FRIENDS OF THE PETAWAWA RESEARCH FOREST

Spring 2026 Newsletter

#36

CHAIR'S MESSAGE

It is a great honour for me to assume the role of Board Chair of the Friends of the Petawawa Research Forest (PRF). I will keep this introductory message short and sweet, so that our readers can get on to the truly interesting and more important content.

However, one important item I will cover, is to sincerely thank Robin Cunningham for his many years of service as our Board Chair. For me, he has provided the proverbial 'big shoes to fill' scenario, and I hope that I am up to both the opportunities and challenges. I also want to thank Frank Knaapen, for his many years of service as Vice Chair and meeting Whip. Both Frank and Robin have set the bar high, and very fortunately for us they are both sticking around to continue to help-out on our Board, with Robin also retaining the role of our Treasurer. Frank still may need to step in as Whip, if our meetings drag on too much!

Longtime Board member Peter Arbour has taken on the role of Vice Chair this year and will make every effort to keep me in line, as is needed. Pete is an energetic and dynamic individual, whose passion for forests and forestry is unsurpassed. He currently is the Coordinator of the Forestry Technician Program at Algonquin College and was formerly employed at the PRF with Natural Resources Canada for many years, supervising its operations.

In closing, we have a wonderful year ahead, with the usual (and some new) events as well as a number of exciting projects planned. We have an enthusiastic and engaged group comprising our Board, including a record four student reps from Algonquin College!

I hope you enjoy this issue of our newsletter. Thanks to everyone who contributed and helped to pull it together!

John Pineau (Mostly Retired)
Chair, Friends of the Petawawa Research Forest

Board Chair John Pineau ready to ladle-out some hot delicious soup during the University of Toronto Winter Field Camp Day at the Petawawa Research Forest in late February.

FRIENDS ANNUAL GENERAL MEETING

The Friends of the PRF Annual General Meeting (AGM) took place at Algonquin College Waterfront Campus in Pembroke, on the evening of Thursday, November 13th, 2025. The AGM was well attended, with close to 50 participants, including a number of students from the college.

The business component of the meeting included the Treasurer's Report, the President's Report, a

Trails Update and the dissolution of the sitting Board followed by the nomination individuals for a new Board of Directors for 2026.

Guest speakers included Katalijn MacAfee of Natural Resources Canada, who is the Director in charge of the PRF. Katalijn provided an informative overview of current research activities and operations.

The keynote speaker of the AGM was Ken Farr, a retired forester who formerly worked for Natural Resources Canada and is a member of the Canadian Institute of Forestry. Ken gave an excellent presentation entitled: A 21st Century Role for Dendrology in Canada.

Friends Board of Directors Meeting via Zoom on February 10th, 2026.

Introducing the Friends Board of Directors for 2026

As a result of the Annual General Meeting of the Friends of the Petawawa Research Forest on November 13th, 2026, and a follow-up meeting of the elected officers, the Board of Directors of the Friends comprises the following members:

Chair: John Pineau
Vice Chair: Peter Arbour
Treasurer: Robin Cunningham
Secretary: Rhys Hoffman
Directors: Lauren Quist, Sionaid Eggett, Frank Knaapen, Sherry Kippers, Jordan Hill
Algonquin College Student Reps: Elgin Hamilton, Mattea Price, Grace Hill, Neil Harris

WELCOME TO OUR ALGONQUIN COLLEGE STUDENT REPS

Grace Hill

Hi! My name is Grace Hill, and I am a student enrolled in the Forestry Technician program at Algonquin College. I was inspired to pursue forestry after spending three summers in western Canada tree planting. I was intrigued by the other aspects of forestry including harvesting, management, conservation, and everything in between. Having grown up in the Ottawa Valley, I am fortunate to have found a strong forestry community close to home. From my classmates, instructors, and organizations like the Friends of the PRF and the OWA, I have met a variety of individuals who are welcoming, kind, and committed to the future of forestry. Soon after starting the program, our class was introduced to the Petawawa Research Forest, and it quickly became a familiar place of insight to the theory we learned. Rich with history, the diversity of forest stands, and management types makes the PRF an unmatched outdoor classroom. I always enjoy visiting the PRF and I am excited to learn more about the historical forest and the knowledge it has to offer.

Elgin Hamilton

Hello! I am Elgin Hamilton and I am the class representative for this year's forestry technician course at Algonquin college. I love ecology and silviculture and nerding out about GIS. Like most of us, I love forestry because it lets me get outside and in the woods. I am interested in all sorts of social issues related to forestry and want to do the very best for the world and the communities that I get to be a part of.
I get excited about generating biodiversity, carbon capture, creating restorative spaces for mental health and recreation and understanding how we can benefit from forests while being good stewards of them. I am not sure where my career will take me yet, but I will be continuing my education at UNB next year to hopefully become an RPF. I'm also super friendly, reach out if you'd like: elginhamilton@gmail.com.

WELCOME TO OUR ALGONQUIN COLLEGE STUDENT REPS

Hi! My name is Neil Harris. I grew up in Russell, Ontario and have been in the Ottawa Valley my whole life. Coming out of high school, I got a good job in Ottawa and purchased my first home there, but I always knew that I was destined for other things. I quit my job in the city and sold my house and have invested that into my future in forestry at Algonquin College. This was a huge leap for me and there were a lot of doubts I had going into it; however, it has been a remarkable experience meeting all the enthusiastic individuals involved in this tight knit community. I feel supported by my peers and all the mentors I have met along the way and have no regrets of making this decision. I have always had a love for the outdoors and take every opportunity I have to venture out into the woods with my dog and soak in all the knowledge that has been shared with me. I hope one day to inspire others like this community has inspired me for a better future.

Neil Harris

Hello! My name is Mattea Price. I am a student at Algonquin's Forestry Tech program, and one of the student volunteers for the Friends of the PRF! The Petawawa Research Forest has been the ideal outdoor classroom during my time in this program. With every visit, I have learned something new and left with even more questions to ask upon return. Not only is it a beautiful forest, but an invaluable learning resource with over a century of history to uncover. This research forest will always hold a special place in my heart, as it provided me with innumerable firsthand lessons on ecology, dendrology, forest health and silviculture.

