

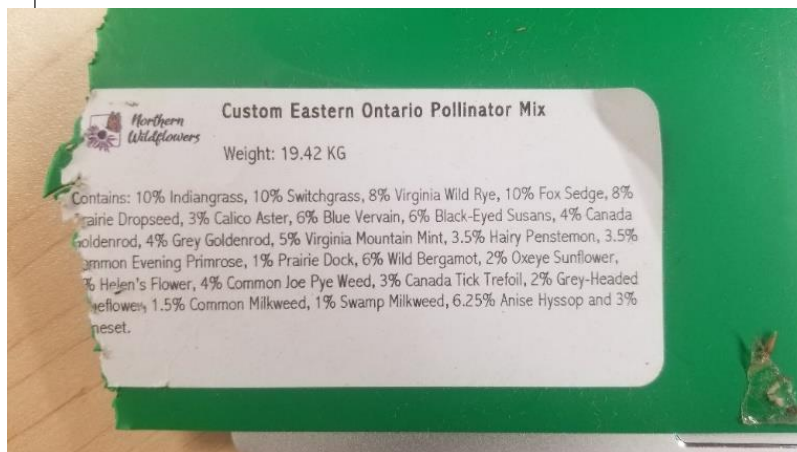
Mill Run CA – Pollinator Meadow Establishment

Seed

Cost is \$273/kg and we used 5kg of seed, for a 0.5 ha site. That is a 10kg/ha seeding rate (higher seeding rate used due to seed being a few years old and lower germination success is expected). Seed species are below and their proportions:

1) Custom Eastern Ontario Pollinator Mix			
Anise (lavender) Hyssop	Agastache foeniculum	3'-6', Moist-Dry, Sand-Clay, Full-Part, Jul-Aug	6.25%
Thimble weed	Anemone virginiana	1'-3', Dry-Moist, Full-Part (May-July)	3.00%
Red (Swamp) Milkweed	Asclepias incarnata	2'-5', Moist-Wet, Full-Part (June-July)	1.00%
Common Milkweed	Asclepias syriaca	3'-6', Med-Moist, Full, mid Summer	1.50%
Grey headed Coneflower	Ratibida pinnata	3'-6', Dry-Moist, Full Sun- Part Shade,	2.00%
Canada (Showy) Tick Trefoil	Desmodium Canadense	3'-6', Dry-Moist, Full, Mid Summer	3.00%
Common Joe Pye Weed	Eupatorium maculatum	3'-6', Sand-Clay, Med-Moist, Full-Part, Mid	4.00%
Helens Flower	Helenium Autumnale	4'-5', Med-Moist, Sand-clay, Full-Part, LS-F	4.00%
Oxeye Sunflower	Heliopsis helianthoides	3'-6', Dry-Moist, Sand-Clay, Full-Part, Summ	2.00%
Wild Bergamot	Monarda fistulosa	3'-6', Dry-Moist, Full-Part, (July-August)	6.00%
Prairie Dock	Silphium terebinthinaceum	5'-9', Full Sun -Part Shade, Dry-Wet, July- Se	1.00%
Common Evening-primrose	Oenothera biennis	3'-6', Dry, Rocky Sandy, Jul-Sept, Full-Shade	3.50%
Hairy Penstemon	Penstemon hirsutus	1'-3', dry, Loam-Clay, Full-Shade,	3.50%
Virginia Mountain Mint	Pycnanthemum virginianum	1'-3', Moist, Part Shade, Jul-Aug	5.00%
Gray Goldenrod	Solidago nemoralis	1'-3', Dry, Full Sun, August-Oct	4.00%
Canada Goldenrod	Solidago canadensis	3'-6', Dry to Moist, Full Sun to Part Shade,	4.00%
Black eyed Susan	Rudbeckia hirta	1'-3', Dry-Moist, Full-Part, June-Sept	6.00%
Blue Vervain	Verbena hastata	3'-6', Moist to Wet, Full Sun to Part Shade,	6.00%
Calico Aster	Symphotrichum lateriflorum	1'-3', Med-Moist, Part Shade, Aug-Oct	3.00%
Prairie Dropseed	Sporobolus hetero		8.00%
Fox sedge	Carex vulpinoidea		10.00%
Virginia Wild Rye	Elymus virginicus		8.00%
Switchgrass	Panicum virgatum		10.00%
Indiangrass	Sorghastrum nutans		10.00%

*Recommended application rate of 7.58 KG/ ha (uncoated seed)



Site Prep.

The site was mowed with brush hog in May/June 2022 to reduce woody vegetation. Taller shrubs (mostly non-native honeysuckles) and trees (dead/dying ash and elm) removed with chainsaws. The site consists of generally old meadow species and early successional species that are typical in fallow fields of sandy soils.

