

Reducing Carbon Emissions Through the Development of Local Green Spaces and Educational Tools



Submitted to the Mount Allison Students' Union Green Investment Fund

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Purpose

The purpose of the Green Investment Fund is to provide environmental initiatives with the necessary funding to increase community connections and reduce carbon emissions in the region.

Introduction

EOS Eco-Energy is a Sackville-based environmental charity with over 20 years of experience. We focus on helping local communities adapt to and mitigate climate change effects. With this project, EOS enhanced previously installed natural infrastructure projects such as food forests and green roofs through continued maintenance, community engagement, and workshops. EOS also installed new residential rain gardens, further developing the community's green spaces. These initiatives aimed to increase green space capacity and accessibility, improve pre-established food forests, and maximize environmental benefits such as carbon sequestration, rainwater management, and increased biodiversity.

Our project objectives aligned with the GIF's principles and included: (1) reducing emissions through increased carbon sequestration of trees and soils in the food forests from improved growing conditions, as well as growing local food which decreases transportation emissions; (2) reducing emissions through carbon sequestration with the installation of rain gardens containing deep-rooted, native plants; and (3) increasing community connections and accessible learning about local resources and skill building around green food production and infrastructure.

With the help of the Mount Allison Student Union Green Investment Fund (MASU GIF), EOS Eco-Energy was able to perform seasonal maintenance of local green spaces. The spaces that were maintained included the Tantramar Municipal Building's and the Mount Allison University green roofs, as well as the local food forests located at Marshview Middle School (MMS), Dorchester Consolidated School (DCS), Tantramar Regional High School (TRHS), and the Sackville Community Garden (SCG). Monitoring and maintaining these sites, particularly at a young age (MMS 2023 and DCS 2021), contributes towards proper growth and establishment of the plants so that they can surpass weed pressures and successfully act as carbon-sinks and food-producing sites.

Along with green space maintenance, EOS also began construction of a new food forest site at Amlamog (Fort Folly) First Nation, in partnership with the Southeast New Brunswick Regional Resiliency Committee. Contributions to this project were made by the MASU GIF through the purchase of tools and materials used for work on this and all of the other local food forests.

To further develop our local green spaces, EOS installed four new residential rain gardens. These rain gardens were a big undertaking, as EOS staff fully took on each installation. The gardens were designed and installed by staff, with each rain garden being made unique to best serve the different spaces and water management needs of the homeowners. EOS staff also coordinated and worked with other local non-profits and community volunteers for acquiring extra tools (such as wheelbarrows) and installation aid. These gardens will not only be beneficial for water management, but they will also provide active carbon sequestration and be beneficial to pollinators for years to come.

Finally, EOS hosted a series of workshops to support and promote awareness of these green spaces. These workshops included cooking and preserving local fresh vegetables and forageables, building garden water reservoirs with youths, and presenting to other environmental groups on how to install rain gardens and their benefits.

This report will share the work done for each of the green spaces mentioned above, as well as the additional outreach and activities that were performed.

Green Space Maintenance and Development – Food Forests and Green Roofs

Well-developed food forests, rain gardens, and green roofs not only reduce carbon emissions for many years through carbon sequestering, but they also have many other environmental benefits. These benefits include reducing flood risk by slowing and absorbing water runoff, reducing soil erosion, rejuvenating soil, reducing heat islands, restoring biodiversity with native species, supporting pollinators, and improving water quality. Community green spaces and rain gardens also engage community-based participation and community-invested ownership. By planting and maintaining resilient, native, climate-friendly species that are drought tolerant, we ensure that these green spaces continue to provide these key benefits. To support strong vegetation growth and the long-term survival of these spaces, pruning, weeding, mulching, and other general maintenance tasks are required, especially in the first few developing years.