I also had the pleasure of helping John with the layout and design for this edition of the FPRF Newsletter!

Mattea Price

IMFN GLOBAL FORUM AND OWA POST FORUM TOUR - MAY 2025

As part of the International Model Forest Network (IMFN) Global Forum held in Kemptville in late May 2025, the Friends of the PRF assisted in the support and delivery of a post-forum field tour that brought close to 60 delegates from model forests all over the world to visit the PRF. Members of the Ontario Woodlot Association (OWA), whose annual conference was held concurrently with the forum, also participated.

Highlights of the tour included visits to several active research installations and on-going scientific studies: Permanent Sample Plots (PSP) 1 and 2, the first PSPs established in Canada (1918); the adaptive silviculture for climate change sites, fire behaviour and ecology studies; the forest biomass study; and white pine regeneration and competition management. A stop at the PRF's Centennial Bridge, the first engineered wood forest access (logging) road bridge constructed in Ontario, was also part of the agenda.

The Friends of the PRF were pleased and proud to work with the Ontario Woodlot Association and the International Model Forest Network to help fund transportation and meals for the IMFN Global Forum delegates visiting the PRF.

We are also grateful to the staff of the PRF, Natural Resources Canada for their significant time and effort in leading the tour and interpreting the science and research for all who attended!

(Above, Right and Left) Jeff Fera with Natural Resources Canada welcomes and leads the post forum IMFN and OWA tour at the PRF

(Bottom Left) IMFN and OWA delegates enjoy lunch at the PRF courtesy of the Friends and Maven Catering.

UofT Master of Forest Conservation students visit PSP 1 in the Petawawa Research Forest.

ANNUAL UNIVERSITY OF TORONTO MASTER OF FOREST CONSERVATION WINTER FIELD CAMP
DAY AT THE PRF

By Fred Pinto and John Pineau

Thirty years on, the annual University of Toronto (UofT) Master of Forest Conservation (MFC) Winter Field Camp still honours its original purpose: bringing students into the forest to learn from the land, forest professionals, and the connected communities. The 30th anniversary camp ran from February 19th to 22nd this year and was based at the Mattawa Adventure Camp, near Mattawa, Ontario.

This long-running winter field camp, now a staple experiential learning event for students from the UofT and other universities and colleges, began in response to the major forestry protests that took place south of Temagami in 1996. The demonstrations, centred on forestry operations in white pine forests around Owain Lake, drew national attention and were the subject of a two-hour Nature of Things special by David Suzuki entitled The Great Boreal Forest.

At the time, concerns about forestry practices led to an invitation for local North Bay foresters to speak in Toronto. Instead of presenting there, North Bay foresters advised people to visit the site and see the operations firsthand. Students from the inaugural Master of Forest Conservation class at the University of Toronto travelled to North Bay. With backing from the Canadian Institute of Forestry (CIF) and Nipissing University, a bus was later chartered to transport students and staff from both universities to the area where logging and protests had taken place.

(Above) A contingent of students from the Forest Technician Program at Algonquin College joined the UofT students during their visit to the PRF in February, adding to the learning and fun.

On site, participants were met by environmental advocates, Lake Temagami residents, the logging contractor, and professional foresters from North Bay and Pembroke. The exchange gave students the opportunity to observe forestry operations firsthand, see ecological principles applied in local forestry practices, and understand forestry issues from multiple perspectives.

Following the visit, students voiced strong support for the experience, highlighting the importance of seeing forest management practices firsthand rather than relying on narratives shaped by celebrities, advocacy

groups, or media coverage. Their feedback resulted in a commitment to repeat the event the following year. Since 1996, the winter field camp has been held annually, organized entirely by volunteers.

The 2026 Winter Field camp included the usual tours of active harvesting operations in both the Nipissing and Ottawa Valley forests, visits to several mills, a wood scaling exercise, a full day at the Petawawa Research Forest, as well as visits to a private woodlot and a maple syrup operation and sugarbush. Additional activities included a tour of Samuel de Champlain Provincial Park to see firsthand the storm damage from the summer of 2025 and the restoration efforts now well-underway, and an evening dinner and facilitated discussion with local registered professional foresters.

Friends Board members Robin Cunningham and Lauren Quist present to the UofT students at the Friends Arboretum.

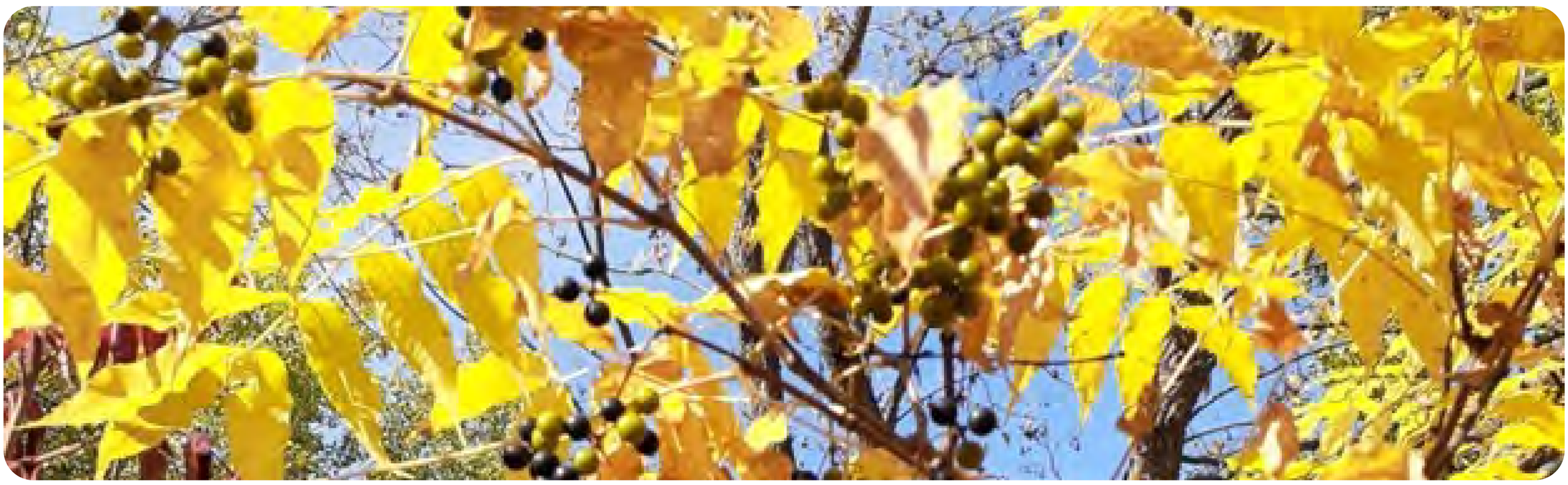
"With help and support from many forestry organizations and volunteers, we have kept the wonderful tradition of the annual UofT winter field camp going strong," said Sionaid Eggett, Director of CIF Algonquin Section and Board member of the Friends of the PRF. "During the four-day event, the students visited many sites where they saw best forest management practices being employed, as well as the excellent science and research that informs and supports that work. They also met and talked with dedicated and passionate people who work within the forest sector across our region."

