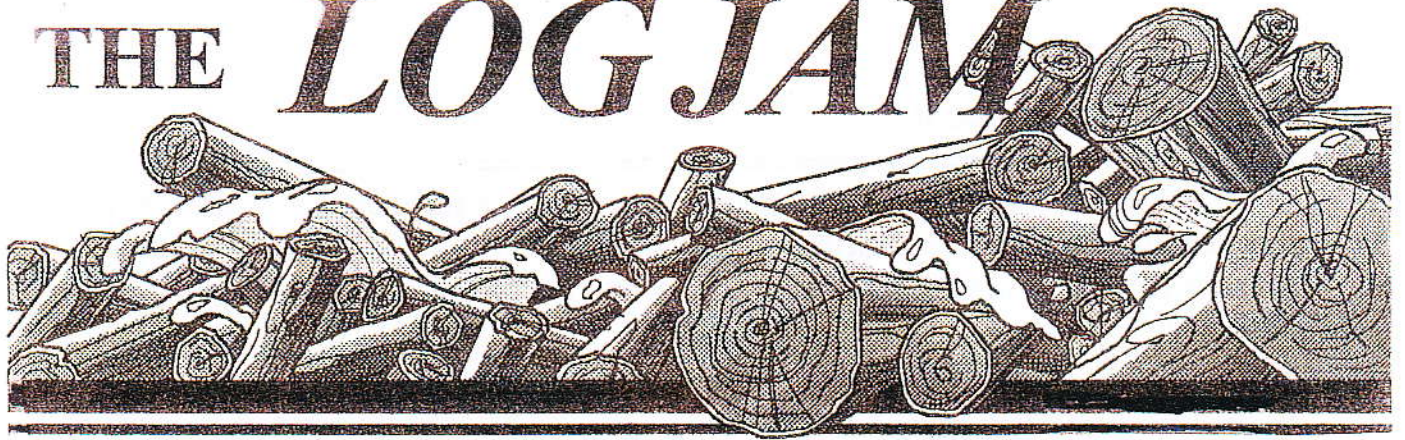


THE LOG JAM



Published by the Woodlot Association of Alberta (WAA)

June, 2012



FOREST RENEWAL

Our Mission Statement :

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"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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Advertisements in the News Letter may be purchased at the following rates:
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News from Your Board

Your WAA Board of Directors met by teleconference in March and April and held a face-to-face meeting in Whitecourt in May.

Good news – Grant proposal approved

Alberta Sustainable Resource Development has accepted our grant proposal. The Board is finalizing the details of how this funding, which covers three years starting this year at \$15,000 per year, will be used. Communication with members and educational workshops are the specific activities for which the funding has been granted.

Land Stewardship Centre Presentation

At our Whitecourt meeting, Brian Ilnicki gave a presentation about the Land Stewardship Centre, of which he is the CEO (see article this issue) and the services that this not-for-profit organization is able to offer other not-for-profit organizations such as ours.

Future of the Woodlot Library

The Canadian Forest Service Librarian position at the Northern Forest Centre in Edmonton, where our Woodlot Library is housed along with the CFS Library, is being terminated as of October of this year. There has been no decision yet as to what to do with the CFS Library or our Woodlot Library. The Board is exploring various options for relocation of our library.

Gate Signs

We still have some Woodlot gate signs. Members wishing to purchase additional gate signs can contact the office at 1-800-871-5680.

AGM Planning

The 2012 AGM will be held the first week of November at the Hinton Training Centre, which we enjoyed so much last year. Your Board is still in the process of selecting topics and speakers, and suggestions are welcome.

AWES

The WAA has renewed its membership in the Agroforestry Woodlot Extension Society. If you are interested in having a woodlot management seminar held in your locality with some neighbours, contact Toso Bozic at 780-940-6107.

He who keeps company with great men is the
last at the table and the first at any toil or danger.

Presidents Message - June 2012

Pete Mills

Hello everyone;

I trust everyone is enjoying their early summer and has lots of plans for friends and family. I'm sure most of you have at least some of those plans focused on your woodlots.

I do have some good news for everyone - Your board recently submitted a grant proposal to Alberta Environment and Sustainable Resources and I am happy to say that it has been accepted. We are still finishing up the paperwork but I just got off the phone with permission to let everyone know. Even better it's a 3 year grant so will go a long way to supporting us for the next couple of years. Hopefully we'll be able to find some others that are perhaps more project based.

Another item of interest which I'd strongly recommend to anyone is the training session coming up at Jurgen Molls property in Whitecourt. This will be a full day, hands on, exercise in preparing management plans. If you don't have one or your existing one needs updating I'd really strongly encourage you to attend. Because of the hands on nature of this training space will be limited so call Jurgen ASAP.

Finally I'd like to let everyone know that the directors are already making plans for next falls AGM. After using their excellent facilities (not to mention great meals) last year we're planning on returning to the Hinton Training Center again this fall. Exact dates and details will be coming later but it will again be around the first week of November. If anyone has come across any individuals or speakers that really caught your attention then by all means let us know. They don't have to be purely woodlot management - chances are if you found them interesting then others will as well.

