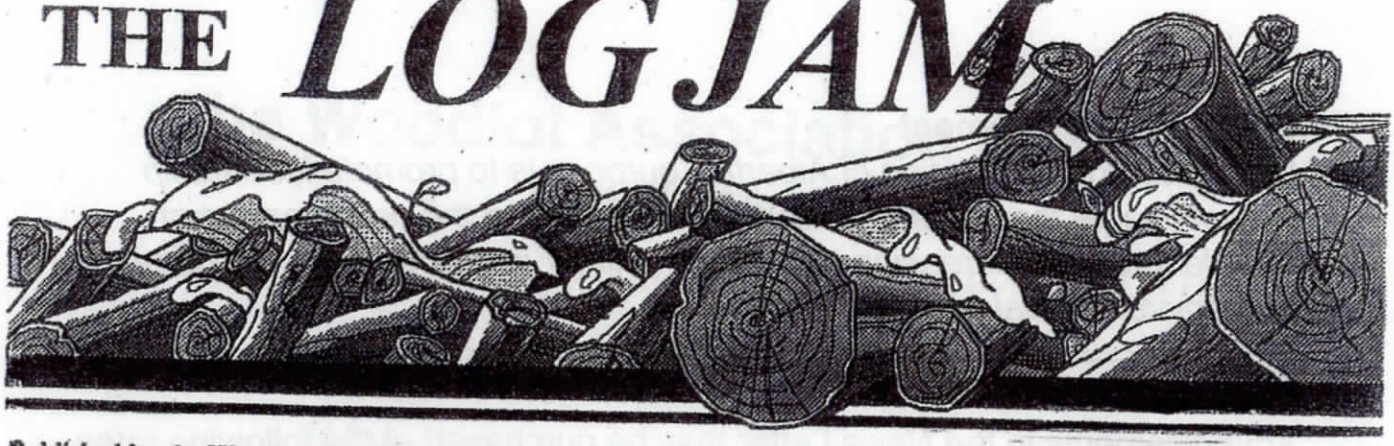
THE LOG JAM



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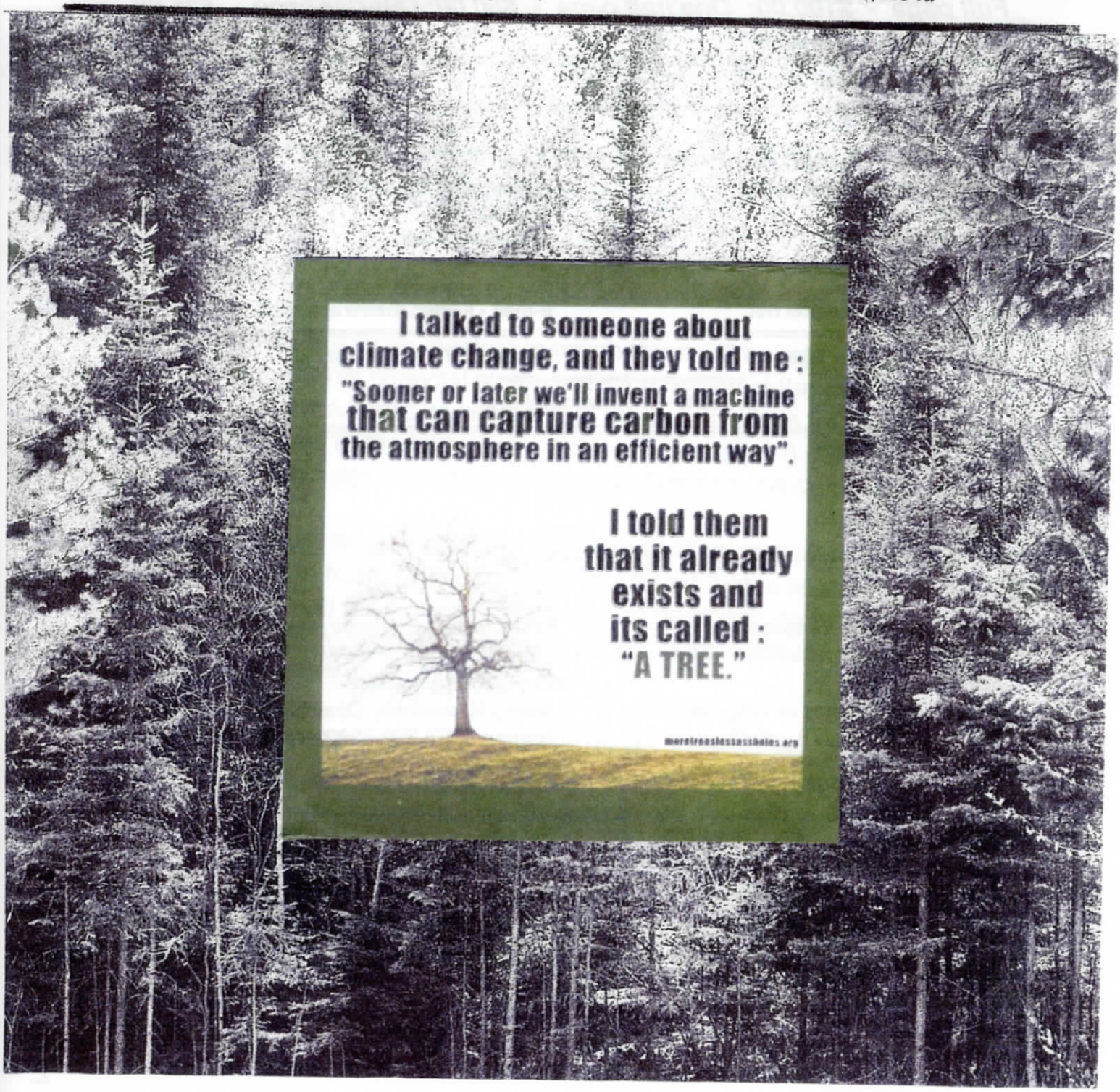