EOS revisited each of the local green spaces around Tantramar and Strait Shores, reaching out and connecting with local community groups, school principals, Municipal staff, and Mount Allison University staff. From these connections and site visits, the health of each green space was determined, and a prioritized plan was made based on the level of maintenance that each site would receive. Along with tending to the spaces, EOS also installed weather resistant and weather-proof (copper) plant labels and tags throughout most of the food forests, identifying all significant plants within the space. This work directly continued off of the food forest mapping work that EOS did in 2024 with the help of the MASU GIF. These tags, paired with the maps, will allow anyone entering the space, no matter the level of plant knowledge, to identify and use the plants within the green spaces. These tools increase accessibility and confidence for community members using the food forests.

Marshview Middle School (MMS) Food Forest

Maintenance was first provided for the Marshview Middle School food forest. As one of the more recent food forests installed by EOS (2023), it still needs significant early stage tending against a few particularly aggressive weed varieties while some of the young plants continue to establish themselves. Certain areas of the food forest, however, have grown up well and are established enough to persevere and thrive among weed pressures. After weeding, weather resistant plant labels and tags were added around the food forest to help identify the plants for anyone using the space.



Figure 1: **A** – EOS staff and volunteers pulling weeds and cleaning up the grounds at the MMS food forest, and **B** – Plant tags installed throughout the food forest identifying plants.

Port Elgin Regional School (PERS) Food Forest

Port Elgin Regional School’s food forest was also assessed in collaboration with Principal Christoph Becker. EOS was able to provide support by purchasing new blueberry bushes to further enhance the space.

Sackville Community Garden (SCG) Food Forest

EOS also collaborated with the Sackville Community Garden to help provide some summertime food forest maintenance. Being one of the largest and oldest food forests in the area, the focus at this site is to prune and cut back any excess growth of some plants that might be hindering the growth of others. Much of the space is cared for by volunteers through the SCG, coordinated by their Organizing Committee. EOS staff worked with garden members to help care for the space and make it more accessible and balanced. Weather resistant plant labels and tags were added around the food forest to help identify the plants for anyone using the space.



Figure 2: **A** – EOS staff weeding and pruning at the SCG food forest, and **B** – Pruning around the SCG food forest informational sign for visibility.

Dorchester Consolidated School (DCS) Food Forest

EOS provided maintenance for the food forest at Dorchester Consolidated School. This food forest received the most amount of care from EOS last year (2024) through MASU GIF funding, and it showed. The weeds had been greatly suppressed by the fresh wood chip mulch, making maintenance for the green space this year much easier. Weather resistant plant identification tags and labels were added all around the food forest so that anyone visiting the space would be able to identify the plants around them.



Figure 3: **A** – DCS food forest after weeding, showing much improvement after adding mulch in 2024, and **B** – Plant labels installed throughout the food forest to identify edible plants.

Tantramar Regional High School (TRHS)

EOS staff worked with Melanie Ball, Executive Director of the Tantramar Wetlands Centre and science teacher at Tantramar Regional High School (TRHS), to provide maintenance to the TRHS food forest. The space has been doing particularly well with Melanie’s volunteer and teaching time spent maintaining and using the space for classes through the school year. EOS staff helped to weed out some of the more invasive and cumbersome grasses, while also pruning back some of the more aggressive perennials, such as mint and lupins, to help restore balance to the space.



Figure 4: **A** – EOS staff and volunteers maintaining the TRHS food forest with Melanie Ball, and **B** – A monarch caterpillar taking a journey out of the milkweed and climbing up to see what’s going on.

Green Roofs

EOS spent some time caring for the Tantramar Municipal Building green roof this year, collaborating with the Municipality of Tantramar and their hired summer staff to provide weeding maintenance. The green roof garden continues to thrive with perennial plants, but regular weeding of invasive grasses is still needed. EOS also collaborated with Mount Allison University to provide maintenance to the green roof located on top of the Student Centre. EOS staff along with a Mount Allison professor volunteer, Dr. Barbra Clayton, provided weeding of the green roof space. EOS also gave recommendations for maintaining the growing medium within the garden, as well as fertilizer needs.

