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Island Nature Trust

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As autumn deepens in Prince Edward Island, the landscape shifts into a quieter, more reflective season. November always reminds me how resilient and dynamic this Island is and how much responsibility we share in caring for it.

This issue highlights that shared responsibility, through the many community events and stewardship efforts featured within its pages. Whether you joined us for a volunteer day, attended a talk, or supported local conservation initiatives, please know how grateful we are for your energy and enthusiasm. The strength of Island Nature Trust lies in the supporters who join us and who learn, participate, and work alongside us to protect the places we all love.

I want to offer a special thank you to our contributing writers. Doug Sobey brings his deep knowledge of Island natural history to this month's issue, adding important context to our conservation story. We are also honoured to feature a guest piece by Rusty Bitterman and Margaret McCallum, who share a personal testimonial on the impacts and importance of forest features on agricultural lands. Their contributions enrich this magazine and broaden our understanding of the Island's past, present, and future.

As we look ahead to winter and the work that awaits, I encourage you to consider supporting Island Nature Trust with a donation. Your generosity helps us acquire and protect ecologically significant lands, monitor habitats, and safeguard the Island's biodiversity for generations to come.

Thank you for being part of this thriving community.

Melissa CameronExecutive Director

Annual General Meeting & Donor Celebration Event



Melissa Cameron

Executive Director, addresses members at the AGM



Kate MacQuarrie

AGM Guest Speaker



Stephen
Hessian & The
Honourable Dr.
Wassim
Salamoun
Donor Celebration



McNeill Family

Donor Celebration



Kim Horrelt

President of the Board, addresses members at the AGM



Katelyn Sylvester

Donor Celebration

PEI Legion Choir



Island Nature Trust is grateful for the contribution of the PEI Legion Choir in the amount of \$1,070.90, the proceeds from a choral concert held July 2nd at St. Paul's Anglican Church in Charlottetown. The concert was organized by the North American Welsh Choir who invited the Legion Choir to join them. Thanks very much to treasurer Teresa Murphy and choral director Travis Boudreau.

Neil Bennett Birding Classic

This past fall, Island Nature Trust and Nature PEI held the 31st annual Neil Bennett Autumn Birding Classic on Saturday, September 27th. This important citizen science event and fundraiser saw teams gather pledges and head out in the early morning to find as many bird species as possible in a 24-hour period.

Species observed during autumn migration were documented, and results were published in the Island Naturalist to help researchers track changes over decades on PEI.

All funds raised support INT's conservation efforts on the Island.

To date this year, we are pleased to announce that more than \$5,100 has been raised from pledges, donations and sponsorships. Rare bird sightings at this year's event included a peregrine falcon, three blue-grey gnatcatchers, two male lesser scaups, ten red knots, seven sandhill cranes, a lesser black-back gull and a palm warbler.

A huge thank you to Dan McAskill for his ongoing organization and contribution to this event. Thanks, Dan!







Each Fall, INT staff and partner organizations invite Grade 7 classes from across PEI out to the beach for our Beach-Dune Field Trips. This year, we educated 388 Grade 7 students on the importance of PEI's coastal ecosystems and how to keep them safe! During the field trips, students work their way through various hands-on stations highlighting themes of erosion, coastal flora and fauna, dune formation, and much more!

A big thank you to the students and teachers who came out to learn, and to our wonderful partners who helped ensure that the field trips ran smoothly, including the Nature Conservancy of Canada, Tignish Watershed, Roseville-Miminegash Watershed, Cascumpec Bay Watershed, West Point Watershed, Kensington North Watershed, Belfast and Area Watershed, and the UPEI Environmental Studies Department. Financial support for this project is thanks to the Wildlife Conservation Fund and Environment and Climate Change Canada.





This year has been an impactful and exciting one for our volunteer Guardian program. Many new Guardians joined a steadfast and committed group of existing volunteers, who continue to be of invaluable support to us. We're grateful to the new and returning Guardians who took part in the Conservation and Coastal programs this year. As always, the level of experience, enthusiasm, and diverse perspectives of the volunteers continues to blow us away.