As usual you will also find a selection of other articles in this edition and hopefully you'll find something of interest to help you along with some of your current chores or concerns.

Should there be articles that you would like to see or better still that you would like to write please don't hesitate to contact our editor, Jurgen Moll, myself or any of the other board members.

In the meantime if there is anything that either I or any of the other directors can help you with please don't hesitate to contact us or the WAA office.

The Management Plan

The management plan usually consists of maps and a written section, containing the following.

- *goals; *a description of the woodlot ; *long-term management objectives ;
- *short-term management objections ; *a description of activities required to achieve the objectives ;
- a records area, for income, expenses, timber volumes, and other information.

Maps should include trails, streams, fences, other features. Different types of forest cover should be identified. Aerial photos are useful in stratifying the timber types.

The management plan will need to be updated periodically, because the woodlot is a living organism and is in a constant state of change, due to growth and environmental factors such as wind, insects, deceases, etc.

Woodlot management Seminar

Date and Time ----- July 14, 2012, from 10 am to 5pm

Where ----- At Jurgen Moll's Woodlot 16 km south of Whitecourt on
Hi-way 32 and 1.6 km west on Twp. Rd. 590

Cost ----- \$ 20.00 This also covers the cost of the B-B-Q

Bring ----- Dress in your out door woodlot cloths, such as - work
boots, rain coat, Because part of the day will be spent
outdoors, also a lunch for the [noon meal c/w drinks](#).

Seminar Content ----- The intent of this seminar is to introduce you to the first
two initial phases of building your **Management Plan** of your
woodlot.

These are, [building a map](#) of the woodlot, as without a map
one can not make a plan, and [measuring the volumes](#) of
timber on your woodlot, by introducing you to various timber
cruise methods.

Registration ----- Dead line for registration is **July 6, 2012**, by contacting
Jurgen Moll at 1-780-788-4272 or <jurgen.moll@xplornet.com

The seminar will be limited to the first 20 , [so register early](#).

Fun Time----- The seminar should end by 5pm, after which we will have
a Bar- Bee -Que, some socialization, as every woodlot owner
has a story worth listening to.

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["The human mind treats a new idea the same
way the body treats a strange protein ; it rejects it"](#)

P.B. Medawar

Editorial

We the woodlot owners are the most fortunate of people, "How so?" you may ask. Well let me tell you. Researchers have found in recent times that there are a multitude of benefits that people derive from reflecting on, or communing with nature.

They have found that children who are difficult to manage, such as those with FASD, show a marked improvement after spending time in the woods.

There is much evidence that hospital patients who are able to look at pictures of nature or view scenes of nature from their windows, do indeed heal faster.

A study in a USA prison found that prisoners that could look out on a park, as compared to those whose view was an internal paved parking lot, tended to have some 20% less illness.

It has long been known that a walk in the woods, will relax one, make problems much smaller, and ease the troubled mind.

Why nature has this effect on us they do not know for sure, but there is some evidence that suggests that pheromones released by trees and other plants has this beneficial soothing effects on mankind, but the jury is still out on this.

That is why we who have our woodlot at our very doorstep are most fortunate; it is truly worthwhile to retain the woodlot, for the health and well being of family and friend.

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Alberta fields host Prairies first glyphosate resistant weed

Federal AG researchers have found the Prairies first confirmed case of glyphosate - resistant weeds in populations of kochia in three chem-fallow fields in southern Alberta.

Weed scientists at Agriculture and Agri-Food Canada confirmed that kochia plants taken from the fields have developed resistance to the broad-spectrum Group 9 herbicide, the active ingredient in Roundup, Touchdown, Credit, Polaris, Vantage Plus and many other weed killers.

Unlike some previous findings of glyphosate resistance in Ontario, however, the fields in question don't appear to have been used regularly to grow glyphosate tolerant crops, according to Canada's best-known glyphosate manufacturer.

Scientists Clone "Survivor" Elm Trees

The University of Guelph has found a way to successfully clone the American elm trees, that have survived repeated epidemics of their biggest killer the Dutch elm disease. This breakthrough is the first use of in - vitro culture technology to clone buds of mature elm trees.

More than 95% of the American Elm trees in eastern Canada and the USA have been killed by this disease. The fungi infection interferes with the water transport, stopping nutrients from circulating in the tree. About one in 100,000 elm trees may be naturally resistant to the pathogen.

Those trees that have survived a number of epidemics, have been used as a source to clone disease resistant elm trees.

This may also serve as a model to help propagate and preserve thousands of other endangered plant species at risk of extinction. As the gemplasm may be conserved for long periods of time.

(Maybe this could work for the mtn-pine beetle)

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Scandinavian Conifers Survived Ice Age

Until now, it was presumed that the last glacial period denuded the Scandinavian landscape trees until a gradual return of milder weather began to melt away the ice cover some 9000 years ago. That perspective is now disproved by researchers from the University's from Denmark, Sweden, and Norway. The belief was that contemporary coniferous forests in Scandinavia were the products of species migration from areas in southern and eastern Europe that had been ice free in the last ice age.

This is only partly true in that DNA of conifers in Scandinavia has shown that there are two phono types of conifers one from southern Europe and one of the original species.