THE FRIENDS OF THE PRF ARBORETUM AND THE INVASIVE ALIEN: AMUR CORKTREE

By Robin Cunningham

Our Arboretum site is a former residential street at the Petawawa National Forestry Institute (PNFI). The houses were all removed after the PNFI closure in 1996. We have been planting our collection of trees in the yards of these former houses. It has been interesting to see how native trees like sugar maples, white ash, basswood, and white pine have seeded into this formerly open subdivision - - mother nature quickly healing the landscape. But the void was also filled by a multitude of alien plants. Residents had planted trees, shrubs, and garden plants: flowering crabs, Japanese lilac, common lilac, Siberian pea-shrub, black locust, and Amur corktree; as well as several perennial flower species, variegated goutweed, and even asparagus. Some of these non-native species, have not just persisted, but vigorously spread -- competing with our native plants and planted trees, and are now classified as invasive aliens,

A magnificent wide-spreading Amur corktree (Phellodendron amurense) near the entrance is a legacy of former residents. The species originated in the Amur region of Northern China. With compound leaves, sharp pointed leaflets, and unusual corky bark, it might first give the impression of a butternut; but its opposite leaf arrangement and clusters of green to black berries – and the bark - are distinctive. It is quite an ornamental specimen which one might consider an asset in a park or an arboretum.



Amur corktree leaves and berries.

But Amur corktree is an alien species that is invading our forest. We have been finding corktrees throughout the arboretum and well into the woods. (Young ones might be mistaken for black ash.) Corktree is known to thrive in forest openings, where it forms dense stands and crowds out native species. Shelf-like branching shades out seedlings of competing species, and roots emit chemicals that are toxic to some plants (allelopathic effect). The birds eat the berries and poop out the seeds, and seedlings get established. A bird may eat a berry and then fly for half an hour before dropping a seed. Young trees in the arboretum are now producing seed--the species is getting away on us. We might think of our arboretum as an epicentre of an invasion, starting from our large, fruitful 'mother tree'.

Amur corktree is classed as an invasive alien in the eastern US. It is now a Prohibited Species in Minnesota, Wisconsin, Indiana, Massachusetts, and New York. In Wisconsin, only non-fruit producing male cultivars may be sold. In Minnesota, "All existing fruit producing trees must be controlled, by tree removal or other means, such that no seed is disseminated" (Minn Dept Agric., Noxious Weed Assess't 2021). It has not been commonly planted in Canada. It has not been on lists of problem plants in Canada, although it is now on the Forest Gene Conservation Association's list.

The Friends of the PRF want to attempt to control this species. But how? Control has proven difficult in the U.S.

Cutting trees will not kill them (as for many deciduous trees) -- they will sprout from the stump and regrow. But repeated cutting will set back seed production.

Amur corktree bark.

Herbicides are not available to the Friends, due to license and permission requirements.

Girdling may be our best tool. Removing the bark—outer, inner (which is bright yellow), and cambium, in a complete ring around the tree, will prevent food manufactured by the leaves from reaching the roots, thus starving the tree.

We will be marking corktrees as we find them and then returning with axes and saws to battle them. We will note male vs female trees where we can. Corktree is dioecious – male and female flowers are on separate trees. We could leave occasional male trees as specimens. We do want to take down that mother tree. We have mentioned it to the Algonquin College forestry students on the Friends, and they are interested in helping.

Could someone make use of them? The bark of Amur corktree has been prized for its use in traditional medicine in China, India, and Japan. The yellow inner bark was used to make a special dye in ancient China and to make yellow paper for official documents.

Corktree seeds can persist in the soil for several years. If we were to kill all existing corktrees in the PRF, there would still be a seed bank and continued germination. Of course, it is not likely we could find and eliminate all the trees in the area.

Amur corktree may never be eliminated from the PRF. But it probably can and should be controlled. The Friends plan to give it a try.

