to manually track images of logging in specific areas.

The new process, developed by scientists at the University of Maryland and Google, uses an algorithm to analyze weekly updates of satellite images and sends automatic notifications about new logging activity.

"This is a game changer," said Matt Finer from the Amazon Conservation Association, an environmental group.

His organisation tracks illegal logging in Peru, sending images of deforestation to policymakers, environmentalists and government officials to try and protect the Amazon rainforest.

In the past, he would rely on tips from local people about encroachment by loggers, then look at older satellite images to try and corroborate the claims.

Fossil of oldest pine tree discovered

The charred pine twigs date back 140 million years to a time when fires raged across large tracts of land.

Pine trees now dominate the forests of the Northern Hemisphere.

The research suggests the tree's evolution was shaped in the fiery landscape of the Cretaceous, where oxygen levels were much higher than today, fuelling intense and frequent wildfires.

"Pines are well adapted to fire today," said Dr Howard Falcon-Lang of **Royal Holloway**, University of London, who discovered the fossils in Nova Scotia, Canada.

"The fossils show that wildfires raged through the earliest pine forests and probably shaped the evolution of this important tree."

Serendipitous find

The specimens, which are described in **Geology** journal, were preserved as charcoal within rocks from a quarry.

"It was only when I digested [the samples] in acid that these beautiful fossils fell out," Dr Falcon-Lang told BBC News.

Plant oddities

The fossils are just a few mm long but probably came from trees resembling the Scots Pine that now cover large areas of Scotland.

Pines are well adapted to fire, containing inflammable deadwood that makes them burn easily.

They also produce cones that will only germinate after being scorched, ensuring a new generation of trees is seeded after the fire has passed by and other vegetation has been destroyed.

"One of the oddities about pine trees today is that they are one of the most fire adapted species on our planet," explained Dr Falcon-Lang.

*In the December 2015 issue of the Log Jam, this reminder of how our group e-mail was accessed by any member of the WAA. So far it has been members of the Board of Directors who have put items of general interest to all our members, I therefore feel that perhaps some of our members may have over looked this mode of communication which is free to tell all of us things of importance that they only may know of.
That is why I am putting this "reminder" in this issue again.*

A Reminder - To all Members of the WAA

We have gathered together the e - mail addresses of all our members that have one, and put these in a group in order that we are able to contact each other more easily than only by the Log Jam.

The way this will work is:

For any member who is having or knows of an event or any thing that will interest some or all the members can use this by:

Sending your write-up of the event, etc. to - Laval Bergeron our President at - [<lavalb@pensee.ca>](mailto:lavalb@pensee.ca) who will forward it to the group.

We believe that this will strengthen our association in keeping us more informed of what is taking place through-out the Province as our membership is very widely spaced.

*Although everyone who has an e-mail address has received this by e-mail, therefore this is just a **reminder** that any member can also use it to pass news to all the members.*

*There are some of our members for whom we do not have an e-mail address or an incorrect one so if you have never received a group message, and have a computer please check with **Herb Cerezke or Olsons Office**, and give them your e-mail address. (This 1-800-871-5680 number goes to Olsons office)*

Editorial

Jurgen

Yes the world of the pollinators is slowly shrinking, this is primarily a human caused effect, but not just one activity is the cause rather a large number of actions. These include habitat destruction by an ever expansion of economical activities, such as, agriculture, mining, oil and gas, highways/roads, forestry, cities/towns expansion and imported viruses.

If the habitat destruction is not bad enough, our society is totally hooked on the use of herbicides and insecticides because they are so easy to use and mostly do the job, even though their cost is high. Millions of acres are treated year after year with chemicals, the worst of these are, the insecticides that contain neonicotinoids this kills not only the insect but also birds that may eat the infected insect. The good news is that this chemical has been prohibited in some countries and may be soon here too. Whereas the herbicides are an even more insidious in that they kill most broad leaf plants who's flowers are the life source of native pollinators.

We should always bear in mind that there are some 130 plants that require pollination to produce seed and fruit and that about 30% of our food is the result of a pollinated plant. So without the good work of these pollinators our diner plate would look quite different.

What does all this mean to us the wood-lot owners, well we should try and keep our wood-lots in as natural state as possible and use little chemical as possible. Also encourage the growth of flowering plants to increase the food for the native pollinators such as the bumble bee, humming bird and butter flies, etc.

Should you be interested in pollinators and flowers for them, go to "Bussing Garden" at www.beesmatter.ca They also give packets of flower seeds for free - while they last. (the web-site is easy to use)

When you are dissatisfied and would like to go back to youth,
think of Algebra

Will Rogers

2015/16 MPB Level 1 Control Summary

Following aerial surveys to detect red mountain pine beetle-killed pine trees in the fall of 2015, beetle sites were prioritized for subsequent ground surveying and control. Single tree cut and burn control operations this past winter were conducted between mid-October and mid-March. This work was completed almost exclusively by survey and control contractors.