Coastal Guardians increased the number of piping plover surveys they performed this year, with 91 beach surveys (up from 65 last year), which resulted in 142 monitoring hours. The insight of these Guardians made it possible to keep track of the ever-changing conditions of nests and chicks.

Coastal Guardians monitoring bank swallow surveyed 25 routes, totaling 40 kilometres of coastline, resulting in 72 hours surveying for colonies.

We hosted 7 Conservation Guardian training sessions in 2025, with a total of 70 people who learned how to monitor Natural Areas with the Landscape Conservation app and other methods. Between April and October, there were 106 Conservation Guardian visits to Natural Areas, and a total of 115 hours of site visits alone (not including prep work, driving time, and other volunteering events). During those monitoring visits, volunteers found numerous human impacts that we have since been able to address and remedy, in addition to a wealth of biological information. We are grateful for the support of so many talented and generous people.



Katherine McEwenEngagement Technician

Volunteers Making a Difference



115

hours monitoring Island Nature Trust properties



142 hours monitoring piping plover



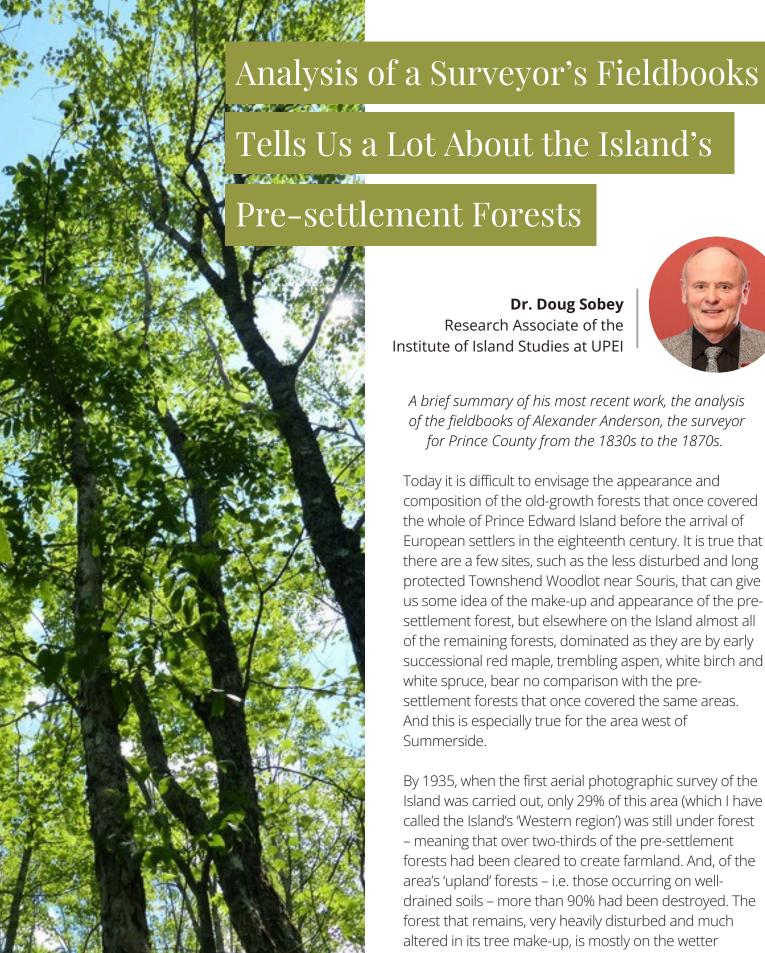






72
hours monitoring bank swallow

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Black ash stand at INT's Nebraska Creek Natural Area, representative of stand types significantly more prevalent in PEI's pre-colonial forests.

poorly-drained soils that are unsuitable for farming.