PRF RESEARCH AND OPERATIONS UPDATE

Contributed by the Staff of the Petawawa Research Forest, Natural Resources Canada

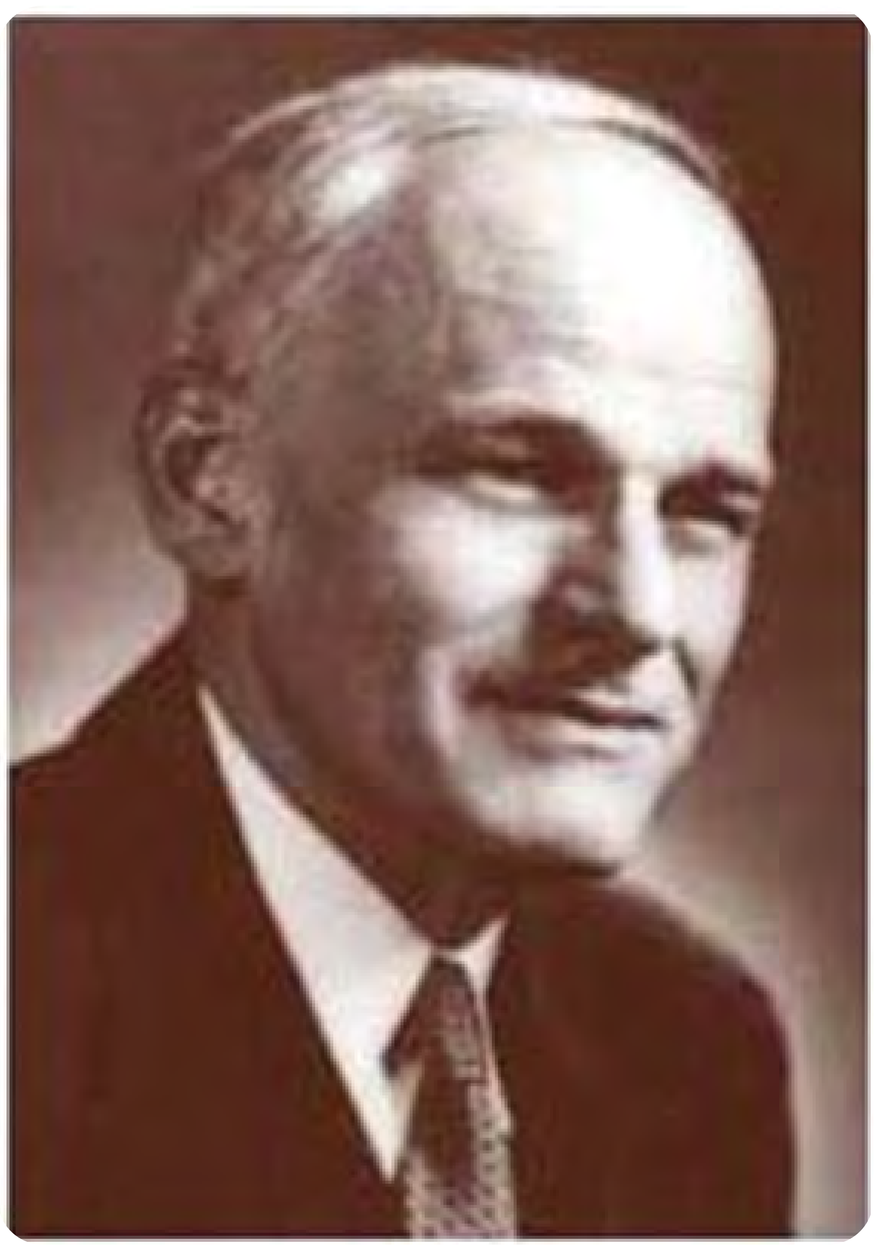
The following table presents an overview of active and on-going science and research studies at the Petawawa Research Forest, providing concise information about the lead scientists and the organizations they represent, as well as the specific objectives and the data being collect as part of each project. In the near future, the Friends of the PRF intend to update our website to provide more detailed information about many of the forest science and research programs and projects that are currently underway, as well as the important history of past efforts and achievements.

Project Name	Organization	Objective	Data Collected
Adaptive Silviculture for Climate Change Project (ASCC) *Dr. Trevor Jones, Dr. Nelson Thiffault, Mike Hoepting and Jeff Fera*	Natural Resources Canada	To develop "climate change ready" silviculture prescriptions and provide long term data to support sustainable forest management in Canada.	Seedling measurements, CWD, saplings, regen, veg, litter, canopy photos, GPS for plot centers.
Assisted migration beyond common gardens: assessing the effects of site heterogeneity on white pine provenances *Lead Researcher (s): Lisa Han, Dr. John Casperson*	University of Toronto	To study the effects of site heterogeneity on white pine provenances.	
NEBIE Silviculture Research Study: for Natural, Extensive, Basic, Intensive and Elite silviculture treatments. *Lead Researcher (s): Wayne Bell*	Ontario Ministry of Natural Resources	The Intensive Management Science Partnership: NEBIE Plot Network is a stand-scale, multi-agency research project designed to compare the ecological effects of a range of silvicultural treatments in northern temperate and boreal forest regions of Ontario.	Forest overstory health assessments, regeneration, seedlings, coarse woody debris, and forest vegetation.

Project Name	Organization	Objective	Data Collected
Meridan Road White Pine Silviculture *Lead Researcher (s): Mike Hoepting and Nelson Thiffault*	Natural Resources Canada	To evaluate crown spacing and site preparation on residual overstory productivity and understory regeneration establishment and productivity.	Forest regeneration and overstory health.
ForSITE 2.2.3.3 Phase 3 Indicators – area with soil degradation *Lead Researcher (s): Charlotte Norris, Jérôme Laganière, David Paré, Kara Webster*	Natural Resources Canada	Determine common indicators of forest soil disturbance	Collected tree heights and diameters and rough vegetation cover estimates alongside our soil samples from the Cartier Lake Research Site and Poly ID 672. At CLRS, we sampled from the T1F0BC1 and T0F0BC0 treatments. Soil samples included ones for bulk density determination and bulk samples of forest floor and mineral 0-5, 5-15, 15-30 cm depths for analysis of physical, chemical, and biological properties.
The DIVERSE Project; Intraspecific relationships between wood density and hydraulic traits. *Lead Researcher (s): Zoe Ribeyre & Isabelle Aubin*	Université du Québec à Montreal.	To characterize intra-specific variability of wood density, xylem safety and xylem efficiency among precipitation gradient and study the relationships between these traits at intra-specific scale.	Collected branches and wood cores of Acer rubrum, Fagus grandifolia and Populus tremuloides.
The effects of soil properties on restricting the distribution of sundial lupine, Lupinus perennis. *Lead Researcher (s): Simon Petley*	McGill University	To study the effects of soil properties on restricting the distribution of sundial lupine, Lupinus perennis.	Soil sampling
TRANSX *Lead Researcher (s): Loic D'Orangville*	University of New Brunswick	A new network of provenance trials across eastern Canada and the US to test the warming vulnerability of northeastern tree species and their assisted migration potential.	Seedling survival and fill planting