Our Mission Statement

"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."

Advertisements in the News Letter may be purchased at the following rates

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To place an advertisement - write, draw, etc. how you want it to appear in the News Letter, and fax or e-mail it to the editor.

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Board of Directors

The Woodlot Association of Alberta

will hold it's 23rd

ANNUAL GENERAL MEETING

When ——————————June 22, 2019
Where ——————————.Whitecourt AB
Location —Lutheran Church Basement
Time ——————— 09:00 to 17:00 hrs.
Fee ——————————————— $ 20.00
Lunch —Served on location — is Free

Preliminary Agenda:

This primarily a business meeting in which there will be; a) a review and approval of the 2018 financial statement, b) a review of the past years performance of the board of directors, c) future objectives for the WAA in 2019, d) elections to the board, e) presidents message, f) general discussions. This portion of the meeting will last from 09:00 to 14:00

At 14:00 there will be a field tour of the Huestis Demonstration Forest which is some ten miles from Whitecourt, this is a forest that is operated by the Forest Service and the Forest Companies, to demonstrate forest management practices. It will take about two hours, and will be guided by a company representative.

The Lutheran Church is located at 55 Sunset Blvd. If coming on highway 43 from the south at the first traffic lights turn left go one block turn right and go one block. But if coming from the north on highway 43 turn right on the forth set of traffic lights go one block to the traffic circle and turn left go one half block.

There are ample hotels and motels plus numerous cafes, in Whitecourt, as to parking an RV there are several campground in town plus the Walmarts parking lot.

Yield and Growth of the Woodlot

Jurgen

When I walk through my woodlot I wonder how much the trees are growing, are they ever increasing in volume per tree. I know that they are growing and increasing in hight this is easy to see in that all one has to do is look at the leader growth which ranges from 18 to 24 inches for a 35 year old tree but my 80 year old trees are showing growth of 5 to 9 inches. That was the easy part the much more difficult calculation is, what increase in cubic meters does my woodlot produce each year.

Now we all know that Forestry is an inexact science, this is caused by a number of environmental conditions, such as soil, site and aspect, weather conditions ie. drought, frosts and wind storms. Also there are insect and disease attacks, plus ungulate browsing.

Therefore in-order to establish some yield and growth calculations for forests, we must use averages because the growth on one side of a hill will not hold true for the other side of the hill, as the aspects will be opposites that will affect the micro climates of each side.

But we do know that a Native Forest that is left to grow with no human intervention, is very different from one that is managed. A managed forest which will involve some thinning, pruning, removal of dead and diseased trees and some useable windfall. Will net a much larger annual volume than the unmanaged forest. The fallowing are average examples of the different volumes of growth in managed or unmanaged forests, for an 80 year old forest.

Species	*Unmanaged Forest*	*Managed Forest*
Pine	0.5 % per year	4.0 % per year
Aspen	0.1 % per year	1.5% per year
Spruce	1.0% per year	5.0% per year
Mixed species	0.3% per year	3.0 % per year

These averages were calculated, for the unmanaged forests from a multitude of permanent sample plots scatter throughout Alberta. Whereas those for the managed forest are from forest industries studies.

These figures will give you an idea as to how much your woodlot can increase in volume which will depend on how you manage it. For example you have a 12 ha mixed species stand that has an average volume of 180 m3 per ha which today contains some 2160 m3. So next year it will increase a rate of 0.3 % in an natural unmanaged state therefore you will have an increases of 6.5 m3 or a total volume of 2166.5 m3. Now if your stand had been managed it will increases at 3.0% and you will have an increases of 64.8 m3 a total volume of 2224.8 m3.

What I am trying demonstrate here is that it pays to manage your woodlot to increase the growth of your forest. By doing some thinning and pruning throughout the life of your forest, in order to give the crop trees room to grow.