The site was sprayed with roundup on July 25, 2022. The entire site was not sprayed and parsnip patches and honeysuckle stumps/buckthorn stumps were prioritized. Hand sprayers were used but noted that this is not appropriate for the entire site due to its size. More work would be required.

Site sprayed again with ATV sprayer on August 3, 2022. Worked well, entire site sprayed and brown in 7-10 days, indicating that proper spray rate and concentration of glyphosate was used. It is noted that primarily goldenrod was sprayed with various non-native grass species and this site will be considered a short-term disturbance in the expectation of long-term benefit to pollinators.

Site shallow tilled on August 19, 2022. Worked well. No vegetation left at all on site and brown vegetation was incorporated into the soil.

Site harrowed with ATV and pull behind harrow on August 30, 2022 to break up clumps and level site.

Site was sprayed for the last time with ATV sprayer to kill all weeds that persisted or germinated since August. Some spot spraying completed by hand spraying with backpack sprayer – October 17, 2022

October 27th, 2022 – Site was harrowed one last time to fluff up the soil.

October 27th, 2022 – Seeding completed by hand over entire site. Staff used pails and walked in a line (4 staff in a row) to spread seed by hand broadcast. A 140m² plot was staked out and flagged. Mycorrhizae was spread in 140m² plot only. Finally, the entire site was rolled with a 6ft. culti-packer behind an ATV.

500g of big bluestem seed was sown in late November in the south square of the property only and left out of the remainder of the site. This was sown at the suggestion of Fish and Wildlife Committee Member Dr. Fred Schueler. See map below.

~60 individual seeds of cup plant (from northern wildflowers) was sown in the same area as the big bluestem in late November. Again, Dr. Fred Schueler suggested due to plants ability to provide food for birds.

Big bluestem and cup plant were only sown in south portion of site to ensure they did not outcompete original seeded species. SNC can now track their spread and intervene if they spread overly aggressively to the north area as is noted to have happened before by Canadian Wildlife Federation staff.

The site was mowed August 14, 2023 for the first time in 2023. This was a maintenance mowing to knock back parsnip and grass which was overtaking the wildflowers in some locations. Mowing was done to a height of 12-14 inches above soil surface. Notable species already flowering included black eyed susan, coreopsis, and some rye grasses. Many other species noticed but not flowering such as bergamot and goldenrods. These are expected to be more prolific in year 2 and 3, with many species only expected to flower in year 3.

Brent H. also established a second monitoring plot on August 14, 2023. One is 12mx12m square marked with wooden stakes and orange paint (mycorrhizae site). In the square, mycorrhizae was spread.

The other plot that is new is 70m long x 2m wide and stretched across the property from north to south. This long plot is also marked with orange painted stakes and will serve as a monitoring plot into the future.

Monitoring was completed on June 30th , 2023 following the CWF pollinator Scorecard.



Mycorrhizae Details

6lbs of mycorrhizae was used over a 140m² plot: <http://mycobloom.com/index.html>
No mycorrhizae to be spread over remainder of the site.

Experiment details from Tracey Etwell, CWF:

The rate for myco is 5pds per 140m². Yes if you could separate out one plot to put the myco in that would be great. That way I can do a pollinator scorecard evaluation on it going forward.

Having other plots that have no myco will be a good comparison.

We are trying to answer the question if the myco helped keep the weeds down and boost the biodiversity.

So a plot of 11.83m X 11.83m should be staked and inoculated.

May 24th , 2024 – The site received some manual removal of parsnip and some spraying. Details are with Naomi Langlois-Anderson.

June 13, 2024 – The site was mowed down low using the SNC tow behind ATV mower by Ryan Robson.

October 03, 2024 – Site visited by Brent Harbers and the following species were noted to be present and establishing:

- Wild bergamot
- Ox-eye sunflower
- Indian grass
- Switchgrass
- Blue vervain
- Calico Aster
- New England aster
- Black eyed susan
- Canada goldenrod
- Anise hyssop
- Wild Rye
- Joe pye weed
- Big bluestem
- Common sneezeweed (helens flower)
- Common milkweed

Highlighted on the list below are all species noticed on October 3, 2024.

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Big Bluestem – Present and abundant in area sowed.

Cup Plant – Not present

Notes: Gray goldenrod hard to ID and did not focus on understanding Grey vs. Canada goldenrod for ID purposes in 2024. Should try in 2025. Did not spend time looking for fox sedge, dropseed, or prairie dock. Should check in 2025.

October 11, 2024 – A 5x5m plot was whipped to the 6" above ground level. After a heavy frost, a glyphosate herbicide will be applied to the area for an experimental approach.