Project Name	Organization	Objective	Data Collected
Drought stress full-sib red spruce progeny trial *Lead Researcher (s): Funda Ogut, Patrick Lenz*	Natural Resources Canada	Two-year-old red spruce (Picea rubens) seedlings from 39 full-sib families (Nova Scotia seed source) were grown and monitored under drought stress in an AFC greenhouse using spectral sensors, leaf pigment analyses, phenology, and growth measurements to assess their physiological responses to drought stress. The progenies were then genotyped and moved to genetic field trials at the Acadia, Petawawa, and Valcartier research forests in 2025 for long-term monitoring. A randomized complete block design with a single-tree plot configuration was used at all locations, with 18 blocks per site. This combined greenhouse–field approach aims to assess adaptive traits across different growth stages and to evaluate the long-term effects of juvenile drought stress on seedling performance. The genetic structure of the material, together with the genotypic data will enable advanced genetic analyses such as genomic selection.	2023: germination, bud-set and height data on 1 year old seedlings at AFC greenhouse 2024: bud phenology, height, spectral data using hyperspectral camera, leaf pigment and light adapted chlorophyll fluorescence dataset at AFC greenhouse. 2025: height measurement after planting in spring
Field Plot Measurement using Mobile LiDAR Scanning (MLS) *Lead Researcher (s): Margaret Penner, Murray Woods*	Consultants – funded project from Ontario's Forestry Futures Trust	The objective of the project was to evaluate the use of mobile LiDAR scanning technology for collecting field data, specifically calibration (VSN) and growth and yield permanent (PSP, PGP) field plots. We tested methods to accurately acquire and process tree diameters and heights on fixed-area plots of mixedwood, hardwood and conifer forest types during leaf-off and leaf-on seasons.	Improved field stem mapping of the 8 2024 measured and scanned AFRIT plots with the TruePulse 360, training and working with Algonquin College Co-op students to scan MLS project field plots (6) and an additional 14 Adaptive Silviculture for Climate Change (ASCC) Research plots. Final Report completed. Data has been made available to Dr Joanne White for PRF Supersite as well as other project partners. Presented results to project partners including Ontario MNRF (FRI and G&Y) and Ontario Woodlot Association.

Project Name	Organization	Objective	Data Collected
Canid Health and Diversity *Lead Researcher (s): Jacob Edwards*	Department of National Defense, Ontario Ministry of Natural Resources and Trent University	Determine canid health and population in the area	During 2025 Jacob Edwards and his team utilized soft traps to conduct health and population assessments of canids in the area of Garrison Petawawa. The methods used are standard for canid research and have been approved by Environment Canada (SARA permit #SARA-OR-2024-0852), MNR/MECP Animal Care Committee, and the Trent University Animal Care Committee.
Ontario Breeding Bird Atlas is an essential province-wide survey *Lead Researcher (s): Scott Da Rocha*	Ontario Breeding Bird Atlas	The Ontario Breeding Bird Atlas is an essential province-wide survey that maps the distribution and abundance of Ontario's breeding birds over five years. This long-term dataset allows scientists to track changes in bird populations and identify species facing pressures from habitat loss, climate change, and other environmental stressors. Because birds are strong ecological indicators, Atlas results directly inform conservation planning, Species at Risk assessments, and habitat management across Ontario, providing the scientific foundation needed to protect biodiversity into the future.	Two separate parties accessed the Petawawa Research Forest this summer to survey for the Ontario Breeding Bird Atlas.
Jack pine budworm detection traps *Lead Researcher (s): Melodi McLeod*	Ontario Ministry of Natural Resources	To monitor for the presence of jack pine budworm.	Presence of jack pine budworm, using traps.
Pressure treated lumber longevity experiment *Lead Researcher (s): Daniel Wong*	FPInnovations	To study the longevity of pressure treated lumber.	Rot presence and decay of lumber.



James (Jim) Wright (above), Herb Beall (top of page)

WRIGHT, BEALL, AND VAN WAGNER

PETAWAWA'S HISTORIC CONNECTIONS TO THE FOREST FIRE SCIENCE WE USE TODAY TO MANAGE WILDLAND FIRE AROUND THE WORLD

By Steve D'Eon

It seems a bit odd to write about forest fire science when it is –20°C outside, but it was 100 years ago this upcoming summer that James (Jim) Wright started implementing his ideas relating today's weather and the previous day's weather to the flammability of forest fuels and thus fire behavior. Measure the weather – model the fuels – predict fire behavior was his simple proposal that he set out in 1926 on the forest floor at Petawawa to investigate and, in an elbows-up moment, prove those wrong that said Canada could simply adopt the American system and why bother with a Canadian research program. Jim worked closely with his American counterparts at the time finding the American operation system undertook awkward direct measurement of fuel moisture by weighing sample sticks. Jim thought better results could be obtained by modeling fuel moisture and thus flammability by measuring four core weather variables we still use today: wind, humidity, temperature, and precipitation. Jim also introduced the concept of summarizing fire hazard into simple terms recognizable on forest fire hazard signs everywhere: low, moderate, high, and extreme fire hazard (Figure 1).

Jim also realized flammability would vary by fuel type, so he made his system modular, an important decision allowing for the future deployment of the Canadian system.

It was not until 1928 that the research program took off when Herb Beall joined Jim as a student conducting many tests across the Petawawa estate for the next few summers. Herb, originally a law student, spent the summers instrumenting the forest, gathering data, and lighting two-minute test fires. Beall provided an approximate definition of each flammability zone with ‘extreme’ described as “Test fires are put out with the foot only with difficulty or other means are necessary to extinguish them.” Beall ceased to light two-minute test fires under extreme conditions in 1931 once the road crew had left for the season; perhaps because he did not have any help if he could not put a difficult test fire out with his foot ‘or other means'.