This is believed to have come about with there being some ice free pockets, such as the Island of Andoya in Norway that was ice free during the last ice age, and others yet to be found.

Earthworms ruin nutrients, moisture on forest floor, say researchers

OTTAWA - Over the past decade, Trillium Woods, west of Ottawa, have become increasingly inappropriately named, with fewer and fewer of Ontario's official flower appearing every spring.

A similar decline can be found in other trillium forests. The cause is not pollution, or drought, or logging, but something we've been taught to see as a promoter of healthy soil - the ordinary earthworm.

"The old sugar maple forests that people think of as having wall-to-wall white trillium have less of it. It's not gone, but there's less of it," says Ottawa naturalist Dan Brunton.

Forests in southern Canada are subtly changing. Thinned out, and in places eliminated, are the smaller trees (seedlings, saplings and eventually the sub-canopy) and a diverse mix of forest grasses and grasslike plants, orchids, ferns, wild leeks, mosses and shrubs.

And the perpetrators are wriggling underground.

Worms don't belong in Canada. The last Ice Age killed them all as far south as Maryland and West Virginia, and moving at worm speed, they didn't return to Canada in the next 15,000 years as forests grew back and animals returned.

The Europeans brought the first worms, and the numbers have increased with arrivals in the root balls of plants from Europe and Asia, and imports for gardening.

Long established in cities and on farms, worms are moving into forests on mud stuck to logging trucks and all-terrain vehicles, and by fishermen dumping leftover bait.

So, what's wrong with worms? They fertilize and aerate the soil, which is a good thing, as every farmer and gardener knows. But in forests, they physically alter the soil in ways that destroy the system of nutrients and moisture.

Key to everything is an organic layer on the forest floor several centimetres thick known as leaf litter. Leaves that fall from maples, oaks and other hardwood trees can take up to three years to decompose in a natural forest without earthworms. There are new leaves on top, half-decomposed leaves beneath that, with white, stringy fungus attaching the bits together, organic soil next, and finally mineral soil (sand and clay).

Pennsylvania horticulturist Dennis Burton compares the leaf litter to the skin of the forest floor.

"It retains moisture, protects the organs (roots), breathes, prevents erosion, deters pathogens (non-native plants), and promotes seed germination," he explains. "A nutrient balance has evolved in this stable system between the vegetation above ground and the enormous biosphere in and below the leaf litter. When that system loses its leaf litter, it is like puncturing your skin. Erosion follows and nutrients bleed quickly from the soil."

The soil of a healthy hardwood forest is soft and spongy and full of decaying material that's rich in nutrients. That feeds insects, and it provides a steady drip of nutrients in rainwater to trilliums and other plants rooted just under this layer, in the so-called mineral soil.

The trouble with worms is that they eat most of the fallen leaves each year, exposing bare soil and releasing a burst of nutrients in a hurry, leaving none in reserve. They physically churn the litter into the soil, like miniature rototillers. They expose tree roots. A night crawler can drill holes two metres deep in the soil, which drains off surface water.

Besides losing some trilliums (and other wild flowers), the forest invaded by worms loses much of its understory, the thick mass of young trees and smaller plants that are low to the ground. In a healthy hardwood forest, these are dense enough to make walking difficult. In a worm forest, everything is more open. There may still be an array of mature trees, but there's less under them.

"Anywhere there's human settlement, there are earthworms," says Scott Loss, a post-doctoral research at the Smithsonian Bird Migration Center in Washington.

"You pretty much can't find a place without earthworms within 50 miles of a big city."

As well, the University of Minnesota tracked earthworm populations in national parks in that state, and found they are most common around boat launches, cabins and logging roads.

Once they arrive, they stay. There's no way to kill or to remove them.

"The most important thing is to try to identify earthworm-free areas and try to prevent introduction of them into these areas," Loss said.

But as well, there are many species of worms that have different habits. Some live near the surface, others live deep down. If an area only has one or two species, it would still benefit from keeping others away.

Loss has just finished a study of a surprising effect of earthworms: They change the bird population.

You won't see an ovenbird - a little brown songbird with a big voice - in the city. But it's common in forests in our region.

It builds nests on the forest floor, covering its eggs with a dome-shaped pile of leaf litter. A long time ago, someone thought the nest looked like a Dutch oven. The name stuck.

(Robert Frost calls it "a singer everyone has heard/ Loud, a midsummer and a mid-wood bird/ Who makes the solid tree trunks sound again." It's a gloomy little poem, but a good description.)

Loss's study shows the bird's population has dropped wherever earthworms have established themselves in forests.

"In the forested areas, it's one of the most common birds in North America," he said.

"It's one of these birds that have received a lot of research and conservation attention - these long-distance birds that fly from . . . northern parts of North America down to Central America and the Caribbean.

"Some people might consider them to be a good indicator of the state of forests in North America because they're common and occur across a lot (of areas)."

The reason for the ovenbird's decline may have several aspects.

The bird needs a fair bit of concealment from predators that would eat their eggs, such as squirrels, raccoons and other birds.

The survival rate of young ovenbirds rises where there's a thick understory and lots of leaf litter.