Footnote : While touring in Europe I made arrangements to visit a forest where one of my Great Grandfathers was the Senior Forester in the mid 19th century. We met with the current Senior Forester who showed me some of the forest and told me in broad strokes how they manage this forest, which contains some 20,000ha of mostly pine, but has some oak, beech, and spruce. He said that they'll only log 2 ha in any clearcut, pine are planted at a spacing of 1.5 x .5 m , spruce and oak 1 x 2 m . They do a great deal of thinning the 1st one is betweenez 5 and 10 years, again @ the 20 and 30 years after this every 5 years the trees removed from 20 years on are all used for some product. This forest is located some three hours northwest of Berlin Germany. In this province most of the land is agriculture as it is flat , in the 1700's it contained only 10% forest in 1996 it has increased to 21% but they want to increases this to 30% To achieve this the government pays 80% of the cost of planting and till age 20 they pay the land owner an annual stipend per ha to retain the forest. After this the forest pays for the up-keep costs.
To carry out all this work he employs seven workers. Germany and other parts of Europe have been doing intensive forest management for some 400 years, as a result they have some excellent forests when compared to an unmanaged forests.
They also look after the game management - tours - recreation.

Up Coming Events

Board of Directors - Teleconference July 29, 2019
August 26 , 2019
September 30.2019
All calls at 7pm

ANNUAL GENERAL MEETING - JUNE 22 - SEE AD FOR DIRECTIONS
MANAGED WOODLOT TOUR - - JULY 27, 2019

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The Managed Woodlot Tour

The purpose of this Woodlot Tour is to demonstrate what can be carried out in a Woodlot to manage it in order to increase the yield and growth of our native forests. The purpose of managing this Woodlot is to increase the cubic metres of wood, remove wind damaged, insect or disease attacked trees.

What you will see is some 20 years of work on this forest, which include some 40 acres of thinned 80 year old Pine and Spruce, 4 acre of thinned 35 year old Aspen, 5 acre of a 20 year old clear cut that has naturally regenerated, 20 acre of sheep pasture that contain - Christmas trees and 35 year old spruce monoculture, a creek that was totally flooded by beaver for some 45 years, the beaver left in 1988 and since then the creek is reestablishing a channel and creek bed plus a very good riparian zone, where the beaver removed the over story of aspen that caused the spruce under story to become wolf trees, there are several small muskeg. After the tour we will have a discussion, if this silvicultural work is worth while ?

This is a small woodlots as it only covers some 70 acres of forest cover, but it is ideal as a show and tell because there is a complete trail system through-out it in that one can walk or drive a quad to 100 feet of any part.

South of Whitecourt 16km on hwy. 32.- To start at 11:00 to 4:00 - Bring a bag lunch
For info call Jurgen @ 1-780-778-4272

The ancient climate solution you've probably never heard of

Climate change solutions come in two forms: mitigation and adaptation. While many proposed techniques focus on one or the other, some offer the benefit of slowing the global rise in temperature while adapting to now inevitable impacts. One such solution has been around for thousands of years.

Forests, farms, and the future

Silvopasture, the ancient practice of combining timber and livestock production, is an effective way to reduce methane emissions from livestock while diversifying farmers' incomes. *Silvo* comes from the Latin word for forest, so the term literally means forest-pasture. But what does that look like?

Imagine you have a pasture: maybe some cows, sheep, or pigs sprawled out across several acres, eating grass to their hearts' content. There are two parts to this picture—one, the livestock, and two, the plants they are eating.

Now imagine you add a third part to the mix: trees. With all three elements you'd have a silvopasture operation.

It can work in the reverse, too, by thinning an existing plot of trees and adding plants for foraging.

Silvopasture as an alternative to separate pastures and tree plantations tends to be adopted by farmers who want to improve their cash flow (under the right conditions, income from livestock is supplemented periodically by income from timber, making silvopasture an attractive means of increasing output and profit). But an additional benefit of this integrated management system is its contribution toward reducing CO2 emissions and combating climate change.

A promising solution

The ancient Romans—who released pigs into oak woodlands to eat acorns—likely didn't think their agroforestry techniques would help solve a future planetary dilemma. Even through the last century, silvopasture was commonly practiced for its mutual benefits to the trees, grasses, and livestock. As it turns out, the Romans, and many other civilizations who historically combined timber and livestock production, were implementing what would later become one of the most powerful climate change solutions with respect to reduction and implementation potential.

According to Project Drawdown, pastures with trees sequester five to ten times as much carbon as those of the same size that are treeless. That carbon is stored in biomass (i.e. in plants and animals) and in soil. Done properly, silvopasture could help offset the greenhouse gas emissions produced by livestock production, which account for a significant portion of all manmade emissions. Silvopasture can also increase the productivity of both timber and livestock operations, meaning less wasted resources and, thus, less wasted energy.

It is estimated that, if expanded globally, silvopasture operations can reduce carbon emissions by 31.2 gigatons and boost farmers' financial gains by $699 billion by 2050. That's in addition to protecting farmers from the unavoidable impacts of climate change like extreme flooding and drought.

And that's where the mitigation/adaptation jargon ties in: silvopasture mitigates climate change by averting and sequestering greenhouse gases, and it helps farmers adapt to inevitable impacts by diversifying their income and providing insulation from changes that will affect their livelihoods.

A win-win for the climate and those whose very lives depend on it, this long-practiced farming technique demonstrates the potential for existing ideas to inform our changing future. And just like reforestation or species conservation, it exemplifies how concepts found in nature—like animals and plants benefitting each other—offer our best hope for reversing the trend of ecological decline.

President's Report

Laval Bergeron

As some of you know I play drums and the other day I was in a music store and couldn't help myself at buying a new set of sticks. When I got home I realized what was written on the cardboard packaging «Thank you for buying our drumsticks, it allows us to plant more trees » Hickory that is. So the more drummers the better for the environnement:) !