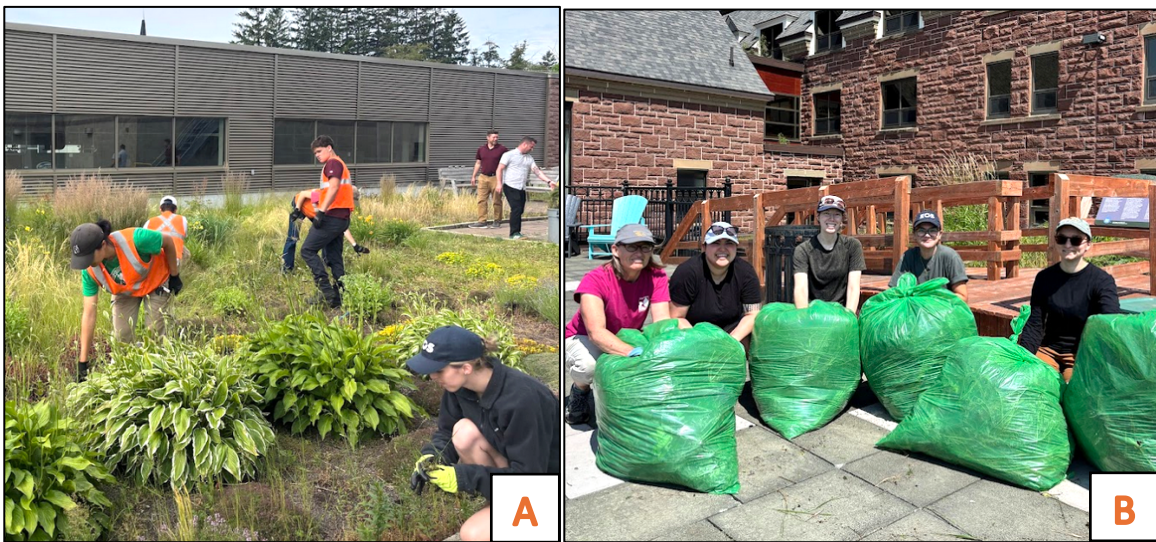


Figure 5: **A** – EOS and Tantramar Municipal Staff providing maintenance at the Tantramar Municipal Building green roof, and **B** – EOS staff and Mount Allison University professor Dr. Barbra Clayton with bags of weeds after maintaining the Mt. Allison green roof.

Installation of New Food Forest at Fort Folly (Amlamgog) First Nation

In partnership with the Southeast NB Regional Resiliency Committee and Amlamgog (Fort Folly) First Nation, EOS staff started construction of a new food forest behind the Mi'gmaq Child and Family Services building at Amlamgog. The soil in this area is tough and rocky, so two large natural raised beds were built up using wood and rocks from the adjacent forest for the food forest to be planted in. Staff and volunteers moved 25 yards of compost soil in total. EOS staff coordinated with multiple local groups for volunteers as well as extra equipment, including Open Sky Cooperative, the Sackville Community Garden, NatureNB, and Station 8. The space is ready for medicinal plants and edible perennials to be planted in spring 2026.



Figure 6: **A through D** – EOS staff and volunteers building up raised two natural beds for the new food forest at Amlamgog First Nation, and **E** – EOS staff, project partners, and volunteers helping to build the raised beds.

Food Forest Accessibility – Plant Labels and Digital Maps

A key component of this project was to improve the usability of the green spaces already in place. The goal was to have plant identification signs within each food forest, paired with the availability of user-friendly digital maps of the food forests, so that anyone would be able to identify and use the plants in the space, regardless of previous plant-based knowledge. While working with the local schools who have some of the food forests on-site, a common theme that was brought up was the lack of knowledge of the staff and students of what plants were in the food forest. This has made both use and maintenance of the spaces difficult, as those who have the greatest access to it are unable to distinguish between edible and non-edible species.