As well, less leaf litter appears to thin out the bug population. Ovenbirds eat insects. Loss thinks they can still survive, but they may need to stake out a larger territory to find enough food, which means a square kilometre of forest can support a smaller population than before the worms arrived.

There is a confounding factor in studying changing forests. Many have a second invader that's also destroying the understory: deer.

The white-tailed deer population has exploded across Ontario and Northern U.S. states, and forest managers say deer are chewing up many of the plants near ground level, not only young trees, but also shrubs (including blueberries) and flowers such as trilliums.

"Trilliums are like candy to white-tailed deer, regardless of how many other plants there are," Loss notes.

"I guess a lot of people are told at an early age that earthworms are really good," he says. "It might sound a little strange that you have to watch out for earthworms but they really are capable of causing some significant changes in the forests of the Northern U.S. and much of Canada."

introduction

This is the second article in a series of three to describe the hydrology and ecological services of forested watersheds. In the first article the hydrologic cycle, water balance and ecological services were introduced. In this article a closer look at the hydrologic cycle and flow paths of surface and subsurface flows and associated ecological services from forested watersheds are examined.

Flow Paths

When rainfall enters a forested watershed (Figure 1) some of it is caught and held by the foliage of trees (*interception*) where it can be evaporated back to the atmosphere or drip from leaves and needles to the ground. The same applies to snowfall which can also be evaporated (i.e. *sublimated = solid to vapor*) or sloughed off of branches to the ground. The volume of intercepted precipitation returned to the atmosphere can vary from 13% to 35% of gross precipitation depending on tree species, time of year and precipitation depth, duration and intensity.

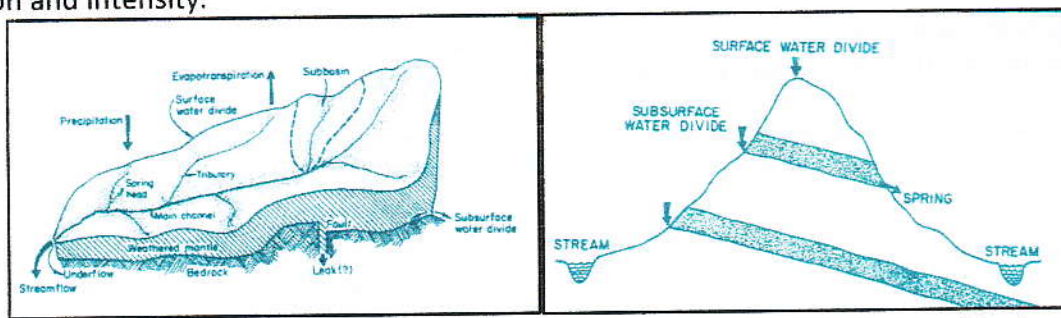


Figure 1 A watershed is defined by the stream/river that drains it (Figure 1). It is the area that collects and discharges surface water in a stream through a given point (i.e. outlet). (Hewlett 1982). The boundaries of a watershed are defined by its topographic boundaries (i.e. surface water divides) that decide the direction of surface flows. Subsurface water divides for groundwater seldom coincide with surface water divides in areas with tilted strata. In situations like this water can be transferred to adjacent watersheds.

Precipitation that reaches the ground surface (*throughfall*) can either enter the soil (*infiltration*) or flow over the ground surface (*overland flow/surface runoff*) downslope to enter nearby streams and become streamflow. Overland flow is not common because as forest soils have very high infiltration rates. Overland flow occurs primarily on disturbed, compacted soil surfaces (e.g. roads, skid trails), or when soil are saturated following long duration rainfall, or possibly during spring snowmelt when surface soils are still frozen and impermeable

Most precipitation reaching the ground infiltrates into soil (Figure 2) during and following heavy rainfall, As it moves downwards shallow saturated layers of water may develop in some soils as porosity (*i. e. volume of voids/air spaces*) decreases with depth. The water in these shallow saturated layers may flows (i.e. parallel to the ground surface) downslope to nearby channels and streams (Figure 2).

At the same time water continues to percolate vertically downwards towards the water table (Figure 2) where it becomes groundwater, which may contribute to streamflow locally or regionally depending upon geologic and topographic conditions. If the elevation of the water table near a stream is above the streambed groundwater may sustain flows in a stream even during prolonged periods of no precipitation (Figure 2a 2b)