Herb lived alone in a cabin at Racehorse Rapids with most of his visitors being log drivers on the adjacent Petawawa River. The accounting records for the summer indicate a high proportion of expenses for 'provisions' as Herb always kept a pot of coffee on the fire for the log drivers. Beall, ever the imaginative social engineer, ended his 1930 report with a request for a second person next season, one who could cook, justifying the request with a projected increase in scientific productivity. His request was turned down.

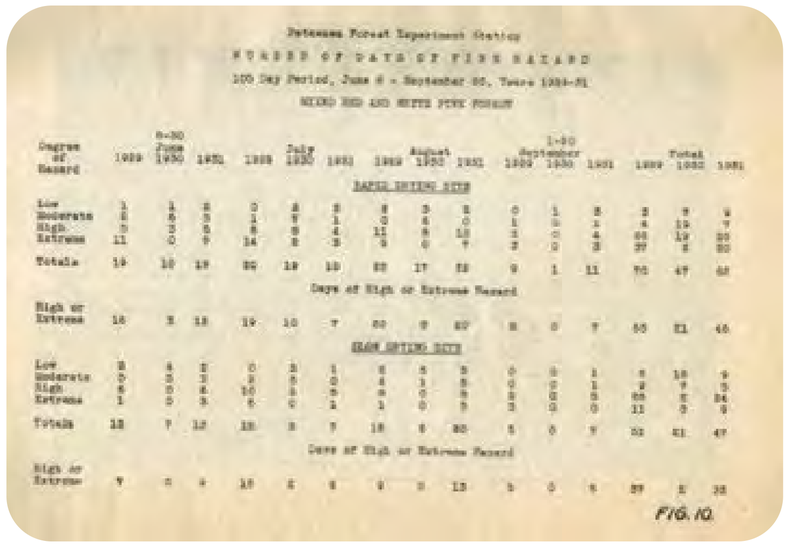
Wright once commented no one else had lit as many fires as he had (the two-minute test fire dataset eventually included over 20,000 fires by many researchers at 11 sites). No wonder full approval for their work was a few years in the making as what manager today would authorize hundreds of ‘test’ fires, some at extreme conditions, to be put out only by stomping on the burning fuel? From this accumulation of data and experiments (Figure 3), Wright published his concepts in 1932 and the rest they say is history – a history that included the arrival of another researcher at Petawawa in 1960 – Charlie Van Wagner.

Charlie Van Wagner

Figure 1: *Forest ire hazard sign. Petawawa, 1932.*

If Jim Wright is known as the father of forest fire science in Canada, then Charlie was the prodigal son who took things up a notch.

Figure 2: *Samples and instruments on the forest floor, Petawawa 1930 (upper left and right), two-minute test ire (lower left), Beall's cabin at Racehorse Rapids (lower right).*



Petawawa Forest Experiment Station

STANDS OF DAYS OF FIRE HAZARD

105 Day Period, June 6 - September 20, Years 1929-31

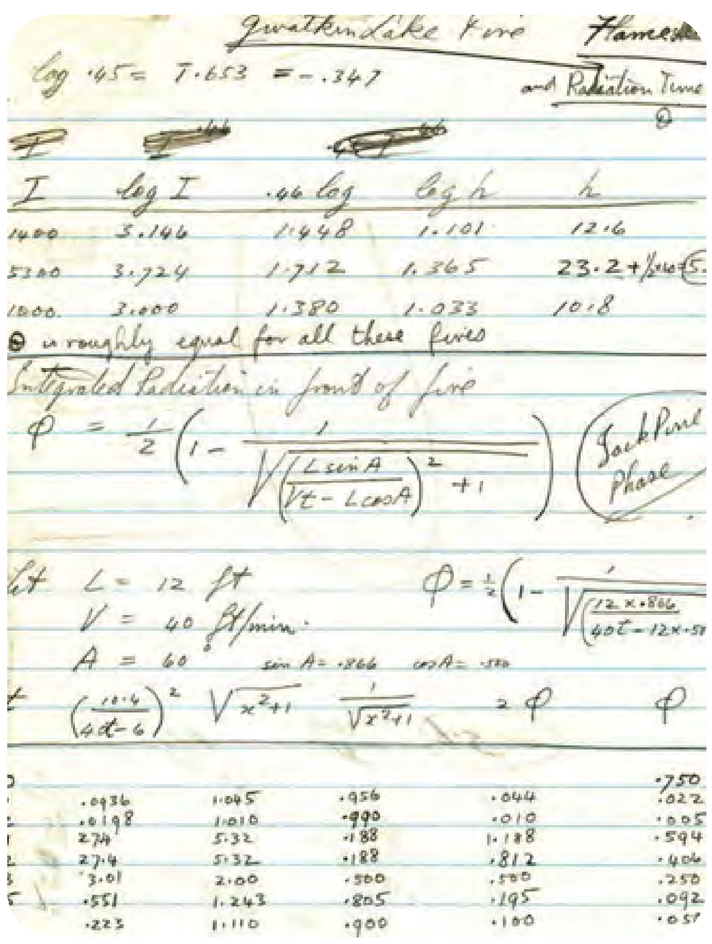
MIXED RED AND WHITE PINE FOREST

Degree of Hazard	1929	6-30 June 1930	1931	1929	July 1930	1931	1929	August 1930	1931	1-20 September 1929	1930	1931	1929	Total 1930	1931
RAPID DRYING SITE															
Low	1	1	2	0	2	2	8	3	5	0	1	2	3	7	9
Moderate	6	6	5	1	7	1	0	4	0	1	0	1	4	13	7
High	0	3	5	8	8	4	11	8	13	1	0	4	20	19	22
Extreme	11	0	9	14	8	9	9	0	9	2	0	3	27	8	33
Totals	18	10	19	23	18	16	28	17	28	4	1	11	74	47	61
							Days of High or Extreme Hazard								
High or Extreme	16	9	18	19	16	7	20	8	22	2	0	7	55	33	46
SLOW DRYING SITE															
Low	2	4	2	0	3	1	6	4	5	0	0	1	8	16	8
Moderate	0	0	1	3	5	0	4	1	5	0	0	1	7	6	6
High	8	3	6	10	5	5	6	0	5	2	0	5	26	8	16
Extreme	1	0	5	0	0	1	1	0	3	0	0	0	2	0	9
Totals	11	7	12	13	8	7	17	5	18	2	0	7	43	30	39
							Days of High or Extreme Hazard								
High or Extreme	9	3	6	10	5	5	7	3	13	2	0	6	29	8	28

FIG. 10.