By working with a permaculture expert, EOS was able to install plant tags throughout 3 of the 5 local food forests (MMS, DCS, and the SCG), with plans to install plant tags at the TRHS food forest next spring. The digital maps are also still in process, as EOS works to convert them into a format that can easily be edited for any future changes and incorporated into our website. The maps, and associated plant information, will be available on the EOS website by spring 2026.

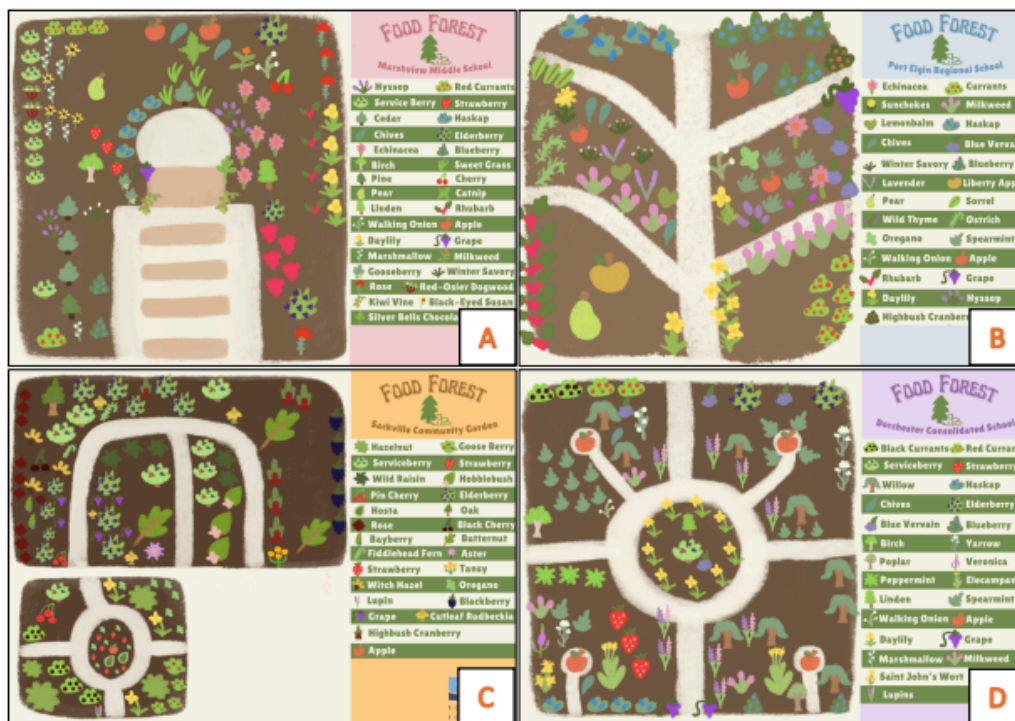


Figure 7: **A through D** – Digital maps developed by EOS for 4 local food forests in 2024 that will be further developed through winter 2025-2026.

Green Space Maintenance and Development Summary

Projects like community gardens, permaculture food forests, and green roofs not only help provide local, healthy food, but they also support climate resilience and environmental awareness. These spaces provide locally grown healthy food, reduce food transportation emissions, and break down barriers to affordable nutrition. Food forests and green roofs also support climate adaptation by growing drought-tolerant, native species that sequester carbon, reduce flood risks, prevent soil erosion, rejuvenate soil, and enhance biodiversity. Maintenance, such as pruning, mulching, and weeding, is crucial to maximize these benefits and ensure vegetation thrives. Locally sourced plants further reduce transportation emissions and encourage community interest. These efforts strengthen community ties, reduce eco-anxiety, and prepare communities to face climate challenges and uncertainties. Working together as a community is key to creating places that are sustainable, equitable, and healthy.