The following includes the total number of 50m radius sites surveyed and trees controlled by the Department this past winter (2015/16) in comparison to the previous year (2014/15):

	Sites Surveyed	Trees controlled	Sites Surveyed	Trees controlled
Grande Prairie	8105	56,576	12,155	106,147
Slave Lake	1585	14,013	471	2,875
Cypress Hills	87	30	7	25
Kananaskis	121	148	109	301
Hinton/Edson	1169	4,183	890	2,091
Whitecourt	3013	14,086	2,664	17,445
Total	14,080	89,036	16,296	128,884

Considering that the survey and control work completed over the past 2 years took place over the same geographic area, it is encouraging that the number of control trees decreased by 31%. And on average, there were 1.6 fewer MPB-attacked trees/site in 2015/16 compared to previous season (2015 - 6.3 trees/site, 2014 - 7.9 trees/site).

Although this information is encouraging from a population management perspective, the mild temperatures in Alberta this past winter will not likely have caused any significant over-winter beetle mortality. The next step in the province's beetle management program will be to undertake over-winter mortality surveys in May.

Mike Undershultz — Edmonton

Cellufuel turns lumber into renewable biofuel

A Nova Scotia company says it's the first in the world to create biofuel completely out of a forestry product.

Cellufuel moved into the former Bowater Mersey paper plant in Brooklyn, N.S., [after the plant closed in 2012, throwing around 2,000 people out of work.](#)

Since then, Cellufuel has been developing biofuel that could be used in vehicles and for heating.

Company president Chris Hooper says it has succeeded in creating a biofuel similar to petroleum-based diesel — but is carbon neutral.

"For the Canadian forestry industry — absolutely a game changer," Hooper said.

The plant transforms otherwise low-value wood fibre into renewable diesel fuel for the refinery market.

Cellufuel sources its raw material from Freeman's Lumber in Greenfield, N.S.

"The economic value generated from that litre of diesel starts and ends in the region," Hooper said. "Today in the typical oil and gas story, that is not the case."

Freeman's normally sells woodchips for animal bedding, but the company has more than it needs.

The opportunity to sell it for fuel is more lucrative and better for the environment, co-owner Richard Freeman said. The biofuel created by Cellufuel is carbon neutral.

"The forest industry is one of the oldest renewable resource industries in the world," Freeman said.

"We're growing more trees everyday and it's far, far superior, from an environmental perspective, than taking oil out of the ground."

The pilot project is still a long way from taking the product to market.

Cellufuel will spend a year evaluating the biofuel and determine if it's worth developing for the commercial market.

At first, the fuel will likely be blended with petroleum-based diesel, before being sold for use on its own, Hooper said.

Stop Flushing Your Goldfish Down the Toilet – Here's What's Happening in Canada



We know invasive species can be a real issue for local ecosystems, but did you ever think that one of the most common pets across North America could be the culprit?

If you've ever thought about putting your goldfish back in its wild home, or flushing it down a porcelain path, officials in Canada have a message for you: you may think it's humane, but it's actually detrimental for the environment.

"This practice is very harmful to native species, to Alberta waters, to our biodiversity and the fish that actually belong here," Kate Wilson, an aquatic invasive species specialist with Alberta Environment and Parks, told CBC News.

These goldfish have become a real issue in Edgewater Pond in St. Albert, where droves of goldfish have been taking over the ecosystem since last summer. In Minnesota, officials warned that goldfish showing up in lakes there were found as large as the size of dinner plates.

According to Ontario's Invasive Species Awareness Program, goldfish reduce biodiversity by competing with native species and becoming a main predator of a variety of flora and fauna.

"They stir up mud and other matter when they feed, which increases the cloudiness of the water and affects the growth of aquatic plants," their website reads.

On top of that, they can reproduce quickly and are often very difficult to catch and kill. Officials tried electro-fishing them and even drained the pond, the St. Albert Gazette reports, but the fish survived even through the frigid Canadian winter.

"Unfortunately with the winter we've had, we weren't able to get full freezing so the ice wasn't quite as thick," Sarah Cicchini, St. Albert environment coordinator, told Global News.

Spring has brought a sobering realization for wildlife officials: the goldfish are still there, and they're thriving.

This wouldn't be a major concern if the problem was contained within the storm water pond, but officials are looking to see if the fish can be found in other ponds, Tech Times reports, and there's no way to prevent the fish from making their way into the streams and lakes in the larger ecosystem.

Flushing is just as bad, even if you are certain your fish is dead.

"Even if the fish are dead, they could have diseases or parasites that could be introduced," Wilson told Fort McMurray Today, "especially if the water treatment system is not top notch."