It is thus fortunate that for that very part of the Island there happens to survive in the PEI Public Archives a unique and valuable source of information on its presettlement forests. This is in the form of the 55 fieldbooks of the land surveyor Alexander Anderson of Sea Cow Head who from the 1830s to the 1870s was the government surveyor responsible for most of the surveys in the Western region.

Analysis of the 2,375 forest stand descriptions that Anderson recorded in his survey books, including their plotting on a modern GIS map of the Island, has expanded our knowledge of the region's presettlement forests well beyond what I had already been able to glean from analysis of other historical data for the region, such as the few contemporary descriptions of the forest (dating from the 1750s to the late nineteenth century) and the forest descriptions recorded on 30 nineteenth-century surveyors' maps.

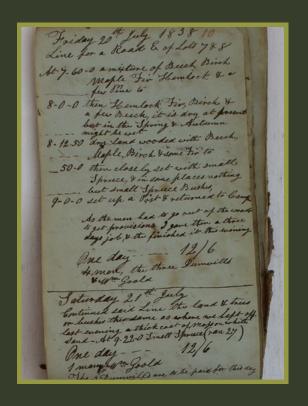
The analysis of Anderson's records has resulted in the identification of 18 distinct pre-settlement

forest-types, most of which no longer occur in the region: nine are in 'upland' habitats and nine in 'lowland', upland referring to the region's dryer well-drained soils, and lowland to its imperfectly-drained, and especially its poorly-drained soils. On the dryer soils upland hardwood forest, upland mixed forest, and various types of upland conifer forest were present; on the wetter, the boreal element of the Island's tree flora was predominant, comprising species such as black spruce, white-cedar, and tamarack, as well as alder woods, barrens, and a lowland mixed woods in which ash (presumably black) was a major contributor.

Analysis of their soil drainage indicates that these forest-types make ecological sense, and they correspond to forest-types recognized in modern forest classifications elsewhere. A special analysis carried out to determine the relative contribution of the three shade-tolerant hardwood trees to the region's upland hardwood forests indicates that American beech was the leading hardwood tree and it often occurred in the form of pure beech woods.



A satellite view of the Western region of Prince Edward Island (taken from the GeoReach PEI website). Forest now covers more than 55% of the region's land area; much of this is secondary forest that has developed on abandoned farmland.



A page from one of Alexander Anderson's fieldbooks showing his records of the forests along part of a line that would later become the O'Leary Road, as recorded on 20 July 1838.



Comparison with the present-day forests reveals a great decline in – or even the complete loss of – several trees characteristic of old-growth upland forest, notably of American beech, eastern hemlock and eastern white pine, all common and widespread in Anderson's records. Natural stands of white pine and hemlock are now virtually absent from the Western region, while beech, although still present in scattered stands, has been decimated, above all by forest clearance for agriculture (beech was a sign of good farming land) but also by forest fire (because of its thin bark it was especially sensitive to fire) and selective harvesting for firewood (beech made the best firewood).



The 209 records for eastern hemlock that Anderson recorded during his surveys. In the 1990 Forest Inventory hemlock was detected at only one location, near Tyne Valley.

The final blow, and it was a major one, came in the form of beech bark disease which arrived in the 1920s and killed off most of the adult trees, leaving only 'cankered' stems sprouting as root suckers.

The white pine had been selectively harvested even before Anderson's day for local use but especially for export to Britain, though Anderson was careful to record its past presence in the form of cut stumps. Hemlock, although not often exported, was harvested for local use, while some trees and stands must have been destroyed simply for its bark, to be used in tanning.

The other principal trees of the old-growth upland forest (sugar maple, yellow birch and red spruce) are still present in the small remnants of upland forest that remain today but nowhere are the trees of the size or age which Anderson would have come across. And, the maple and birch are nowadays rarely dominant in the region's surviving hardwood stands, having been pushed into third or even fourth place by the ubiquitous red maple and other early successional trees such as white birch, trembling aspen, white spruce, and balsam fir.