Residential Rain Garden Installations

Rain gardens are a natural way to help reduce stormwater runoff and pooling. The gardens are dug out depressions that are planted with native water-loving and drought tolerant perennials. These plants are able to hold and absorb large amounts of storm water during rainy seasons and continue to thrive with their deep roots during dry spells. It is beneficial to have many smaller rain gardens throughout a flood-prone area, such as much of Tantramar, to help slow and absorb water in numerous locations. Having many rain gardens within an area also encourages biodiversity and supports stopping points and habitats for pollinators. These gardens also act as carbon sinks and help to reduce GHGs by sequestering carbon.

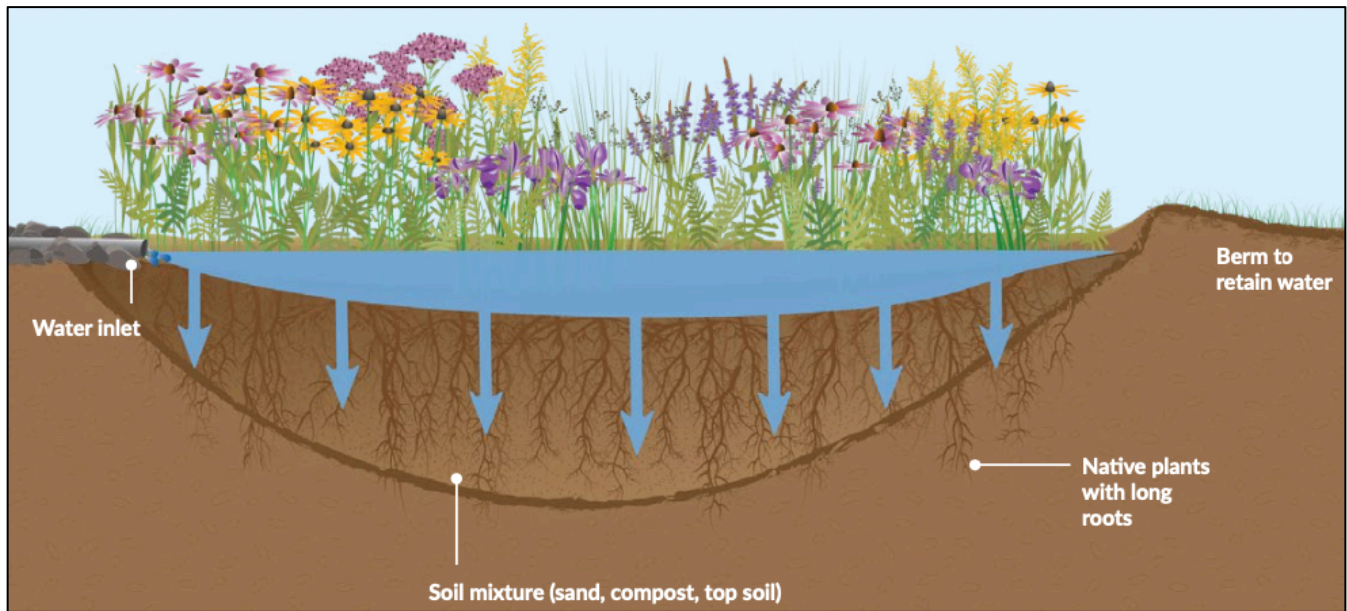


Figure 8: A cross-section diagram of a typical rain garden. Image source – Rain Gardens Design and Construction Guide for Homeowners, The Shediac Bay Watershed Association: <https://shediacbayassociation.org/wp-content/uploads/2024/03/RainGarden-Construction-Guide-Eng-Version.pdf>

Over the 2025 season, EOS installed four rain gardens for local homeowners. Due to constraints on plant availability throughout the summer, and more time than anticipated needed to install each rain garden, it was decided to dedicate more time and resources to four rain gardens and forgo a fifth. Despite this, we feel the rain gardens for this project were all very successful, and all the residents involved were thrilled with the results of the installations. Each garden was unique and was planned and designed by EOS Green Projects Manager Caitlin. The goal was to not only provide a space with perennial plants that would be a successful rain garden, but to also make it aesthetically pleasing to the homeowners. Each homeowner participant also learned how to manage and upkeep the new gardens for optimal growth and water management. Below shows the processes for each garden installation and gives some details into each build.