The Oldest Planted Tree

Sacred fig
Ficus religiosa

In - Sri Lanka

2302 years old

A sapling from the historical "Bodhi tree" under which Buddha became enlightened. It was planted in 288 BC and is the oldest living human-planted tree in the world with a known planting date.

Ontario County support landowners to protect water quality

Huron County's Clean Water Project has helped county residents and community groups complete more than 1,800 water-quality projects over the past ten years. Stu Steckle, of the Zurich area, is one of more than a thousand landowners who have done projects on their properties with county grants to help make these improvements possible. As part of a series of articles about local landowners doing water-quality projects in Huron County, Stu was visited on an unseasonably warm December day. He was asked to share why he has planted hundreds of trees on his property through four planting projects. "I like having trees around and my wife likes trees too," Stu said.

Stuart and Ruth Ann Steckle own Staholme Farms and Black Ovation Purebred Angus on Bronson Line, northwest of Zurich. Programs like the Huron County Clean Water Project help make it possible to do new projects, according to the Zurich-area Angus beef farmer. "It gets you started," he said. "It lowers the cost and it makes it more affordable."

Planting trees can help to preserve topsoil, reduce erosion, capture runoff, and keep sediment and bacteria from reaching creeks, rivers, and lakes. Stu has been planting trees since the 1980s but he said "I wish I had started earlier." His tree planting projects have included native species including Maple, Black Walnut, and Cedars. "The Cedars are looking better all the time," he said. "I would encourage anybody to start planting trees early."

The Steckle farms total about 150 acres in size. Staff from Ausable Bayfield Conservation planted some of the trees at the Steckle farm. Many of the trees are planted between the farm and the creek. Some of the trees near the creek are planted where cattle were pastured at one time. Stu is one of the landowners who has eliminated cattle access to a creek and planted in valley lands. This protects water quality at his property and in nearby rivers and Lake Huron.

As well as having completed projects with some grant support from the Huron County Clean Water Project, Stu has also completed an Environmental Farm Plan and has done stewardship projects, such as manure storage improvements, working with the Ontario Soil and Crop Improvement Association.

Stu has lived his whole life on the farm which his father bought in the 1920s. Stu was a dairy producer before switching to beef in 2007. Stu and Ruth Ann have two grown children: Dustin, who is a Bachelor of Commerce graduate of the University of Guelph and who works in the seed and crop industry as Regional Manager for Eastern Canada with Verdesian Life Sciences, and Julie Theurer, an Adjunct Professor at Western University in the School of Communication Sciences and Disorders. The Steckles also have two grandchildren.

There are many water-quality benefits to tree planting and windbreaks. There are other reasons to plant trees too. Stu and Ruth Ann like having birds around and they like the colours of the trees in autumn. Stu said he has enjoyed the autumn colours while visiting Vermont but there are also gorgeous autumn views here in Huron County in Ontario, Canada. He recalls one day sitting on his tractor and noticing the brilliant fall colours of a neighbour's nearby woodlot. "You couldn't paint a picture like that," he said.

The Huron County Clean Water Project has celebrated its tenth year of supporting water quality improvements. The County of Huron has continued to support this grant program every year since its inception. Stu is one of the hundreds of landowners who have completed water quality projects with support of the county program. Projects include tree planting and windbreaks. Trees along watercourses improve water quality and provide wildlife habitat and travel corridors. Windbreaks can help mark property lines and provide a barrier to wind and water erosion. Windbreaks can keep drifting snow away from homes and farms, reduce winter heating costs, keep spray application from leaving the field, reduce soil erosion, reduce wind stress on field crops, protect livestock from extremes of heat and cold, and more.

In addition to tree planting and cover crop incentives the Huron County Clean Water Project provides up to 50 per cent grant support for projects in categories that include; manure storage decommissioning; clean water diversion; wetland creation and rural stormwater management; fragile land retirement; livestock fencing; well decommissioning; wellhead protection; forest management plans and woodlot enhancement; stewardship guide implementation; and composting toilets special projects. Funding from the County of Huron can be combined with other cost-share programs and landowner contributions.

What's the **BUZZ**...with Larder Beetles?

Have you ever seen this insect year after in your cupboards or pantry and wonder what is that?? This is a *Dermestes lardarius* aka, a Larder Beetle. It is a member of the Dermestidae family. This insect is a widespread household pest that is native to Alberta.

Larder Beetles are commonly found year round indoors but they are the most active outdoors in spring to early summer. During this time adult females seek shelter to lay their eggs on available food. Adults feed mostly on flower pollen whereas the larvae feed on animal by-products. This includes animal hides, wool, feathers, dry pet food, dried and preserved meats, spilled food, grease and cooking fats found around the stove, cheese, any dead rodents and other dead insects.