Figure 3: *Forest ire hazard for Petawawa 1929-1931.*

Figure 4: *Map of Gatwin Lake Fire*



Van Wagner's calculation of lame length.

Arriving at Petawawa as a student in 1960, Van Wagner embarked on a lengthy career that oversaw many of the advances in the Canadian forest fire system. His many publications span 60 years and touch on multiple aspects of forest fire research. His lead author-ship of the 1987 echnical report *Development and Structure of the Canadian Forest Fire Weather Index System* is the most cited paper from Petawawa. All this was achieved in his second career, previously Charlie had been a chemist working for CIL paints before returning to school to study forestry.

In a 2018 interview Van Wagner stated he was simply lucky arriving at a time when researchers were allowed to work uninhibited by the many reorganizations research agencies struggle with. Van Wagner says the objective in fire science was always practical outputs which meant simple measurements, easy calculations, and ready interpretation into meaningful measures of the intensity and behaviour of the fire. At Petawawa he explored and investigated directions that seemingly would not provide fruit for the mission of the organization yet became essential parts of the research output that drove Canadian leadership in forest fire science.

Van Wagner, like Wright, was not one to allow the idea of deferring to the Americans to seep into the cost-cutter's mind. He attempted to intercept the concept before it could gain momentum by publishing Comparison of American and Canadian Forest Fire Danger Rating Systems in 1966. This report includes a theoretical comparison of the two systems using data from a fire at Petawawa under real fire conditions in Canada. In 1971 Van Wagner gave a talk in Florida titled Two Solitudes in Forest Fire Re-search reiterating the differences and necessity of the two approaches. Van Wagner said he minced his words in these publications and went gently on criticizing the American system that he did say had a lot of merits. But it was Van Wagner's opinion the Canadian system is superior because it has always combined laboratory data with empirical data from fires observed and measured in the field. Van Wagner said forests and weather interact in many ways that a purely theoretical approach cannot possibly provide the meaningful information fire fighters need. Over 400 experimental burns (with Petawawa hosting about 100 of these) along with data from wildland fire observations continually improve the Canadian system which is used in whole or in part around the world.

Crown fires represent the extreme in forest fire behaviour and Canada has numerous fuel types that can burn in this manner.

The May 7th, 1964, Gatwin Lake wildfire at Petawawa which Van Wagner studied represented the extreme of fire behaviour in mixed conifers and hardwoods (Figure 4). Under very hot, dry, and windy conditions a fire started, probably from a cigarette, on the east side of a large clearing, just inside a stand of 45-year-old jack pine. The hardwoods had not flushed yet, so the litter layer was extremely dry. The fire tower log shows the fire as being called in at 2:18 in the afternoon. Control crews arrived shortly after. The fire quickly spread and 30 minutes later jumped a 10-meter-wide road from which a back-fire had been attempted but did not have enough time to preburn the fuels ahead of the advancing fire. The Fire Boss's description of the head fire is indicative of this fast-spreading fire, “the swoosh sent it over the road.” The fire ran over two km past Gatwin Lake consuming 165 ha of jack pine, red pine, and mixed hardwoods and conifers before running out of fuel on the shores of Chalk Lake (now called Sturgeon Lake) where crews could get a handle on it. Rates of spread were estimated in excess of 80 feet per minute. Van Wagner’s 1965 Story of an intense crown fire at Petawawa based on data from this fire offered that the paper would be of general interest because few accounts about crown fires had appeared in the literature. Hardly a titan in the literature, this paper is indicative of an opportunist researcher fully exploring the data available and getting to what it means and why it is important.

Figure 5: *Experimental burn in plantation red pine. Petawawa 1960’s.*

A suite of planned experimental fires provided better data on crown fires which are still part of the Canadian system to this day. An example of an experimental fire in plantation red pine is shown in Figure 5. Note the student at the rack whose job it was to record the time the weights dropped indicating the progress of the fire. The weights were attached to cord that burned in the fire releasing the weight as the fire progressed. Maybe they set their rack up a little too close to the fire.
Climate change was a topic Van Wagner warned about as early as 1987. In an April 1987 address at Lake Tahoe, Charlie postulated on climate change as a recipe for more severe fire weather and fire regimes:

> *As interest in this subject increases, one can expect more attempts to predict the nature of the forth-coming fire climate, and to plan some response. The outcome could range all the way from an increase in seasonal severity well within the present range* ***to a challenge so profound as to shake fire management to its foundation.***

Charlie thought this conference was an eye opener for the fire community about the potential impact climate change could have on fire regimes. Subsequent publications by numerous other researchers helped prepare the fire community for the climate change driven fire regimes that have now become obvious such as with the fire seasons of the 2020s. Charlie once corrected me there were no "destructive" forest fires, only "stand replacing" fires.

This ecological view of fire on the landscape led Van Wagner, along with Ian Methvan, to be invited to examine fire management in our National Parks publishing Fire in the management of Canada's National Parks: Philosophy and Strategy in 1980. Van Wagner stated Parks Canada's interest stemmed from his studies of fire at the landscape level and Methvan's work in prescribed fire. Van Wagner said their paper, "justified a new policy for reintroducing fire into parks that had long suffered from decades of fire exclusion", especially for the western parks which are "clothed in fire-dependent forests". Today Parks Canada is a leading agency in prescribed fire and includes credit and a link to Van Wagner and Methvan's paper on their website.