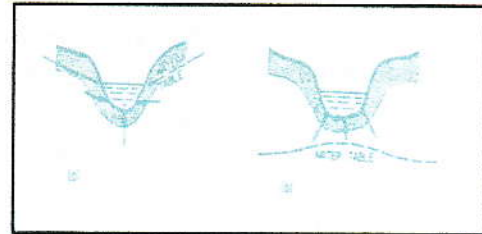
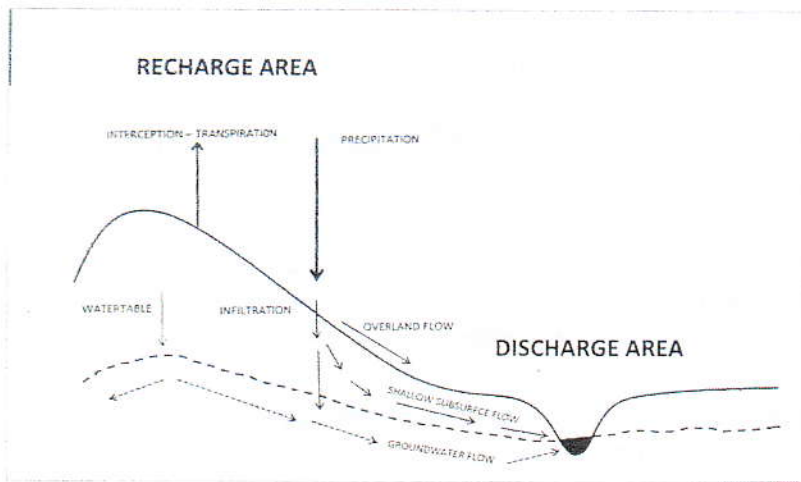


Figure 2 Diagram of flow paths for precipitation Streams with water tables above streambed (a) is an effluent stream and is often referred to as perennial stream. Stream where the water table below is below the streambed are called an influent stream where streamflow is intermittent or ephemeral (Bruce and Clark 1966).

Once precipitation and drainage in response to gravity has stopped, some water will be held in the soil above the water table (*zone of aeration*). This water (*soil moisture*) is used by trees and other vegetation for growth (photosynthesis). Most of the water pulled from the soil by plants is evaporated back to the atmosphere through small pores in leaves and needles (evapotranspiration). The combined evaporative losses of interception and evapotranspiration in Alberta forests can account for up to 50-60% of annual precipitation in a watershed depending upon trees species and climate.

Understanding, describing and predicting the hydrology of watersheds is a complex task. The delivery, storage and flow of water in watersheds is driven and moderated by physical and biological processes. To better understand these processes and their interactions, watersheds are described as hydrologic units consisting of recharge and discharge areas. Recharge areas are the upper slopes of watersheds where water moves downward and increases the amount of groundwater in storage. Discharge areas are the lower slopes of watersheds that receive water from the upper slopes that raise water table levels and steepen their gradients making them drain more quickly to streams. The areal extent of discharge areas is variable depending on the volume and timing of precipitation in a watershed. Discharge areas are often thought to be the same as riparian areas/zones.

Riparian areas are defined by the hydrophilic (water loving) vegetation that grows along rivers and streams. Riparian areas are significant ecological systems that provide important ecological goods and services. Riparian areas are usually discharge areas, but discharge areas are greater in extent. Discharge areas extend beyond riparian zones and include more moist sites such as shallow soils that require little recharge before generating surface or subsurface runoff.

Ecological Goods and Services

Ecological goods and services are the benefits obtained from the ecological functions of healthy ecosystems. These benefits belong to all living organisms, including plants, animals and humans. Ecological services are a complex of biological and physical functions/processes through which ecosystems are sustained. Examples of ecological services are: purification of air and water, maintenance of biodiversity, decomposition of wastes, soil and vegetation generation and renewal, and pollination. Examples of ecological goods are: clean air, abundant fresh water, seafood, timber, forage, biomass fuels.

Forested watersheds provide a host of different watershed services:

- High rates of water entry into watershed soils (i.e. *infiltration*) sustains streamflow and protects soils from erosion
- Water returned to the atmosphere by *evapotranspiration* from forest vegetation aids in the regulation and moderation of streamflow from watersheds.
- Carbon fixation and release of oxygen (i.e. photosynthesis) by forest vegetation
- Depletion of soil water by vegetation increases the capacity of a watershed (i.e. soil) to store water, which can moderate peak flows and the potential for flooding.
- Subsurface flows of water to streams results in high water quality.
- Riparian zones on their own provide watershed services
 - Shade to streams further increasing water quality (i.e. water temperature)
 - Acts as a buffer to filter/reduce sediment from upslope areas
 - Reduction of nitrates in overland flows from upslope application of fertilizers
 - Reduction of streamflow energy. Meandering curves of stream channels along with vegetation and root systems reduces energy of flow water
 - The diversity and concentration of vegetation in riparian zones provides habitat for a variety of animals and insects, and travel corridors for wildlife.

Watershed services as described above are for undisturbed conditions. The next article in this series examines the effects of disturbance and land use can affect these watershed services.

References

- Bruce J. P. and Clark R. H. 1966. Introduction to Hydrometeorology. Pergamon Press Toronto.
Hewlett J. D. 1969 Principles of Forest Hydrology. Uni. Georgia Press.

CN Rail and Tree Canada

CN Rail has partnered with Tree Canada and Communities in Bloom, to assist Municipalities, First Nations and Properties adjacent to it's rail lines, in planting trees. This is part of CN's EcoConnexions initiative it is seeking applicants who want to green an area by planting and caring for trees. For this program CN will provide up to \$25,000.00 to selected communities.

Tree Canada is a not-for-profit organization that encourages Canadians to plant and care for trees in urban and rural environments. To date, more than 77 million trees have been planted.

