

A WALK IN THE WOODS

How Do Trees Survive Our Winters?

By Don Cameron

We all appreciate the shade trees give us in the summer and their beautiful leaves in the fall, but what about during the winter season? Did you ever wonder what trees are doing when it is cold and they are covered in a blanket of snow?

When the days start getting shorter and the nights a little cooler, trees start a very important change. For a short time we get to observe their beautiful transition as the leaves change from green to deep oranges, reds, and yellows, before they fall, leaving the tree barren for the winter months.

Why do trees lose their leaves in the fall?

One of the reasons deciduous trees lose their leaves in the fall, besides no longer being able to conduct photosynthesis, is to protect them from the weight of snow and ice. If hardwood trees like, poplars and maples, kept their leaves all year long, there would be increased surface area available to accumulate snow and ice buildup during the winter. This added accumulation of snow and ice could burden the trees with the extra weight and cause their branches, and even their trunks in some cases, to break. Jagged breaks would provide openings for moisture and diseases to enter the tree and cause mayhem.

However, coniferous



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trees, like spruce and pine, don't drop their needles in the fall. Their thin needles offer significantly less surface area for snow and ice to rest on, preventing them from having to withstand the weight of a significant snow cover.

Another physical difference that impacts a tree's likelihood to hold the weight of snow is their shape. While deciduous trees have the bulk of their canopy at the top, coniferous trees are the opposite. Their cone shape prevents large quantities of snow from collecting on the branches. Instead, the small amount of snow that a coniferous tree does collect will act as a blanket and protect the needles from harmful rays of sun, while offering shelter to small animals like birds.

Acclimation:

Beyond leaf loss in the fall, trees also undergo an internal transformation to survive the freezing temperatures experienced during the winter. Trees that

spend part of the year in sub-zero temperatures go through a two-stage process called acclimation.

The first stage happens in late summer, when the days get shorter and thus a tree's exposure to light decreases. During this stage, light-sensitive photo-pigments respond by sending out signals to initiate dormancy.

The second stage gets activated by cold weather, typically temperatures of 10°C or less. During this stage, saturated fatty acids found in the cell membranes get replaced with unsaturated fatty acids. These unsaturated fatty acids have a lower freezing temperature than their saturated counterparts, helping the tree to continue the acclimation process as the temperatures drop.

Cold Hardiness:

Once the acclimation process is complete, the tree is ready to initiate cold hardiness. Cold hardiness is a plant's ability to survive through sub-zero temperatures. While there are many different transitions happening inside the tree in sub-zero temperatures, the main goal is to protect the tree from internal freezing. Freezing can cause the water in the tree to expand, cause damage to its cells and result in the death of the tree. In an effort to avoid this, trees pull out water from inside their cells and store it in the apoplastic pathways between them. Although this water will still be prone to freezing, it will not cause harm to the tree.

Some northern species, like black spruce and trembling aspen, use this amazing adaptation process to survive temperatures as low as minus 80 degrees Celsius in the Boreal forest across Canada. Truly hardy and adaptive, just like Canadians.

Don Cameron, RPF works out of the Truro office.

Portapique Market Starts June 4th

The Portapique Community Build-Up Project site will be a beehive of activity this summer. The NEW Portapique Market will be a very exciting reason for us to get down to the hall starting June 4th and will continue every Saturday 9am-12pm. A) If you have something to sell and want to be a vendor please reach out to Ashley at: portapiquemarket@hotmail.com, or www.facebook.com/portapiquemarket B) You or someone you know may be eligible for the Market Greens RX program for 15 weeks of access to fresh fruits and vegetables. Attend the market on June 4th and inquire for details. This is not limited to Portapique residents. Anyone along the shore can participate.

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Colchester Holds The Line on Tax Rates

Colchester County Council successfully approved its 2022/23 operating budget last evening with no increases to the residential or commercial tax rates. This is the fourth year of the last five that the Municipality has been able to hold the line on its rates, with just a half cent increase in 2019.

"The cost of living has been rising at an alarming rate. Council is aware of the financial pressure this has been putting on our residents. Although our Municipality is facing similar rising costs, we were determined to do our best to avoid an increase in our tax rates. I am pleased to announce that we achieved just that," said Christine Blair, Mayor of the Municipality of Colchester.

The Municipality prides itself on delivering a high level of service to residents while maintaining one of the lowest municipal tax rates in the province. Calculated spending, investment in contingency reserve funds, and long-term forecasting have all contributed to the Municipality's stable financial position.

In addition to careful spending, this year's \$35 Million budget continues to invest in critical infrastructure and economic development initiatives in the County including rural broadband internet, Debert Business Park and Airport, Fundy Discovery Site, the Cliffs of Fundy UNESCO Global Geopark and other partnerships such as the Truro Colchester Partnership for Economic Prosperity (TCPEP) and the Rath Eastlink Community Centre.

Funding to support the repaving of deteriorating,

provincially owned J-Class roads in the county was once again not included in this year's budget. Despite generating significant debate, most of Council were opposed to paying to help fix roads not owned by the Municipality, holding firm to the point that roads owned by the Province should be the sole responsibility of the Province.

With an emissions target of net zero by 2050, the Municipality will continue to lead environmental change by investing in its recently adopted Carbon-Free Colchester Plan including initiatives such as Cozy Colchester and Solar Colchester that offer residents interest-free loan programs to increase home energy efficiency.

Numerous community organizations will also receive support through the County's extensive not-for-profit grant programs. It is rewarding to support the many community groups providing such important services and facilities across our Municipality. This sup-

port is especially needed as organizations aim to bounce back from the challenges of the past two years," remarked Mayor Blair.

Each year the County's operating budget is set within a context of competing needs, requests, opportunities, and anticipated revenues. Some costs and revenue streams are not within the Municipality's control. Over 44% of taxes collected by the Municipality are transferred to the Provincial Government for services such as schools, housing, libraries, assessment services, corrections, and policing.

Policing costs to the Municipality alone went up 11.04% contributing to the total 5.4% increase in required mandatory payments to the Province, which totaled \$15.68 Million. Such rising costs made the budgeting process even more demanding this year.

Colchester County Council remains optimistic about the municipality's future with much to look forward to in the year ahead.

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Use the lower level entrance - Look for the Entrance Sign in Parking Lot