Assessment and tax notice are upon us and I'm wondering how many will open their envelope and find themselves with a smile on their face and becoming FFF. « Full Fledge Farmer »

As you probably all know by now, the President of the Canadian Forest Woodlot Owners, Peter Demarsh was on the plain that crashed in Ethiopia and killed everyone on it. Our deepest sympathy goes out to the Demarsh family and to everyone that knew and worked with him.When I met Peter, right away he came on to me as a very humble person. I am very happy to have shaken his hand and shared a few words, in french on top of it. Made me feel like family.
A motion from the Board of Directors was passed that WAA contributes 200.00$ to Mr. Demarsh memorial.

Yes, again, June 22nd, in Whitecourt, we will see you at the AGM. Business in the morning and tour in the afternoon. Full details further on in the Logjam.
We are currently 9 on the Board of Directors and 10 is where we want to be so.. a position is opened.

It's spring and so far, maybe a little cool and dry but it's better then the flooding happening in the East and speaking of dryness be very aware of the possibility of fire.

Take care and have a safe spring, We'll see you at the start of the summer.

As Ontario 50 million Tree Program approaches the halfway mark, the economic benefits are reported

(March 20, 2019, Queen's Park) Today, Forests Ontario released *The Economic Value of Tree Planting in Southern Ontario*, a new report by Guelph-based consulting firm Green Analytics. Committed to re-greening Ontario through tree planting, education and awareness efforts, Forests Ontario is the not-for-profit charity that delivers the Government of Ontario's 50 Million Tree Program (50MTP).

At the Ontario Legislature, Rob Keen, Registered Professional Forester and Forests Ontario CEO along with Peter Emon, long standing County of Renfrew Councilor and Reeve of Renfrew, described how the province has benefited from ten planting seasons of the 50MTP. Since 2008, the Program has facilitated the planting of more than 24 million trees over 14,800 hectares, an area equivalent to one-quarter the size of Lake Simcoe. These plantings sequester 19,000 tonnes of carbon each year - the same amount of carbon emitted from driving more than 80 million kilometres.

Reeve Emon observed that in addition to obvious environmental benefits, "Tree planting leads to jobs and economic gains, as nurseries, landowners, municipalities and forestry consultants engage in tree planting activities." The County of Renfrew, Ontario's largest county, is located one hour west of Ottawa in the Ottawa Valley - an area well-known for its history of forestry, where families have taken excellent care of the region's forest resources for more than six decades. Through the 50MTP, more than one million trees have been planted in the County of Renfrew.

The 50MTP plants 2.3 million trees each year. According to the report, these plantings create a direct annual expenditure stimulus of $7.2 million per year and result in a Gross Domestic Product (GDP) stimulus of $12.7 million annually.

"The employment generated by the 50MTP is equivalent to 103 full time jobs per year, or more than 300 full-time seasonal jobs," explains Mr. Keen. This does not even begin to consider the jobs supported by the extra 180,000 trees planted annually though other programs leveraged by Forests Ontario.

Mr. Keen shared more good news by referring to the report's calculations of the ecosystem service benefits derived from tree planting. Ecosystem services are the direct and indirect contributions of ecosystems to human well-being, and can include carbon sequestration, recreation opportunities, gas regulation, water supply regulation, and nutrient and waste regulation.

Using standardized techniques for calculating ecosystem services, Green Analytics demonstrated that the trees planted through Forests Ontario's efforts are conservatively valued at $82.7 million annually. For every $1.80 that the Government of Ontario provides Forests Ontario to support tree planting, no less than $19.85 in ecosystem service value is derived; this translates to an 11:1 return on investment. "The value of the ecosystem services will increase over time as planted trees mature and new trees continue to be planted," notes Mr. Keen.

Average Trees Planted/Year	Gross Domestic Product (GDP)	Direct Economic Stimulus	Jobs Supported	Ecosystem Services Value
2,300,000	$12,700,000.00	$7,200,000.00	311.4	$82,700,000.00

From Reeve Emon's perspective as an elected municipal representative for 30 years, he wishes that there were more programs that provide this kind of value, both in terms of cost efficiency, and economic, environmental and societal benefits. "This report is important, because it speaks to all three of these 'legs of the stool,'" explains Emon, who went on to say, "Renfrew County landowners know trees; they believe planting trees is important for the environment and economy. This makes the 50MTP a good use of taxpayer dollars. When I talk with other politicians across the province, nobody ever says I want fewer trees."

Keen concludes, "Minister of Natural Resources and Forestry Yakabuski can tell his cabinet colleagues that even before the ecosystem services are calculated, he is realizing a 3:1 return on his investment in the 50MTP."

Monarch butterflies making a big comeback after being decimated in the recent years

One of nature's greatest migrations may be returning to health after a stunning growth in the number of monarch butterflies that fluttered acros North America last year.

Every year, the main population of monarchs numbering in the tens of millions migrates from Canada and the United States to overwinter in Mex That's a journey of more than 5,000 kilometres undertaken by tiny creatu weighing less than a gram.