For those WAA members that have a CN rail line on their property, and would like to have trees planted along it, please contact; **Peter Mills** (President) who will bundle all the applications from the WAA members which would increase our chance of having the projects approved.

Land Stewardship Centre's Online Tools Are Making Stewardship Accessible

Having access to valuable stewardship information and resources is an important part in helping people become good stewards. Two of Land Stewardship Centre's newest online tools are making it easier for people to not only connect directly with conservation and stewardship organizations in communities across the province, but also access the important conservation information they need to be good land managers.

Online Directory Helps Connect the Stewardship Community

The new, web-based Stewardship Directory is the quick and easy way to get stewardship organizations noticed on the web. If your organization is involved in stewardship, it should be in the Stewardship Directory. Get listed today.

This easy to use, web-based Directory helps community stewardship groups, organizations, businesses and government find and connect with each other in order to share their experiences and lessons learned in stewardship and natural resource management.

To search for a listing you can browse the entire Directory, view listings on a Google map, filter listings by Organization Type, Services or Focus, or enter your own key search terms. When you find what you're looking for, just click on the organization name and this will take you to the full organization profile.

It is easy to set-up a free, basic account for your organization by clicking the "Register" button on the home page. Once the account request has been confirmed, just follow the few simple steps to complete your organization's profile in the directory.

For more information, email directory@landstewardship.org or call 1-877-727-5276 extension 222.

Check out the Stewardship Directory at www.stewardshipdirectory.com.

Online Database A Useful Tool for Land Users and Managers

The Conservation Land Registry is a single source, searchable database of information on registered conservation agreements and projects in Alberta. This database includes information on fisheries and habitat conservation projects, and wildlife program lands from a variety of sources including non-profit organizations and agencies, governments and private landowners. This fee-based service assists natural resource companies, municipalities, developers, land

agents and others by providing information that helps them in planning for and meeting their respective developmental requirements.

Once an online account has been created, subscribers can request searches of specific quarter sections by legal land description to determine if there are registered conservation projects, agreements or other notations on that quarter. Subscribers can generate search reports, location maps, download project plans and access GIS files where available. Subscribers have the ability to administer a personalized account, set up and manage user profiles, track search history, print invoices and generate reports.

The Conservation Land Registry:

- Offers automated on-line search capability by legal land description.
- Provides access to more than 200,000 records that are updated and expanded regularly.
- Delivers instant access to up-to-date information on registered conservation agreements and projects.
- Generates search reports that include contact information for the registered project holder.
- Has easy to use account management options.

For more information on how to include your land in the database, email dawn@landstewardship.org or call 1-877-727-5276 extension 228.

www.landstewardship.org/conservation_land_registry/

(The Land Stewardship Centre - is a non profit organization)

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Up Coming Events

Board of Directors - Teleconference - **June 24 / 12**
July 29 / 12
August 26 / 12
October 28 / 12

All calls are at 7pm

Board of Directors **meeting** at Whitecourt **September 29 / 12**

Woodlot Management Seminar -- **July 14, 2012** (for details see flyer)

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Canada teen discovers tree pulp has anti-aging benefits

OTTAWA — A Singapore-born teenager who recently moved to Canada won a national science award Tuesday for her groundbreaking work on the anti-aging properties of tree pulp, officials said.

Janelle Tam, 16, won the \$5,000 award in the 2012 Sanofi BioGENEius Challenge Canada for showing that cellulose, the woody material found in trees that enables them to stand, also acts as a potent anti-oxidant.

"Her super anti-oxidant compound could one day help improve health and anti-aging products by neutralizing more of the harmful free-radicals found in the body," Bioscience Education Canada said in a statement.

Tam's work involved tiny particles in the tree pulp known as nano-crystalline cellulose (NCC), which is flexible, durable, and also stronger than steel.

Tam, a student at Waterloo Collegiate Institute, chemically bound NCC to a well-known nanoparticle called a buckminster fullerene, or buckyballs, which are already used in cosmetic and anti-aging products.

"The new NCC-buckyball combination acted like a 'nano-vacuum,' sucking up free radicals and neutralizing them," said Bioscience Education Canada.

Since cellulose is already used as filler and stabilizer in many vitamin products, one day Tam hopes NCC will make those products into super-charged free radical neutralizers.

"It would be really nice to commercialize this," Tam, who moved to Canada five years ago, told AFP.

"I envision it more as an ingredient that would be added to existing formulations, so it could be added to tablets or bandaids for a wound dressing or it could be added to cosmetic cream."

She believes NCC may also be superior to Vitamin C or E because it is more stable, so it may work for longer periods of time.

"I think it also opens up a whole new field of research for NCCs," Tam added. "Doing research is like finding out things that no one has found out before, which I find really exciting."

Canada's national forest research institute, FPInnovations, has predicted a \$250 million market in the coming decade for NCC.

A pulp and paper mill that opened in January in Quebec now serves as the world's first large-scale NCC production plant.

"When we founded the Sanofi BioGENEius Challenge Canada 19 years ago we believed then, as we do now, in the potential of our youth to develop the next big breakthrough in science," said Sanofi Pasteur Canada President Mark Lievonen, who presented the first place prize.