The trees of the lowland forests, especially those on poorly-drained soils which have been largely spared from clearance for farmland, have fared better than those of the upland forest, though black ash is now a rare tree compared with its status in Anderson's day, and white-cedar and black spruce, on account of being harvested for fencing, construction wood, and – especially the spruce (both black and red) – for shipbuilding, now generally occur as small trees, while the same early successional species that occur in the upland forests are now also very prominent in the lowland forests. The black spruce on very poor barren land (whether very wet or very dry) has been the least affected and likely still appears very much as Anderson would have seen it, apart from the effects of fire.

Jumpstarting Forest Regeneration

This past field season, INT's Stewardship Team implemented ecologically focused forest interventions on three different forest plantations on our Farmington Woodlands Natural Area, located in Farmington, PEI, close to St. Peter's Bay.

The majority of Island forests from tip to tip have had some degree of human disturbance, whether that be past agricultural use, intensive forest harvesting cycles, or habitat-altering plantations. These historic disturbances impact a forest's natural resiliency, reducing its ability to withstand natural disturbance events. This is why, with the help of the PEI Wildlife Conservation Fund, we decided to implement treatments on three stands of a forest plantation.

The interventions carried out on all three stands had the goal of improving wildlife habitat, promoting biodiversity, and improving the overall forest health by creating diverse forest structure, both vertically and horizontally. To accomplish this staff performed variable-density thinning techniques.



In conventional forestry operations, thinning is used to increase stand uniformity by reducing the stand density. Uniformity is achieved by removing trees with differing ages and height, and typically retaining only one species with even spacing between trees. Increasing uniformity optimizes forests for quality and yield which maximizes tree growth and product value. These traditional thinning techniques leave the stand with a simple structure, reducing value for wildlife and making it more susceptible to disturbance like disease outbreak and wind events. Variable density techniques increase spatial variability and promote under- and mid-story growth.

The design of our variable-density thinning treatment mimics natural forest disturbances. In the case of PEI, it is primarily wind disturbance. It is worth mentioning that forest regeneration is a natural process and will usually happen on its own over a longer period with no interventions. However, with the effects of climate change and increased severity of these natural disturbances at a higher frequency, landowners may wish to choose an accelerated diversification approach.

Thinning, if used in an ecologically focused way, is a good tool to jumpstart natural diversity in stands heavily impacted by human activity, creating complex microsites, helping foster resilience against an ever-changing climate.

Before (left) and after (right) treatment of the tamarack/larch stand, showing the deciduous trees retained and increased light availability for the stand's undergrowth.



As the treatment name hints at, we used a variety of thinning techniques in our treatment sites to create a wide range of microsites across the stand, as would be seen in a healthy, resilient forest. The techniques used include:

- Patch cuts In our patches only the plantation species (in this case eastern larch/tamarack) were targeted for removal. We left all the underrepresented and more desirable species to occupy the new space, species like red maple, yellow birch, and chokecherry.
- 2-sided release and 4-sided release In traditional forestry operations, the most valuable tree, termed "crop tree", within an area is retained while all other trees near the crop tree are removed. This "releases" a tree by removing competition allowing it to maximize growth. Instead of exclusively selecting the largest or most valuable tree we selected a diverse mix of species, with priority given to ecologically significant species, to release. We further modified this traditional method by only selecting 2 or 4 sides to be released and by only removing our target plantation species, retaining the understory. This technique creates variability in species and structure in the stand on a microsite scale.





- <u>Skips</u> We chose sections of the stand to receive no interventions and be left to naturally cycle.
 These areas provide wildlife corridors, shade, and a seed source for the surrounding treatment areas.
- <u>Girdling</u> Trees receive nutrients through sap following through a layer known as the cambium just below the bark. Removing the bark and cambium layer of the tree cuts off nutrient flow to the leaves and roots, eventually killing the tree. This technique, when implemented in a ecological silviculture context, creates standing deadwood, eventually falling over, making natural gaps.