In recent years, the number of monarchs making the flight plummeted by about 90 per cent from historic numbers, says Carolyn Callaghan of the Canadian Wildlife Federation.

Scientists estimate monarch numbers by measuring a tiny patch of central Mexican forest where they congregate. There can be anywhere from 10 million to 50 million monarchs per hectare.

As recently as 1993, the butterflies took up 6.2 hectares. Last year, the size of forest where scientists could find them was down to 2.5 hectares.

Something, though, seems to have gone very right since then.

A newly released survey for 2018 found monarchs on more than six hectares of forest, which would suggest population numbers were up 144 per cent over 2017. One year's increase is not necessarily a trend, but it's good news.

"It's a reprieve from a dire situation," said Callaghan.

In addition to good weather – the previous year's butterflies had been pummelled by tropical storms and tornadoes – a three-country agreement to bring back the monarch may finally be paying off, she said.

Mexico has cracked down on illegal logging that destroyed monarch habitat and is working to create ecotourism opportunities as a replacement. The U.S. has engaged in extensive replantings of the weeds and wild flowers monarchs need for nectar and egg-laying.

"I'm astounded at what they've been able to do," said Callaghan. "The state of Ohio alone has restored more than (32,000 hectares) of habitat."

Much of that has consisted simply of planting milkweed and wild flowers along highway meridians, power corridors or other unused plots of land.

Southern Canada, especially Ontario and Quebec, contains important monarch breeding grounds. About one-third of the butterflies that show up in Mexico have been found to have originated in Canada or the northern states.

The butterflies are considered endangered but are not yet protected under the Species at Risk Act.

The Americans and the Mexicans have far surpassed Canadian efforts to restore habitat, Callaghan said. That's despite an agreement signed in 2016 between the leaders of the three countries to address habitat loss across breeding and migrating habitat.

"We have a role to play," Callaghan said. "We have yet to do this. Canada, wel hmm. Not so much going on."

Canadian wildlife officials dispute that. They say the species is considered a priority and $14-million has been spent since 2012 on the butterflies.

Andrea Kettle of the Canadian Wildlife Service says that although Canada doesn't directly run monarch habitat programs, it has worked with and funded about 50 outside organizations that have. Research is also being done to determine which areas are most important, Kettle said.

"It wasn't that long ago that milkweed was on a noxious species list, so it had a bad reputation. The behavioural change to encourage people to plant milkweed has been undertaken by lots of organizations that we have supported."

Canada could be doing more, said Callaghan.

"The U.S. has had a huge lead on us. Every (state) department of transportation is taking on restoration, mowing less, planting native flowers.

"We can do that on our hydro lines. We can do that on our roadways. We can do that on our buffer lands. We haven't even begun to hit the tip of the iceber

Classified ads

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Maximum of 30 words, no pictures Send ad to the editor

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D & L Double Cut Sawmill
Fully Hydraulic & Portable
One Person Operation
Operated for 500 hours
For Info Call 780-778-4272

For Sale

Sawmill - 48" Coutts working antique
Cat D1300 power, 12 ft. carriage,
Live slab roller, Sawdust blower.
Also mill yard and Woodlot for lease
in the Elmworth AB. area.
Call Larry @ 1-780-354-2710

For Sale

2011 Norwood Lumbermate Pro MX 34 Sawmill
23 HP Vanguard
with accessories
Operated for 116 hrs.

For info call: Jim @ 780-696-3619.

Ontario Supporting the Important Contribution Made by Trappers

Government Provides Funding to Ontario Fur Managers Federation

Ontario's Government for the People recognizes the important contribution the trapping industry makes to the province's economy and sustainable management of Ontario's wildlife.

Today John Yakabuski, Minister of Natural Resources and Forestry, announced that the government is investing $1.1 million in the Ontario Fur Managers Federation (OFMF) to support the administration of the Ministry's trapping education program and licence services for Ontario's trappers and trapping instructors.

"Trappers play a vital role in wildlife control in both rural and urban areas," said Minister Yakabuski. "Our government's investment will help the industry prosper and support jobs that benefit thousands of families across Ontario."

Trapping is an effective wildlife management tool for regulating population numbers of furbearer species such a coyotes, beavers and raccoons. Trappers also play an important role in reducing human-wildlife conflicts such as damage to property as a result of flooding caused by beavers, and loss of livestock from predation by wolves and coyotes.

"Trapping is culturally significant for many people across our province," said Minister Yakabuski. "For 400 years, the industry has used a plentiful natural resource in a sustainable and responsible manner."

Ontario's trapping regulations are considered among the strictest and most humane. The province's trapper licensing and education requirements help to ensure Ontario's compliance with international humane trapping standards.

Quick Facts

- There are approximately 8,700 commercial trapping licences sold annually in Ontario.
- The OFMF has provided licence services and education for trappers since 1997.
- Under the Trapping Education Program, the OFMF provides administrative support to over 100 independent trapping instructors who provide mandatory training to approximately 800 individuals each year.
- The government's new three-year contract with the OFMF extends from July 1, 2019 to June 30, 2022.

The Tree Talker

A device called a TreeTalker is providing information about trees to people who oversee forests and woodlands. The device aims to measure the growth and general health of trees.