A wise old owl sat on an oak,
The longer he stayed the less he spoke,
The less he spoke the more he heard,
Why are not more of us like that wise old bird?

Zama Spruce Budworm Project to Continue...

Alberta Sustainable Resource Development (ASRD) has entered into a Letter of Agreement with the Northern Forestry Centre (NoFC), Canadian Forest Service to provide help to collect field data of the Zama Spruce Budworm Project in northern Alberta.

With the recent retirement of Dr. Jan Volney, Research Scientist at the NoFC, the continuation of this long-term field experiment faced an uncertain future. In view of the potential benefits of this research to find a long-term, ecologically friendly alternative to aerial spraying of the biological insecticide Btk to control budworm populations, Forest Health Section entered into negotiations with NoFC to take over field data collection for another five years. This agreement was recently ratified by the senior managers of ASRD and NoFC.

The project began in 1996 with the establishment of a network of plots and tree measurements and in 1997 High Level Forest Products initiated the harvesting treatments. Thinning removed 25% or 50% of the standing volume in three patterns: uniform shelterwood cuts, standard strip cuts, strips with irregular feathered edges and conventional clearcuts. As checks, untreated residual stands were also left adjacent to the clearcuts. The entire experiment involved 344 hectares.

The current fieldwork is a continuation of the previous work and involves the establishment and collection of pheromone traps from a network of plots placed throughout all treatments. Also, each fall, branches are collected from white spruce trees within each treatment to measure levels of defoliation sustained in the summer months. These two measurements provide an insight and comparison into the population levels of spruce budworm and the damage they cause. Every five years, detailed tree mensurations are taken to see how well the trees are responding in terms of growth and yield, again comparing the results to the various treatments.

The NoFC staff will provide the experimental protocols and initial training to ASRD staff to collect the field data. Data analysis and publications will be looked after by the NoFC staff. ASRD will provide any permits needed to use the land base, maintain the plots, collect necessary data and provide those to NoFC for analysis. Both parties involved in this agreement will have free access to the data and findings of this study to share those with their clients.

This agreement is in effect until 2017 at which point it can be extended by mutual agreement, if deemed necessary and feasible.

Sunil Ranasinghe and Mike Maximchuk

Innovation turning wood waste into bio-fuel for transportation



{ISSUE} Soaring energy prices are thinning profit margins in the transport sector and increasing operational costs in many manufacturing industries

{SHIFT} Turning wood waste into bio-fuel helps industry find a cost-effective and environmentally sustainable energy source to complement traditional fuel

A new public-private partnership is set to drive revenue for the forest products industry in Northern Ontario. Montreal-based pulp and paper company Domtar is partnering with Battelle, an independent research and development specialist in Columbus, Ohio, to test a new technology that rapidly converts wood waste into crude bio-oil and gas.

The newly formed provincial Centre for Research and Innovation in the Bio-Economy (CRIBE) is playing its part by providing up to \$6-million in funding for the project. The chosen test site is Domtar's mill operations in Dryden, Ontario.

Known as fast pyrolysis, the technology applies heat without the use of oxygen to convert the biomass – in this case rejected wood chips. While pyrolysis is not an entirely new process, Battelle changed the playing field significantly by designing smaller reactors that chemically and molecularly modify the oil produced to generate greater market value, explains Charles Lucius, vice president of Energy, Environment and Material Sciences at Battelle.

With this design innovation, operations can easily collocate the systems on their existing sites to produce bio-oil for commercial use in transportation fuel, plastics and chemical production, he says.

“This has been specifically developed for small scale, distributed implementation. We’re not trying to mirror the petroleum industry here. Rather, we are looking at the economic advantages of collocating smaller systems with nearby biomass sources. Because it is small, it can easily be deployed in combination with other activities, so you don’t have to drag materials great distances for processing.”

The partnership is definitely a timely one for Northern Ontario operations, notes Lorne Morrow, CEO of CRIBE in Thunder Bay. “If you look in this region, 80 per cent of the mills are down. We want to make sure the remaining ones are still here.”

For those mills still in operation, it is essential they bring in new revenue streams, he adds. “This makes sense because they have the room and the power, so it’s a natural fit to add a secondary wood flow to their primary one. In this way, they can add value to a resource that is typically burned as hog fuel. In addition, the Battelle technology is not a hugely capital intensive process and more energy efficient than more traditional [biofuel] approaches. We could see these distributed across a variety of operations.”

The balance of this year will be spent on verifying the validity of the system design on a limited scale. Part two will expand production to a full-scale plant operation. If all goes according to plan, the project will serve as a benchmark for a much broader range of biomass-related processes and markets.

“It’s not something that can be applied just paper mills,” Mr. Morrow says. “We can see these distributed across any operation with a natural wood supply, or other types of fiber for that matter.”

As Mr. Lucius notes, “It’s opening doors to what could be a significant commercial success story.”

Nova Scotia announces \$1.7 million for private woodlot silviculture

Nova Scotia is announcing \$1.7 million in funding for silviculture projects by small, private woodlot owners.

"Nova Scotians asked for positive change in the forest sector and government is delivering with more silviculture investment to help the environment and the economy," said Charlie Parker, Minister of Natural Resources.