Larder Beetles can become a problem when they invade houses and the larvae start feeding on carpets, clothing and food. But outdoors it's their time, it's their time outdoors. As the Larder beetles are valuable little recyclers. They play an important role in the breakdown and recycling of animal protein.

For more information on the Larder Beetle, visit - www.infestation.ca



www.insectsofalberta.com

Guelph Researchers Zero in on Dutch Elm Disease Genes

A new study by University of Guelph biologists has brought researchers closer to the goal of restoring American elms resistant to Dutch elm disease (DED) in cities and forests across Canada and the United States.

The new paper published today in *Nature Scientific Reports* offers a closer look at specific genes that allow elms to resist the most destructive shade tree disease in North America, says Prof. Praveen Saxena, Department of Plant Agriculture.

"There's nothing as beautiful as an American elm in landscaping," said Saxena, director of U of G's Gosling Research Institute for Plant Preservation (GRIPP).

A fungal infection carried by beetles, Dutch elm disease all but wiped out elm trees across this continent during the past century.

"This study is the first to compare the resistance and susceptibility of trees to Dutch elm disease at the genetic level," said U of G post-doc researcher Sherif Sherif, lead author of the new paper.

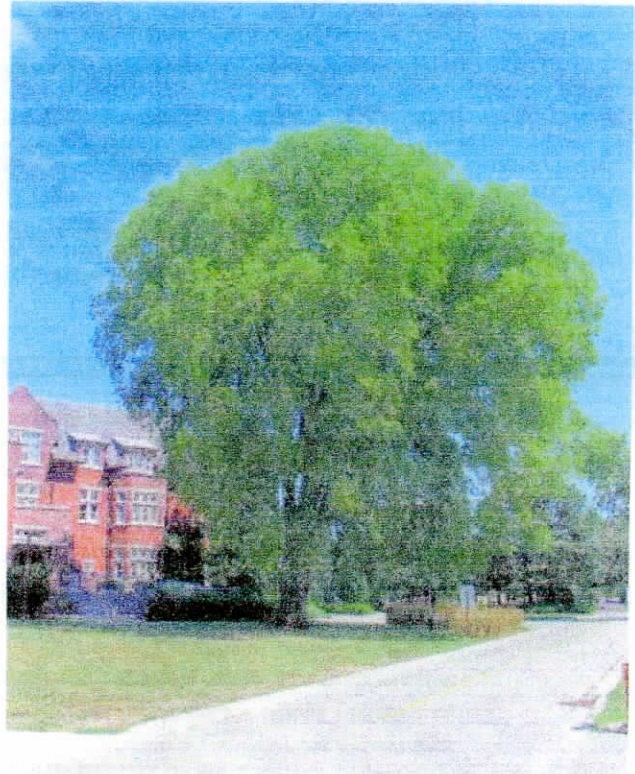
Research associate Mukund Shukla said he hopes the team's work will point to ways to clone resistant trees for replanting forests and cities.

Other co-authors at the University of British Columbia and Laval University analyzed fungal-tree interactions.

After injecting the DED fungus into tolerant and susceptible elm saplings, the researchers examined tissue to see which genes were expressed.

Other researchers have identified almost two dozen genes likely involved in protecting the tree in tolerant specimens, but scientists know little about how those genes work, said Saxena.

The Guelph team developed technology to look at RNA molecules involved in making proteins, especially defence molecules in vulnerable or tolerant varieties of elms. They also looked at fungal genes in infected woody tissue.



The researchers found that molecular events within the first four days after infection are critical, and occur differently in resistant and susceptible trees.

They also looked at treating tissue with plant hormones that help protect against Dutch elm disease.

Their work might allow plant breeders and biotechnologists to use these defensive genes as markers for screening elms likely to stand up to the disease.

"This study has given us a tool to detect potentially tolerant varieties," said Saxena.

It might also help in treating insect and fungal blights in other tree species, said Sherif. "Other shade and forestry trees are infected by fungi in a fashion similar to Dutch elm disease."

Biomass pellet market to grow

(0) Comments

The global biomass-pellet market was valued at \$6,976.3 million in 2014, and is expected to grow at an annual growth rate of 11 percent over the next five years. Low greenhouse-gas emissions from biomass, increased government initiatives for renewable technologies, the need for constant energy supply and untapped biomass potential will drive market growth, according to P&S Market Research.

In 2014, the European market held the largest share in the global biomass-pellet market, in terms of value and volume. The market is expected to maintain its growth rate, mainly driven by subsidies and legislation. The biomass-pellet market in Asia is expected to see the fastest growth – about 22 percent – globally over the next five years. The main consumers are China, Japan and South Korea. China's government has prioritized the adoption of biomass fuel. Currently biomass pellets are produced on a large scale to replace coal burning in China. This is expected to support the growth of the Asian biomass-pellets market.