Scientists say the new technology is important because trees are believed to be under increasing **stress** because of changes in the world's climate.

Scientists say forests are important because they absorb, or take in, carbon dioxide. It is one of the gases released by burning oil and other fossil fuels.

Studies show that carbon dioxide is a heat-trapping gas. It has been linked to a general warming in the Earth's atmosphere.

Antonio Brunori is Secretary-General of PEFC Italy. PEFC is short for the Programme for the Endorsement of Forest Certification. The organization says it works to support good methods for overseeing and developing forest **resources**.

Brunori says the world is at a historic period for climate change because the scientific world is on guard. He added that many scientists say 'Be careful, the **ecosystem** of the forests is not able anymore, as it was before, to absorb all this carbon dioxide.'

Rising temperatures, Brunori noted, are placing forests under increased stress. He said that harmful insects and diseases are becoming more of a threat to trees.

This is bad for the environment, but also bad for the **timber** industry.

The TreeTalker devices serve as an early warning system for people overseeing forests. Brunori said TreeTalker turns "eco-**physiological** signals, such as growth, absorption of carbon dioxide, liquid flow from roots to leaves – into scientific information."

This information can help show if a tree is under attack from insects or other organisms.

"The TreeTalker device **transmits** data via radio and it can transmit data actually a very long distance, up to one kilometer," Valentini said.

The TreeTalker is able to measure the width of the bottom of a tree. Timber industry workers can use this information to know how much wood they are growing compared to how much they are harvesting.

Another goal is to give scientists the information they need to understand how climate affects forests and the part trees play in a healthy environment.

"So forests are important, and forests are made by trees. So we need to study the individuals to understand the forest," Valentini added.

About 300 TreeTalker devices are being tested in Italy and other countries, such as China and Russia. expects another 1,700 devices to be tested worldwide this year.

Air Pollution Helps Trees Grow

Chinese researchers have found that trees that grow in heavy pollution areas such as Beijing tend to put on more growth. The reasons that this happens is that aerosols are minuscule particles floating in the atmosphere, including soot, dust and sulphates. They can be produced from industrial and agriculture processes such as burning coal, gas or wood.

Such particles are harmful to human health but help plants to photosynthesis, the process whereby they convert light into energy. They found that tiny atmospheric particles help to scatter sunlight , allowing it to reach more leaves in different layers of each plant.

Aerosols in the air also increase the humidity around the plants so they can open the stomata on the leaves more widely with out losing too much water. Stomata are the pores found on the epidermis of leaves and stems of plants that assist respiration and photosynthesis.

Plants are busy with two things in their lifetime : pulling more carbon (dioxide) out of the air and retaining water. they dare to open their pores wider only when in humid environments.

World's most Poisonous Mushroom Spreading in B.C,

The death cap mushroom is increasingly found in urban areas such as parks

The world's most poisonous mushroom is spreading in British Columbia, according to a recent article in the B.C. Medical Journal.

The publication is alerting doctors, nurses and pharmacists to the dangers of people consuming Amanita phalloides, commonly known as the death cap mushroom, as well as to their roles in preventing related deaths.

"Healthcare providers need to be aware of the risk, as prompt recognition and appropriate management are critical for positive patient outcomes," said authors of the article, Maxwell Moor-Smith, Raymond Li and Omar Ahmad.

The death cap is not native to Canada and was brought to B.C. on the roots of imported European trees.

Since the first death cap specimen was found and collected in B.C. in 1997, there have been numerous sightings of the mushrooms in the Fraser Valley, southern Vancouver Island and the Gulf Islands.

The Vancouver Mycological Society reports it has been found growing with street trees or in parks and institutional landscaping, "and therefore mushrooms growing in one's own yard may potentially be deadly."

The article reports the death cap is responsible for 90 per cent of the world's mushroom-related deaths. It grows in B.C. from June to November and can take on a different appearance during its stages of growth. Recent cases of poisoning in B.C. illustrate how it can be mistaken from other edible mushrooms.

In 2003, a Victoria man consumed a death cap he thought was a puffball mushroom and was taken to hospital. In 2008, a woman in Vancouver ate what she thought was a paddy straw mushroom but was in fact a death cap, and was hospitalized as well.

More recently, a three-year-old boy in Victoria died after consuming a death cap found on a residential street in 2016.

It can take up to six hours after consuming a death cap to show symptoms of intoxication.

Silviculture :

Jurgen

Silviculture comes from the Latin - silvi -(forest) and - culture - (growing) There are a number of words that end in "culture" the most common ones are "agriculture (field-growing) and horticulture (garden-growing). There are two other "cultures" that apply to these three which are - monoculture - which is the growing of only one species i.e, only Pine or Holstein Cows, there is also - polyculture - which is the growing mixed species i.e. Spruce and Aspen or Holstein and Jersey cows.

Now silviculture is the growing of trees which range from planting them to weeding them much as one does in the garden to remove unwanted growth which will retard the growth of the planted trees. Thinning is the removal of dead, damaged and over stocked stands, as they grow in size. Guard against insect and decease, by removal of sick or damaged trees. To have a well managed woodlots is a lifetime of of work it can be most enjoyable when one sees the beautiful forest you have created.