"This funding was committed to implement the Natural Resources Strategy. It will help create healthier forests, promote growth of quality wood, improve wildlife habitat, protect water quality, and create productive and sustainable forest stands."

The funding will be administered by the [Association for Sustainable Forestry](#).

"Any new silviculture will be based on a forest ecosystem classification pre-treatment assessment, which leads to better decisions regarding forest management prescriptions and the right treatment for the site," said association co-ordinator and professional forester, David Sutherland.

About \$750,000 of the funding will be focused on small, private woodlots with certified forests. This funding will be co-ordinated by two non-profit groups, the Nova Scotia Landowners and Forest Fibre Producers Association and the Federation of Nova Scotia Woodland Owners. About \$950,000 will be provided to non-certified eligible small private woodlots to support their silviculture work. Up to 50% of the funding will go to support forest management practices and treatments that are applied to uneven, aged forests.

"This is an important investment in small private woodlot owners, recognizing their commitment to sustainable forestry, absolutely essential for a future in the forest industry," said Wilma Stub, executive director of the Nova Scotia Landowners and Forest Fibre Producers Association.

"Allocating silviculture dollars specifically for certified woodlots is a win-win situation," said Andrew Fedora, executive director of the Federation of Nova Scotia Woodland Owners.

"Landowners who have invested their time and money into becoming green certified will have greater support for their efforts and the province gains further assurance that silviculture dollars will be spent in the right areas, for the right reasons."

Source: Government of Nova Scotia

My wife sat down next to me as I was flipping channels.
She ask "What's on TV"
I said "Dust."

And then the fight started

"MY" WOODLOT

OUR WOODLOT

Our woodlot areas occur on two quarter sections of land located about 30 km west of Barrhead. We acquired the land in 1981 from an uncle and aunt who had conducted a mixed-farming operation since about 1935, but retired about 1980 and continued to live on site for several years thereafter. About 210 acres are cleared field areas, the remainder of approximately 110 acres are woodlot sites. These consist of two larger treed areas and several smaller patches, but all are interconnected, either by narrow corridors of treed ravines or fence line shelterbelts of mostly aspen and smaller trees and shrubs. The terrain is generally hilly, providing scenic recreational value for walking, cross-country skiing, bird watching, etc. About half of the field areas are farmed by a neighbour for grain and hay; the remainder serves as pasture for cattle during the summer months.

Our Forestry Efforts

The largest woodlot site of about 30 acres has a central bog area surrounded by low land supporting sphagnum moss, Labrador tea, etc. and with a tree cover of willow, birch, alder, black spruce, tamarack and white spruce; stands of aspen and poplar surround the peripheral areas. The other larger site of about 20 acres occupies a flat area with primarily birch and willow species, and is partly bisected by a small creek bed in which water runs mainly during spring runoff. One other small site of about 2 acres is stocked with mature white spruce that have shed seeds along the margin of an adjacent field. We have dug up seedlings (600+) from this site off and on during the past several years and have transplanted them as understory plantings in six different aspen/poplar locations on our farm as well as added some for landscape/shelterbelt trees in the main yard area. This transplanting has been carried out either in the spring before bud flush or in October, and depending upon soil moisture conditions. Tree survival has been very satisfactory. Our main objective for these plantings at several sites is to enhance visual interest and to diversify habitat structure as a benefit for bird and wildlife species.

The continuity of treed areas around fields and between woodlot areas provides cover and safe movement corridors for game animals such as deer, moose, coyotes and other smaller species, allowing them to move about more freely. We have not conducted an inventory of tree species or obtained mensurational data on our woodlot areas, but have made use of some wood products. For example, we have selected tamarack trees for fence posts, garden stakes and a variety of other support structures, and dead and dying white birch and aspen have been collected for firewood.

How We Use Our Woodlot Areas

We visit our farm on a regular basis year round and maintain the farmhouse as living quarters. Our daughter and husband and grand children also visit regularly where they partake in such activities as cross-country skiing, snowshoeing, exploring, lawn maintenance, and even collecting frogs. In the spring we plant a large garden and later in the season we process a lot of food for winter storage. We enjoy the quietness of the farm, enjoy walks through the many wooded areas, observe bird species and other wildlife and collect some of the wild fruit and mushrooms that grow naturally in specific locations. Scattered in several locations are saskatoons, pincherries, chokecherries,

blueberries, gooseberries, raspberries and black currents of a previously tame variety that has propagated extensively. We freeze some and prepare a variety of jams, jellies and syrup. Other activities have allowed us to experiment with growing several fruit and other tree varieties, enjoying the wild plants and fall colours, and photographing to collect scenes as subjects for painting.

Herb and Vi Cerezke



My own variety of saskatoons on our farm



Agra - forestry in a mixed wood Forest



Under planting in 1995

Notice :

The MY WOODLOT article of members individual woodlots, we want to continue having one of these articles in each issue of the Logjam, in order to do this we will need members to write a story of your woodlot. We feel that these will be of interest to all as every woodlot is different and managed for a variety of reasons. Please send me your woodlot story,