The main companies in the global biomass-pellet market are Viridis Energy Inc., Drax Biomass, Enviva Biomass, Westervelt Renewable Energy LLC, International WoodFuels LLC, Energex,

Helius Energy Ltd., Forest Energy Corporation and New England Wood Pellet. Visit www.psmarketresearch.com for more information.

Let us have faith that right makes might; and in that faith let us to the end do our duty as we understand it

Lincoln

Why a walk in the woods really does help your body and your soul

Have you ever wondered why you feel healthier and happier when you stroll through the trees or frolic by the sea? Is it just that you're spending time away from work, de-stressing and taking in the view? Or is there more to it?

For more than 20 years, scientists have been trying to determine the mechanisms by which exposure to biodiversity improves health. Japanese scientists pioneered the search when they travelled to the island of Yakushima, famous for its biodiversity.

The Japanese already had a name for the experience of well-being in nature: shinrin-yoku or "forest bathing".

We do **know** that a diverse ecosystem supports a varied and beneficial microbial community living around and inside us.

We also **know** that exposure to green space, even within urban environments, increases our physical and mental well-being. But what are the mechanisms?

The forest air

The Japanese researchers **suggested** that we are taking in beneficial substances when we breathe forest air.

Research has identified three major inhaled factors that can make us feel healthier. These factors are beneficial bacteria, plant-derived essential oils and negatively-charged ions.

From birth to the grave, beneficial bacteria surround us; they live in the environment and, importantly, in **the air we breathe**. We also share almost our entire body with them. The more interaction we have with them, the happier and healthier we are.

This is in part due to our gut-dwelling bacteria, which break down the food we cannot digest and produce substances that benefit us both **physically** and **mentally**.

Plants and the bacteria living on them can produce essential oils to fight off harmful microorganisms. These are referred to collectively as **phytoncides**, literally, "plant-derived exterminators".

Research on the health benefits of plant essential oils is in its **infancy**. But one recent **study** found that a phytoncide from Korean pine trees improved the health and bacterial make-up of pigs.

Notwithstanding some of the pseudoscience that gets wrapped around negative ion generating machines, there is evidence that negative air ions may influence mental outlook in beneficial ways. There are relatively higher levels of negative air ions in forested areas and close to bodies of **water**. This may factor into the benefits of walking in a forest or near the ocean.

But as the German writer Goethe once said:

Nature has neither kernel nor shell; she is everything at once.

Bacteria, essential oils and negative ions interact and influence each other. For example, negative ions and phytoncides may dictate the microbial make-up within a natural environment. There is **evidence** that this could also be taking place in the human gut.

More to be done

Nature-relatedness, or **biophilia** in which an individual feels connected to nature, has been **linked** with better health.

But we have a long way to go before we can more fully understand the mechanisms by which an innate love of nature can benefit our health. An important part of this discussion – an overlooked one in our opinion – is further understanding of an individual's connection to nature.

Psychologists have convincingly demonstrated **connections** between nature relatedness and mental well-being. But how does a greater personal affinity to nature interact with dietary habits, personal microbiome, physical activity levels and many other lifestyle variables that might be intertwined with having such an affinity?

In the meantime, while scientists turn over stones and search for important mechanistic clues – including those related to biodiversity – there are many simple ways to capitalise on our biophilia.

Why not run in the park or by a river instead of on a treadmill, or take a walk **through a park** on the way to work or at lunchtime?

Critically, there is increasing evidence that we can help shape our children's mental and physical health by exposing them to more green environments as they work, rest and play. The US-based **Children and Nature Network** is a great resource of research news and activities bringing children and nature together.

In the World Health Organization report *Connecting Global Priorities – Biodiversity and Human Health*, released in December last year, it was concluded that:

Considering 'microbial diversity' as an ecosystem service provider may contribute to bridging the chasm between ecology and medicine/immunology [...] the relationships our individual bodies have with our microbiomes are a microcosm for the vital relationships our species shares with countless other organisms with which we share the planet.

It is easy to see that discussions of natural environments and human health are no mere matter of intellectual fancy.

In a **paper published** last month in *Journal of Physiological Anthropology*, we've called for more research into the links between biodiversity and human physical and mental well-being, particular in relation to childhood, that most formative of times.

Wouldn't it be good if by nurturing our environment we were also nurturing our children's future health?