But as every farmer can tell you it is the quality of the soil that dictates the quantity of product you will earn from all your labour. There have been some studies carried out throughout British Columbia and Alberta to compare a fire origin forest as compared to a post-harvest regeneration. The results are quite astounding in that the post harvest regenerated forest had an increased growth rate of 17% to 35% over the fire origin forest.Part of this difference in growth could be caused by some effect of climate change . But not all of the change can be attributed to this, therefore it must be the soil where the difference lies.

To do these studies one must first understand how a forest fire burns under different weather conditions and time of year. To start with there are three phases to a forest fires. Phase one is the crown fire that burns through the tree tops this is the fast moving fire with the big smoke that the media sees as it kills most of the living trees, but does little to the soil. Phase two of the forest fire is the surface fire which consumes the "A" horizon and all surface littler, this fire will burn and even surpass the distance the crown fire ran during the day, it has considerable effect on the soil and will smoulder for days. Now phase three is the one that changes the soil in that it is a"ground

fire" that can consume most of the "B" horizon, even down to the "C" horizon. Not all forest fires have a phase three ground fire in that it must have been dry for some time to dry out the "B" horizon, therefore spring fires very seldom have any ground fires. These ground fires are the longest lasting fire burning in forest fire, in large fires they are the cause of the long lasting smokey condition as the fire may last for months even throughout the winter.

If these forest fire origin stands were growing on a site that had been consumed by a ground fire, most of the nutrients would have been destroyed. That is because ground fires burn any and all plant fibres that included buried trees, stumps, miles of roots, etc. these fires releases major amounts of carbon that was locked in the soil. On the other hand the new growth in the harvested cut-block should do better as the study has shown which is because the soil is rich with nutrients. In addition the site has been top loaded with "green manure " this is the limbs and tops left where the trees were felled, and it was probably logged using a power saw and line skider, not the whole tree logging in practice today.

We the woodlot owners must think as much of the soil as does any farmer who is practicing either agriculture or horticulture, they can use chemical fertilizers or work-in manure, rotate crops. Non of these method are applicable to the forest farm, therefore we must use green manure which are the limbs, tops and trunks of trees.

So when you may do some thinning lop the tree up unless it is large enough for a use such as fire-wood, rails, posts or lumber. Regardless what you do in the woodlot be it thinning or harvesting leave behind the limbs and tops of the trees as a form of green manure. Further more should you have a logging company harvest some of your woodlot they will most likely do whole tree removal, which is that practice by industry today. This practice brings the entire tree complete with limbs and tops to a landing where the limbs and tops are removed and then piled and burnt, leaving little if any green manure behind

You are properly wondering why I am dwelling on this topic, well it is because in forestry we deal with a time span of many years in some cases hundreds of years. Therefore the effects of what treatment we do to our

forests will not be noticed for long period of time, be it positive or negative. Whereas in agriculture and horticulture the farmer will notice the changes within a year or two and make changes if required. At this point I would like to state an example of what has happened in the past when the forest green manure was removed. *For some 4000 years the practice of "gleaning " which is the picking up some heads of grain or other foods that where left behind by the harvesters, by the poor people, as the land has always been owned by wealthy or important people . If you are a religious person you may read in "Ruth" that God Commanded this of the Hebrews. Now in Northern Europe not only did the poor "glean" fields, but also the forests for forest foods and firewood for cooking but not so much for warmth because they lived with their animals partly for warmth and partly to protect them from theft. This "gleaning" of the forests for every branch and twig went on for hundreds of years , till in Germany where forest management has been practised for the past 500 years the foresters noticed that there was a decrease of growth which they identified as a reduction in nutrients caused by the sever "gleaning" over a long period of time.*

The art of Silviculture is more than just plantings a few trees as it encompasses the growing a forest even better than nature does, but it involves a degree of thought, and considerable physical work. There are a number of tools at hand that can be used, these range from ordinary hand tools, back pack chemical sprayers and aerial spraying. There are some things a woodlot owner should avoid this is developing a monoculture which makes your woodlot very venerable to an insect or disease attack that could devastate your entire woodlot. For most woodlots you will find that a polyculture will give you the a better forest that can survive natural attacks. Also do not glean to much by harvesting the whole tree but keep the green manure on your woodlot as the forest needs the nutrients.

Whether you do a lot of work or a little in the woodlot any work you do in it will be a direct benefit to you in future years, don't ever think you that your work is a waste of time. Your effort for any improvement is there for a lifetime or longer.

Silviculture (forest farming) is a multi life long job, as it goes from generation to generation so what you do to day could well benefit your grandchildren, so plan well and do what you can. But the job will never be done, as the forest continues to grow which will change the silviculture treatment required, at that point of time.

My Woodlot

Ward and Jo-Anne Middleton

Our woodlot is part of an 800 acre organic farm located in Sturgeon County. The farm yard is located adjacent to highway 2 on a section of land, and the balance of the farm includes some nearby parcels rented for grain production, and our 80 acre woodlot located about 12 miles to the West near the hamlet of Busby. Our family is conscious that our agricultural viewpoint may affect the way we approach silvicultural management compared to those who come from a background of forestry. At the same time, we are acutely aware that we also view trees differently than the farmers who are still clearing land to gain more cropping acres.