The limiting factor for tree growth is typically the amount of light available. These different techniques allow different amounts of light to reach the forest floor, which promotes differences in regeneration across the stand ultimately creating more complex forest structures. All wood was left on site to create wildlife habitat while the stands regenerate. Underplanting of desired species not present on the site was carried out to help quickly establish diversity.

Brittany MacLean Stewardship Coordinator



Testimonial from Rustaret Farm

The 300 acres of Rustaret Farm straddle a high ridge in central PEI just to the east of the boundary line between Prince and Queen's County. When we bought the properties that we now farm, we were drawn to the possibilities of the landscape. There were no buildings, lanes or fences, just a mixture of land in the potato rotation, pasture land growing over with forbs and brush, and woodland.

We saw many things that troubled us, including garbage dumped along field edges and streams, deep erosion gullies across steeply sloping fields, and streams damaged by field runoff. But we also saw the potential for a pasture-based cattle and sheep operation that would include forested land. And we saw an opportunity for ecological stewardship, as we employed techniques of restorative agriculture to improve the soil and enhance biological diversity.



In the fifteen years since we acquired the farm, we have fenced two-thirds of the property, leaving a 100-acre woodlot for future plans. Our heritage livestock now rotationally graze more than a dozen fenced pastures, connected by farm lanes.

As much as possible, we included treed areas within our pastures, sometimes covering half the field, but usually strips along fencerows or small patches of woods that grew up in areas left uncropped by industrial agriculture. Some of the oldest and most interesting hardwood trees on the farm are in the old pastures and fencerows: big spreading beech, yellow birch, and sugar maple. Once our field fencing was in place (more than seven miles of it!), we began planting trees along the fences -- ash and white spruce fronting on Highway #225, fruit trees along the half mile lane leading to the house, and red oaks, sugar maples, white pines, eastern hemlocks, butternuts, American chestnuts, and Carpathian walnuts elsewhere. We worked with Ducks Unlimited, the Bedeque Bay Environmental Management Association and the PEI Dept. of Agriculture to construct 11 ponds in the pastures, including a sediment trap on a tributary of the Dunk River.



The goals we articulated in our first business plan for Rustaret Farm included developing "a grass-based agriculture that combines nature conservancy, aesthetic beauty, and livestock breed diversity." We are glad we wrote these things down as it is easy to succumb to pressures to make farm management decisions based on short-term profitability. We do not see nature conservancy and aesthetic beauty as necessarily at odds with productive farming practices (indeed to the contrary), but it is useful to remind ourselves of big picture objectives.

Did You Know?

- PEl's landscape is made up of just over 36% agricultural land
- Trees on agricultural lands help provide connectivity by maintaining wildlife corridors between forested ecosystems
- Retaining or planting trees on farms provide habitat and resources to wildlife including species at risk
- Trees also benefit your farming practice by providing wind protection, reducing drought and flooding, increasing pollination, and enhancing overall soil health and stability

As we have struggled with heat and drought over the last several years, our efforts to preserve and enhance wooded areas in our pastures have provided our livestock with refuge from the sun. That most of our pastures now have natural sources of water also has practical implications for farming in a changing climate, when extreme weather can take out the power grid necessary for filling stock tanks. But beyond the practical, the ecological diversity of the landscape that we are tending brings us joy.

It is a rare morning that we do not see eagles and one or more of the six species of hawks that share the farm with us. The ponds draw geese, ducks, herons, kingfishers, killdeer, and various shore birds, as well as frogs and dragonflies. And then there are the dozens of species of other birds that we hear and see on our walks to check livestock in wooded pastures. We sometimes feel like hermits who seldom leave the farm, but our life here keeps us busy and entertained. As visitors note, maintaining healthy and diverse land and livestock is satisfying, soothing, and enormously interesting.

By Rusty Bittermann and Margaret McCallum