EU in the global pellet sector

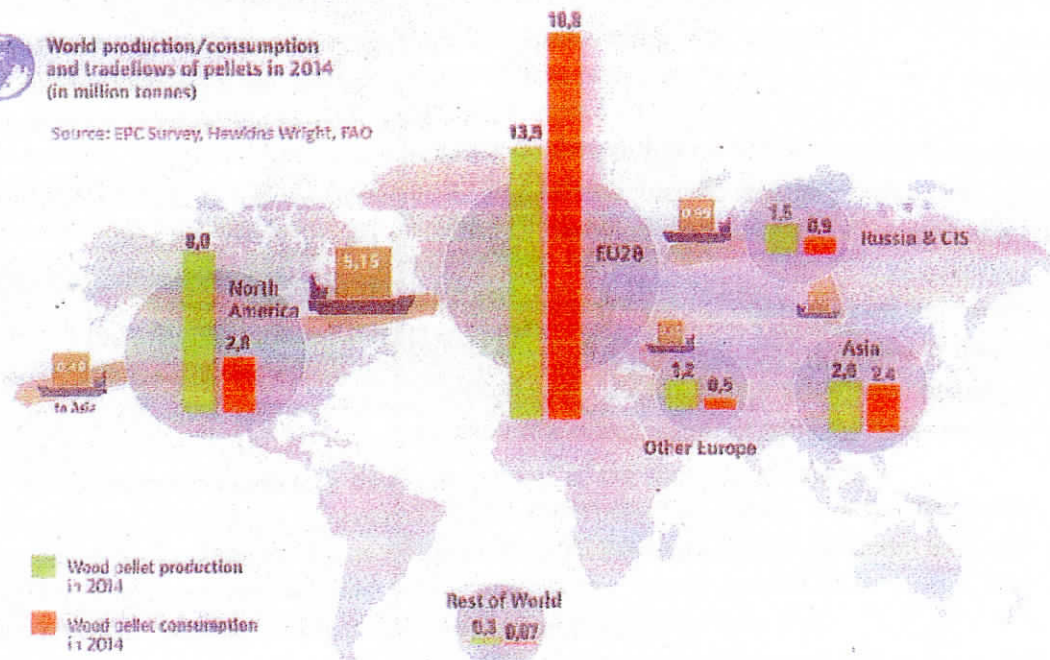
With 13,5 million tonnes of wood pellet produced in 2014, EU is the largest producer in the world amounting to around 50% of the global world production. EU production has shown a continuous expansion over the years with a growth of 35% from 2010 to 2014 and of 11% from 2013 to 2014. As the EU production is

mainly dedicated to the heat market, the sector has been impacted by the general slowdown of the EU heating market, which is mainly due to the mild winter and others factors such as the low price of heating oil, the competition with other technologies and the contracting sales of pellet heating appliances.



World production/consumption and trade flows of pellets in 2014 (in million tonnes)

Source: EPC Survey, Hawkins Wright, FAO



American wood will heat homes in Paris

Paris - Paris plans to import thousands of tons of wood per year from the United States as part of its push to use more renewable energy in its urban heating systems, city authorities said on Thursday.

Paris urban heating company CPCU - which provides heat and hot water for more than a quarter of Parisians - plans to burn 140 000 tons of wood pellets per year in a new 75-million-euro (\$84 million) plant in Saint-Ouen, north of Paris, that will start operating in a few weeks.

Read: [Renewable energy set to balloon \(http://www.iol.co.za/business/news/renewable-energy-set-to-balloon-1925336\)](http://www.iol.co.za/business/news/renewable-energy-set-to-balloon-1925336)

Environmentalists have questioned to what extent wood-fired power plants can reduce carbon emissions, especially if the wood has to be imported. But CPCU said the use of wood - as well as a switch from fuel oil to gas - will avoid 300 000 tons of CO2 emissions per year.

"This is a good example of how the energy transition is put in place following the United Nations climate conference," said Celia Blauel, Paris deputy mayor for the environment.

Compagnie Parisienne de Chauffage Urbain President Frederic Martin said it was cheaper to buy the pellets from the United States than in France, where the timber industry also produces pellets but mainly in small volumes for individual customers.

The plant, which will use a 50-50 mix of wood and coal, awarded a five-year contract to US suppliers that runs until 2019.

"We hope that by then the French wood industry will be ready

to deliver, because we prefer to buy at home," Saint-Ouen Mayor William Delannoy said.

Europe is a major market for wood pellets to replace coal in power plants, with British utility Drax one of the top importers. Drax says economies of scale justify the shipping distance, but environmentalists say burning pellets leads to deforestation.

CPCU runs a 480km steam heat network that supplies many of Paris's traditional Haussmann-style apartment buildings and institutions like schools and hospitals.

Forty percent of the steam distributed by CPCU, 64.5 percent owned by gas group Engie and 33.5 percent by the city, is generated in energy-from-waste plants. The rest comes from wood, gas and coal-fired plants, including Saint-Ouen.

Engie director Henri Balzan said investment in urban heating networks in France, which is heavily dependent on electric heating from its nuclear plants, was way behind countries in northern and eastern Europe.