Our journey to owning a woodlot started with my father, Armer Middleton, who had worked winters logging in Clearwater, BC when he was young. He shared fond memories of these years, and instilled in me a love and respect for trees and forestry. Our small family farm was ¾ of a section, and my father felt that it would not be sufficient to provide a living for a family in the next generation. Thus, he implored his four children to leave the farm and find their way in life, but also added all of us to the farm land titles and advised that whoever did want to farm would have to buy the land from the others. I chose a trade career, was working at the pulp mill in Slave Lake when in 1994 my siblings approached my wife and I to purchase their shares to the farm. We did so, and in 1996, we also purchased a house neighboring the farm and moved home.

Just prior to purchasing the farm land, my wife and I had an opportunity to travel in Scandinavia, and while there, we visited the family farm of one of my brother's university classmates. Here, I witnessed a Swedish version of a small mixed family farm that maintained about 1/3 of their small land base in a managed woodlot. They had recently harvested 250 year old oak trees to mill into fence posts and planks for their barnyard. I was flabbergasted that they would use such valuable wood for fence materials. The farmer, Jan Thorson, explained that this was the best value, as he was replacing oak wood corrals that had been on the farm since before his grandfather was farming. Oak was expensive but in his opinion, would last for generations again. He let that sink in on me for a bit. Well, next I asked what he would seed on the land cleared by the recent oak harvest. Jan advised that land has already been replanted to beech wood trees. These trees were much faster growing than Oak, and would be ready for harvest, in his opinion, in about 120 years.

Well, now I was incredulous. I struggled to see the fiscal merit in planting something that his grandchildren may not see harvested. When I expressed this, he patiently instructed that he had a responsibility to replace the trees that he had harvested. Trees that someone had planted for him. Well, that was nice, but didn't God plant those trees? No.... those 250 year old trees had been in straight rows, and the large mound between each tree was believed to be the previous harvest of trees before that. Given the size of the mounds, it was commonly speculated that the previous harvest was likely much older trees than the most recent. In Jan's opinion, the woodlot had been under management for over 700 years. He said to me, as I can best paraphrase, "You Canadians are so young." He was not talking about Jo-Anne and I in our mid-twenties, but rather Canadians, as a

nation of people. He was not condescending, but rather paternalistic. In his opinion, his Viking forefathers had lost their world dominance primarily due to mismanagement of ship building wood. Such management required a long range vision. He shared his hope that Canada would not have to experience the same forest management mistakes that Sweden had made centuries ago. This farm visit was the single most impactful experience that I had in our visit over the Atlantic.

So, between influences of my father, one benevolent Swede, and our Environmental Farm plan, we found we had a different attitude to trees that many of our agricultural peers. We view our woodlot resources in three categories: Farm shelterbelts, our silvopasture, and our stand alone woodlot.

Shelterbelts on our farm are typical of those found throughout central Alberta. Most of ours were either left at the boundaries of the ¼ sections when the land was originally cleared, and are predominantly poplars with a smattering of spruce. When I was young, I begrudged the work they created in clearing deadfall. Now, we endeavor to give them conscious management in augmenting the stand with spruce seedlings, or hybrid poplar from cuttings we have propagated. The deadfall provides firewood, and wood chips to enhance the carbon to nitrogen ratio of our compost windrows that we make for spreading on our grain land.

Our silvopasture integrates livestock grazing and tree management. One parcel of our main farm was once part of a seasonal lake bed that was made arable by a drainage project in the 1950s. The soil is high organic matter and prone to wind erosion if tilled. In 2004 we established the silvopasture by seeding a mixed forage, dividing it into 20 acre rotational grazing paddocks with a solar powered watering system and pasture pipeline. 4000 Sea buckthorn berry trees were planted on a number of the paddock boundaries. The trees provide wind protection for the cattle and land, are nitrogen fixing, and tolerate drought, flood, and Alberta winters. The sea buckthorn berries provide a supplemental revenue stream to sell into the health food and culinary market, but are difficult to harvest, as the berry skins will rupture when you attempt to pick them off the branches. So, we prune the branches and freeze them to -17 when the berries become solid, then they shatter off the branches.

Our primary woodlot was purchased in 2005. The 80 acre parcel had 35 under cultivation and the balance is a low grade stand of aspen a smattering of spruce. We joined the woodlot association in 2007, and in 2009 we reforested the 35 open acres with 20000 pine seedlings made available through the WAA. The following year, we added another 12000 of spruce as an understory to the existing poplar stand. While we are novices in pure woodlot silvoculture, we love the learnings thus far, and are now working on our formal management plan. Our woodlot provides a wonderful place of recreation where we go to camp, walk, ski, and view the wildlife. Other than the occasional Christmas tree I will never see these trees harvested, but our family understands that stewardship is about playing the long game.

Pictures of Ward and Jo-Anne Middleton - Woodlot

Spring Camping in a Natural Clearing

Harvesting Sea—Buckthorn Berries

December 2018, Choosing a Christmas Tree

Six year old, Lodgepole Pine Plantation