July 27, 2025 – Beach Walk Lane, Boudreau-Ouest

While located a little ways out of the Tantramar region, this rain garden was installed for an individual who is highly active within the Sackville community and a big supporter of local climate change adaptation. This rain garden site had very nice sandy-loam soil, but the individual lives in an area with a lot of underground water, and they have been experiencing yard and road flooding issues from their sump pump discharge in the spring. So for this garden, a berm would be built at the end of it to help hold the excess water in place while the rain garden would work to continually absorb it.

An area of approximately 100sqft was dug for the garden along a downward slope, going down about 8 inches deep. The garden area was leveled so that the top of the berm was the same height as the top of the slope where the garden started (making the berm about 1ft high). This area was then filled back up with the original soil with the addition of compost for improved water retention and plant nutrition, and then everything was topped with compost mulch. Once the soil was amended and the berm created, 32 perennial plants (including some native flowers, grasses, and shrubs) were again strategically arranged and planted for optimal water absorption and visual appeal. For this garden we had 10 people helping out between EOS staff members and volunteers, and the day went great!



Figure 10: **A** – Rain garden plant layout and design, **B and C** – EOS staff and volunteers digging out the rain garden and building up the garden berm, **D** – The finished rain garden after amending the soil, adding plants, and topping off with mulch.

September 23, 2025 – Fairfield Road, Sackville

The final rain garden installation for this project took place at a new house build. Where the homeowners had identified some problem areas for water runoff off of the house and driveway. They looked to find solutions early on as they had just received soil for the yard, and they didn't just want to plant a grass lawn. For this rain garden, EOS focused on a central area that was pooling with water runoff from the circular driveway.

With the newly deposited clay-loam soil, EOS focused on an area of approximately 150sqft within this central area to amend further with sand and compost. This garden did not require a berm, as water could enter from any side. With the new soil and deep-rooted plants, however, this space should thrive as a rain garden. 30 perennial plants (including some native flowers, grasses, and shrubs) were added and arranged. This garden had a unique challenge to it, as it was in a heavily forested area with frequent deer visits. To provide a safer environment for the plants to establish themselves, a temporary deer fence was installed with 7ft metal T-posts and black mesh netting. This has proved so far to be an adequate solution! 5 staff and volunteers helped to install this garden.



Figure 12: **A** – Rain garden plant layout and design, **B, C, and D** – EOS staff and volunteers digging out the rain garden and building up the garden berm, **E** – The finished rain garden after amending the soil, adding plants, topping off with mulch, and installing temporary deer fencing.

Rain Gardens Summary

EOS successfully installed four rain gardens over the 2025 season, supporting the environment through creating carbon sinks that help to reduce GHGs by sequestering carbon. These spaces also encourage biodiversity and support stopping points and habitats for pollinators. All four homeowners were very happy with their gardens and looked forward to helping them grow and sharing the results and climate benefits to other community members.

Outreach, Workshops, and Events

Youth Outreach at Amlamgog (Fort Folly) First Nation

Amlamgog youth olla-making and planter box painting (May 2, 2025): EOS staff led Amlamgog youth in a workshop to make ollas for the raised beds on-site. The group first discussed what ollas were, and how they helped to save water and prevent drought stress on plants during the summer. The group was then shown how to seal together two clay flowerpots to create the ollas. All youth and supervisors participated and greatly enjoyed the hands-on activity, making over 20 ollas for their raised beds. After making ollas, the youth further supported their community growing space by painting small wooden planters that they had previously built using recycled wood. These planters would be used all around the Mi'gmaq Child and Family Services building so the children could plant pollinator plants and perennial wildflowers to support the vegetable garden and surrounding ecosystem.