"We expect district heating networks in France will grow five-fold by 2030," he said.

Grief never ends....But it changes. It's a passage, not a place to stay. Grief is not a sign of weakness, nor a lack of faith It is the price of love."
Author Unknown

On the Edge of a Transformation

One of the oldest of treatment processes, filtration—like so many parts of today's finely orchestrated practices that make up the provision of safe drinking water—goes largely unnoticed and underappreciated.

Few remember that early distribution systems often delivered more than water. Witness the comment made by Abel Wolman that he found it incredible when rocks no longer came out of the faucet after filtration had been applied at the local treatment plant in the mid-1900s. In those days, purveyors were concerned about filtering out actual rocks—not rock-sized particles. Today they're concerned about filtering out nanomaterials—particles measuring less than a billionth of a metre on at least one dimension, visible only through a transmission electron microscope.

This emerging field is examined by Boyd and co-authors (page 45, expanded summary; full text online). They point out that more information is needed about nanomaterials, both in terms of how to remove them from water as well as how to harness them to improve treatment processes. A number of investigations are under way to explore how these microscopic particles could be used to inactivate bacterial pathogens and to remove inorganic and organic contaminants, microorganisms, and contaminants of emerging concern.

More typical of the problems encountered at many treatment plants supplied by surface water are the raw water characteristics that plagued Staunton, Ill. Turbidity, total organic carbon, algal blooms, and seasonal bouts of high manganese and iron concentrations taxed the capabilities of the city's 90-year-old water treatment plant. As London reports (page 18), after six years of planning, testing, design, and construction, a modern 2-mgd plant incorporating dissolved-air flotation (DAF) went on line in February of this year. A full year of pilot-testing, conducted in a mobile miniplant parked onsite, provided real-world simulation of plant operation. The data yielded from these tests were based on the actual source water and allowed the utility to test coagulants, chemical dosages, and other system parameters before making final decisions. Using these data, the utility opted to configure the newly incorporated DAF pretreatment process at the head of the treatment train. This has allowed the utility to overcome the high filter loads produced by seasonal turnover and algae blooms. During testing, the system removed an average of 95% of the algal and 99% of what would have passed through the filters. It also reduced total organic carbon by as much as 39% before filtration and 45% after filtration. These combined results, observes London, gave a clear operational understanding of the potential performance of DAF in the new plant. The lessons learned at Staunton could help other small communities facing similar treatment issues.

Both of these articles present very different aspects of the topic of filtration, but have in common the thread of transformational thinking. Staunton, because it elected to incorporate a process previously not included in its treatment train; nanoparticles, because they represent the "future shock" of engineered, invisible particles being put to work to improve processes and produce cleaner water.

My Woodlot

Michele Keehn-Henly

My quarter of land has been in my family for thirty years. It was your typical small farm operation. We raised cattle, sheep, pigs; goats, poultry, cats, dogs, gardens, crops and a few kids.

The land was already cleared for farming when my dad purchased it and it was over used and did not produce great crops.

The property was littered with old farm stuff and debris ...we spend the first twenty years cleaning, burning and running to the dump.

Only marsh trees like willow, pussy willow, poplar, aspen and prairie flowers thrived in the areas the tractors could not go.

When we moved here there was only three wind rows of trees in main yard. The rest of property was bare.

As time went on and family dynamics changed, I and my husband(Marc) bought the quarter from my parents.

Years later I turned to holistic health and a more natural remedies and energy healing. As I grew and became healthier and more aware of natural health, I wanted to do more for my land, to help it become healthier after so many years of overuse.

I stopped allowing fertilizers and chemicals to be used.

I grew organic gardens and used heritage seeds to be saved. Fed my animals healthier diets, and used them to rotate in the pastures for weed control.

I noticed that the more I became conscious of my personal health choices, the more I paid attention to the lands needs.

We have been planting trees, shrubs, and perennials for 15 plus years.

I took advantage of a reforestation tree program about 6 years ago and paid for 3000 pine seedlings to be planted. The majority are now about 6 feet tall. I made a trade with a neighbor about 10 years ago for a mobile shack I had in exchange for 400 larger trees.

Approximately 5 years ago I stopped crop and pasture rentals so I could keep full control of the land to stop chemical use and over grazing.

This was after my dream of seeing my land as a Sacred Space of Refuge for both humans and animals to come to. The humans reconnecting to the land, to its beauty, elements and wildlife aswell as my therapy animals. For the wildlife to come to heal, rest, graze and give birth to their new little ones. There is less and less land and natural habitats available for our wildlife these days. This is a way I can pay it forward so to speak, for as a child my refuge was in nature with the animals , and with my own pets and horses. Even as an adult when I decided to start my personal healing journey, I sought out places that offered nature and animals to heal. Now

many years later and still on my journey and after many years of spiritual and natural healing schooling. I now offer this type of healing to humans and animals. My healing practice is my retirement plan, working out of my barn with my horses and on my land (my childhood dream). I offer energy healing and host moon/fire ceremony on the land. My business is called Infiniti Trails 4 Healing and named to remind me that our trails can go on for infinity if we are consciously leaving behind lasting footprints on our trails. I now ask myself often.... are my footprints respectful, abundant, healthy, fulfilling, natural, beautiful, and loving enough for my lineage to learn from and for my land to regenerate from.