2025 was just recognized as the third warmest year on record. Forest fire is not an ecosystem-changing force that is going away and Petawawa played a critical role in quantifying and managing wildland fire. Van Wagner always said research was collaborative and this article does not do justice to the many researchers who worked together to build Canada's wildland fire systems, but for Charlie Petawawa was a special place.

> *"Altogether, fire researchers at Petawawa produced about 200 papers from 1925 to 1995 covering every conceivable aspect of fire in the Canadian forest. No other centre of fire science come close to this record." Van Wagner, Jan. 2019.*

Charlie co-authored his last paper in 2021. He passed away at age 98 in July 2023 in Comox, B.C. Both Jim Wright and Herb Beall have awards in fire research named after them. Herb Beall was awarded the Order of Canada (2000) for his work. Charlie Van Wagner's work was recognized with multiple prestigious awards including the Ember Award (2012).

The world thanks them for their efforts.

ABOUT THE AUTHOR:

Steve D'Eon retired in 2022 from a 40-year career with the Canadian Forest Service, mostly at Petawawa. In his retirement Steve has returned to the Petawawa Research Forest to work part time as the site's archivist ensuring the 100+ year record of research is organized, preserved, and accessible.

He can be reached at stevedeonforestry@gmail.com.

The Friends of the PRF Trails Team keeps busy maintaining the PRF trails network.

TRAILS UPDATE

By the Friends of PRF Trail Team

It has been a winter of bountiful snow and great conditions for skiing and snowshoeing. Many folks were out using the ski trails, "R" trails, regular roads, and snowshoe trails. Trail team members cleared blowdown last fall and early winter. You can help by reporting blowdowns on the Friends Facebook page.

We have new maps posted on signposts along the HSA and Acer trails. You can download a PDF map of the trails on the Avenza app. When you are in the PRF, your location will be pinpointed on the map. We are exploring the use of AllTrails as well.

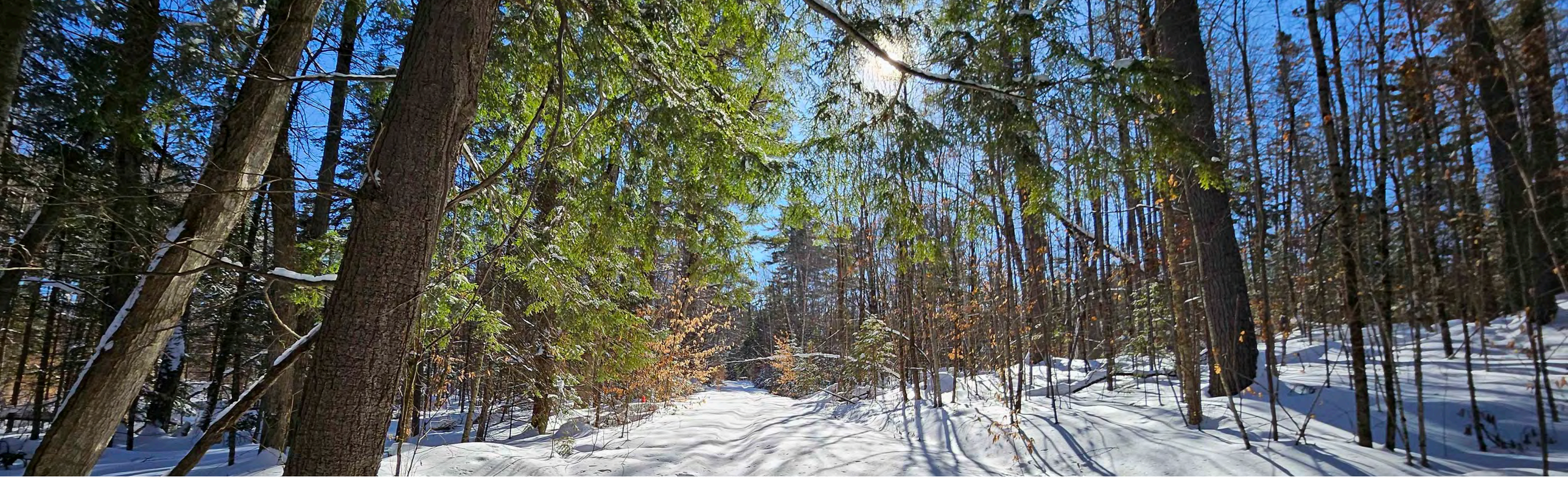
On the snowshoe trails, all those little red markers are courtesy of Frank Knaapen. Who also made most of the snowshoe trails! New signs on the "R" trails have gone up.

Algonquin College forestry students have helped with trail maintenance and signage, thanks to them!

We are always looking for trail users' ideas. Message us on the Friends Facebook page!

Wildlife tracks in the snow are regularly observed on the trails a the PRF in winter.

Forestry Technician students from Algonquin College are willing volunteers in maintaining the PRF trail network.



UPCOMING EVENTS

The Friends are planning a number of events this spring and summer, including a bird identification hike in May. Stay tuned for email announcements in the coming weeks…

TO JOIN THE FRIENDS OF THE PRF:

How to Join – Friends of the Petawawa Research Forest

MEMBERSHIP AND DONATIONS

We encourage all who receive this e-newsletter to share it with family and friends, and to encourage membership and donations to the Friend of the PRF. As a registered charity, we are able to provide tax receipts for all donations.

You can donate to the Friends of the PRF on-line using your credit card at:
Donate with PayPal Giving Fund
or
https://www.canadahelps.org/en/charities/friends-of-the-petawawa-research-forest/

You can also send your donation as a cheque to:

Friends of the Petawawa Research Forest
Box 2000
Chalk River, ON
K0J 1J0

Please help us to continue the good work we do to support invaluable forest science and research, forestry knowledge sharing and technology transfer, hosting special events, and maintaining the trail system at the PRF.

Many thanks to our Algonquin College student members and volunteers!