Figure 13: **A** – EOS staff Caitlin demonstrating how to make an olla with Amlamgog youth, and **B** – Amlamgog youth and supervisors painting garden boxes to support their outdoor green spaces.

Adding compost and ollas to raised garden beds with Amlamgog youth (May 16, 2025): EOS staff, Regional Resiliency Committee group members, and Amlamgog volunteers and youth all came together to refill and refresh the Amlamgog raised garden beds with compost. At this time the ollas that were made at the previous workshop (May 2) were also added into the beds and buried within the soil. The beds were later planted with seeds and transplants by EOS staff (June 20), and these included corn, beans, squash, potatoes, and onions.

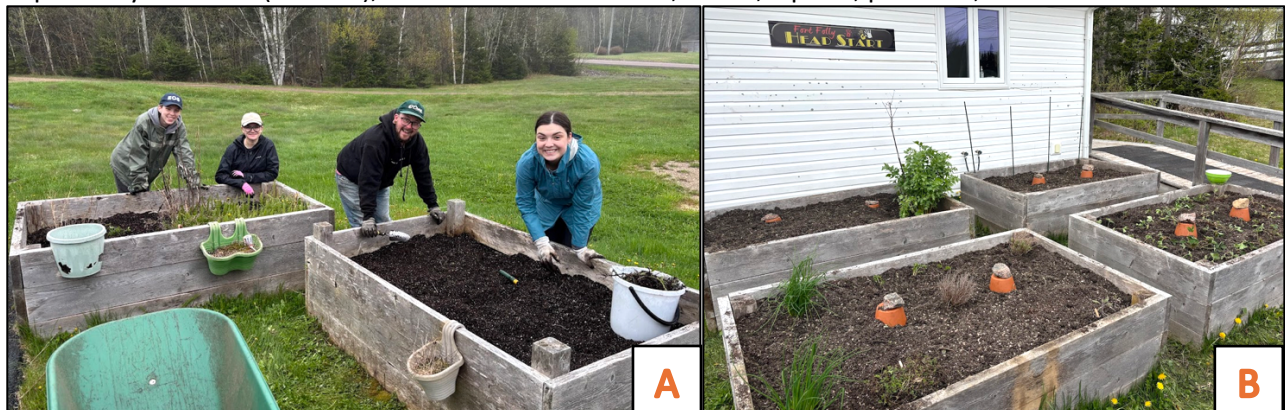


Figure 14: **A** – EOS staff and Regional Resiliency Committee group members weeding raised garden beds at Amlamgog before adding in fresh compost and ollas, and **B** – Finished raised garden beds with ollas installed and fresh compost added.

Community Canning Workshops

Last year, EOS ran a series of canning workshops with the help of MASU GIF and Horizon Health funding, and the demand for more of them was high. The feedback from all classes was also overwhelmingly positive. From this feedback, EOS has hosted two more canning workshops this year with the help of MASU GIF funding, and we have one more canning workshop scheduled for February 2026.

Canning and seasonal vegetable cooking workshops provide participants with essential skills for managing local food resources, and support community members to make climate-positive choices in their daily lives. These classes also highlight and encourage the use of local agriculture, which reduces carbon emissions associated with long-distance food transportation and strengthens the local economy. The overwhelmingly positive reception to these workshops indicates a growing enthusiasm for sustainable eating practices and a greater appreciation for the environmental benefits of sourcing food close to home.

Train-the-Trainers Canning and Preserves Workshop at PEDVAC with UNB Students (October 8, 2025): EOS hosted a canning workshop in partnership with PEDVAC in Port Elgin. PEDVAC has been partnering with mature nursing students from UNB as part of their curriculum, and this canning workshop was made a part of their training. The canning workshop was a train-the-trainers workshop, where the students not only learned how to can, but they also learned all the necessary tips, tricks, and tools needed to teach their own workshops within the community. This workshop was led by Mary Gillespie, co-owner of 'Ketchup With That' Kitchen, who expertly taught the students to make mustard pickles and a cranberry-blueberry jam. The class was well received, and the students went on to host their own successful canning workshop at a later date (Nov. 6).