As this land is being refurbished year by year I notice more and more wildlife visiting like....deer, coyote, fox, rabbit, badger, snake, frog, salamander, gopher, weasel, geese, swan, crane, ducks, eagles, hawks, songbirds and more.

The ponds and marsh areas are replenishing themselves with an abundance of plankton, grasses, lilies, cattails and shrubs. There is a lot of prairie plants like sage, indian paint brush, yarrow, solomons seal, plantain, roses and many more. The water on the property branches off from the Sturgeon River. We leave these areas as bird and wildlife habitat, not allowing livestock in to destroy it. There is a lot of spruce, white and purple birch, willow, poplar and aspen regenerating in these areas.

Recently I put my name in for a farm land/riparian reclamation program and was accepted, so for many years to come I will receive guidance and help to reclaim even more of this land to its natural healthy state, and this will attract even more wildlife and birds

My dream is to continue to co-create this sacred space for wildlife, plant life, and humans to enjoy. For the humans and animals to find refuge, peace, calm, stillness, connection and healing. To enjoy nature's elements in its abundance and natural glory and grace.

I want my grandbabies and children to come here and find peace, love, connection to creator, to be curious about nature, plants, animals, gardening and to feel the aliveness that is so abundant and available to so many if we take the time to educate, enjoy, and make sacred the beauty and bounty. We are truly blessed by what creator has created and bestowed on us and I for one am making it my mission and passion to pass it on to my generations of lineage, through sharing the love of nature from my heart and soul with all life.

Happy Trails from Marc and Michele'

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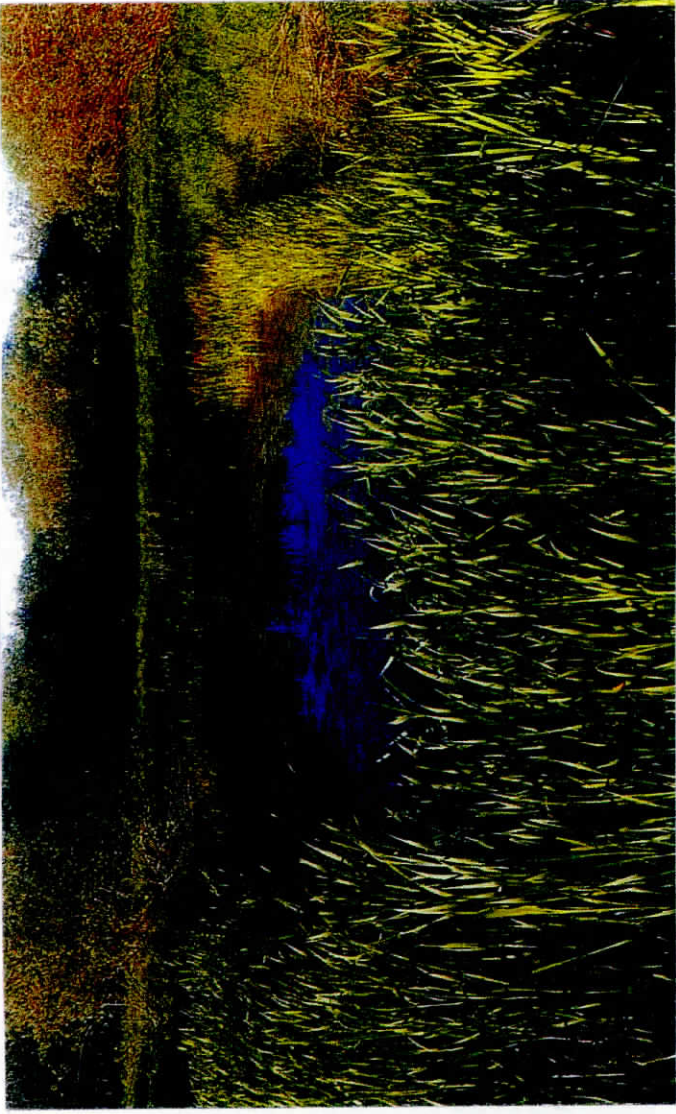
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Photo's of Michele Keehn-Henley - Woodlot



Pond, and Marsh Plants



Nesting Area, for Eagles, Hawks, and Owls



3,000 Pine Seedlings, five years old