Figure 15: Mary Gillespie starting things off at the train-the-trainers canning workshop with the PEDVAC Foundation.

Canning and Preserves Workshop at Open Sky Co-op (December 13, 2025): EOS organized a free beginner canning workshop for the Tantramar community. The workshop was instructed by local community member Emilie McBride, who is an active participant with the Sackville Community Garden, and works with Open Sky Cooperative. Participants learned how to hot-water bath can, making both a pickle and a jam from start to finish, and taking their creations home with them. The participants had a great time and made some new connections and friends!



Figure 16: **A and B** – Community members creating vegetable pickles and jams at a canning workshop led by Emilie McBride, hosted at Open Sky Cooperative in Sackville.

Canning and Preserves Workshop (February 2025): EOS plans to host another beginner canning class in Dorchester to further meet the demand for the workshop across the Tantramar Municipality. It will again be a free beginners canning workshop for community members to have an opportunity to further learn how to use and stretch the lifespan of local produce. The workshop will again be instructed by community member Emilie McBride, who is an active participant with the Sackville Community Garden, and works with Open Sky Cooperative. Participants will learn how to hot-water bath can, making both a pickle and a jam from start to finish, and taking their creations home with them.

Seasonal Vegetable Cooking Workshop (November 2, 2025):

EOS hosted a seasonal vegetable cooking class to promote eating seasonally and locally, supporting the environment by reducing carbon emissions from food transport. Led by the very talented Mary Gillespie, co-owner of 'Ketchup With That' Kitchen, participants learned how to prepare 3 vegetable-based dishes (a soup, a salad, and a roasted dish), all made with vegetables purchased from local farmers. The workshop was well received, and everyone got to go home with a very tasty dinner.



Figure 17: **A** – Community members creating local vegetable dishes led by Mary Gillespie at a cooking workshop hosted at Open Sky Cooperative in Sackville, and **B** – The three dishes that were created, a hearty soup, a refreshing salad, and a spicy roasted dish.

Presentation on Rain Gardens to TransCoastal Adaptations Centre for Nature-Based Solutions (December 10, 2025):

EOS staff gave a presentation on how to plan and build a rain garden to the TransCoastal Adaptations Centre for Nature-Based Solutions (Nova Scotia). This group has many members from different environmental organizations, including Municipal staff from multiple areas (e.g. Pictou County and the Halifax Regional Municipality), The Clean Foundation, ClimATLANTIC, Ducks Unlimited, and many more. The presentation highlighted all the benefits to planting rain gardens, particularly in urban areas, and went over the steps and considerations required for installation.

Outreach and Workshop Summary

There are positive impacts when people come together to learn new skills and to learn by doing. By providing climate adaptation and local food security learning opportunities, a more connected and resilient community can develop. The workshops and presentations described above were all successful and fun, showing community members that climate adaptation practices are not only beneficial for the environment, but that they can be enjoyable and bring people together too.

Conclusion

EOS's commitment to fostering community resilience and reducing emissions has been shown through a diverse array of green space development, workshops, and educational outreach activities over the past year. By responding to community needs and interests, EOS has ensured that Tantramar residents have access to practical, hands-on learning experiences that directly address environmental sustainability and connectedness.

By installing four new rain gardens and maintaining the local food forest and green roof spaces, EOS actively worked towards reducing carbon emissions and addressed community needs. Offering educational talks and workshops around these spaces further supported their development and care from community members.

Through EOS's continued efforts, Tantramar and the surrounding areas are not only reducing their environmental footprint, but also building a foundation for lasting community strength, adaptability, and prosperity.