

Agenda 13 February

- (15 min) Welcome and set the stage:
- (25 min) Breakouts (you decide which breakout to go to):
- Synergies: Who are all the groups in Kingston and Area involved in some aspect of trees that we should connect with? Trail network? Topics: 1) Sourcing trees: ideas & volunteers 2) Community synergies: who should we be connecting with 3) Ideas on how we build community around each Little Forest.
- (10 min) Sharing back from breakout rooms - main themes, synergies, actions in next 2 weeks
- (5 min) Recap any Action items or note any upcoming benchmarks
- (5 min) Finish

Meeting Notes 30 January 2021

Soil:

- Art of process is healing soil/amendments. Soil is going to be loaded with dormant seeds from alien species and establish easily. In restoring the prairie at the [Ojibwe Prairie Complex](#), they solarized for three years to clear the soil of invasive, non-native seedbank. A [bee species new to Canada](#) was just discovered in the park. "Eventually, she realized that the insect she was looking at under her microscope was the hibiscus or chimney bee — formally known as *Ptilothrix bombiformis*. The bee species is an American migrant and its arrival in Canada may be another example of how species are expanding their habitats due to climate change."
- Use mulch to protect the Little Forest against competing species. Also offers moisture retention, protection from temperature extremes, blankets against frost.
- Oliver uses woodchip paths (rather than mowed paths) to protect against ticks. Cedar woodchips make great paths.
- Oliver recommends against putting effort into species not likely to survive such as Elm and Butternut. We will, however, be planting Butternut seedlings from nuts collected from disease resistant trees.
- Suggests trying Blue Ash, native to Carolinian zone. In his inventory work in Windsor, he observes resistance to Emerald Ash borer.
- Beech Bark disease threatens Beech trees.
- White pine is prone to blister rust, but if it shows up, it affects trees individually.
- Suggestions around soil analysis: Determining the underlying mineral soil, depth, bedrock. Dictates soil chemistry. Moisture regimes. Soil types. Suggests uses soil augers to do soil sampling at least once on each site to get an idea of depth of soil.. Longer lived trees will dig deep and wide as they grow. When seeing trees, only seeing half (other half underground). Roots extend well beyond the drip line. May find different soil texture 50, 60, 70 cm below surface such as mixed clay loam then sand (from old lake). Then try to match species with soil.
- South & West tend to be drier than North and East facing. Applies to microsites, berms or moraines. Even a small berm of 6" facing a direction creates a microclimate.
- Research the Ecological Land Classification (ELC) system of Southern Ontario. Based on ecoregions across the province. Is a regimen and study of ecological sites, trees and their associations. We're in 6E. ELC lists forest types and is a way of classifying natural plant communities from cedar swamps to alvars. Look at the communities in 6E and choose the one best matched to soil type, dominant species desired and the associates.

- 6E Dry to fresh. Fresh to moist. 25% cover Sugar Maple. Ash, Beech, Birch. If you try to establish a site based on ELC natural associations, high chance of success. In our ecozone, no more than 25-30% evergreen species.
- 1000 Islands transitions between Carolian & Boreal forests. We have some Carolinian species as well as Boreal species such as Balsam fir. North facing slopes (microsite ecology), has Hemlock is. South facing slopes (and islands) have Pitch Pine
- Calciferous soil (on our two sites) has acid buffering capacity so will remain closer to neutral in terms of acidity (acidity won't build up like soil on granite bedrock).
- Conifers, only keep 4-5 years of foliage, dropping some each year. As needles build up, renders the top layer & humus more acidic. If underplanting, include more acid loving species.
- Best thing is berms, little hills and microclimates. As soon as you create four microsites (North South East West) you have different opportunities. Can use rotary disques. Slices soil like chunks of cheese in a 45 degree angle and flips over. Not more than a foot wide, a crest and a trough. Then if trying to grow Cedar or Larch, plant them in the bottom, then White Pine on the midslope.
- In doing site analysis, marks out 10x10 circular plots and 4 layers. Overstory, midstory (2-10m), under 2 metre (shrubs), under half a metre is your wildflowers and ferns. Under 1.5, under 2, 2-10 metres.
- Trees will migrate with climate change, so our region will change... the isotherms and bars on map that we establish as limits. Hardiness zones will change. So ok to plant Blue Ash, Tulip Tree, Kentucky Coffee Tree (Blue Ash on the endangered species list).
- Seed sourcing. CCRA might be a source. If not directly, find out where they procure.
- Ferguson has trees and shrubs. Hard to know the provenance if source from commercial nurseries.
- Suggests visit MalloryTown Landing Parks Canada to see a regenerated natural forest.
- In urban environments most soils are not natural. No soil horizons. Mixed compacted construction fill.
- Popular a good nurse tree. Leaves have very high nutrient content so very good for preparing soil for intermediate shade and climax. Mix of fast & slow growing trees good. Municipal context the issue is they grow fast & die fast.
- Outside edges slow growing birches & populars
- Towards middle pines
- On edges with deepest shade ironwood & sugar maple (high shade tolerance). Oliver will send a list with 1-5 scale of 4 basic requirements that different plants have. Heat, Light, Moisture, Nutrients.
- Biggest pitfall of moving trees is transplant shock. Takes 2-5 years for a 4cm tree to adapt to a new location. Almost no nurseries mark which is north. If transplant facing a different direction it messes up the tree. Stick or flag in pot to mark north. And plant at the same depth. Can tell pretty quickly if planted too deep even if planted 50 years ago. Roots don't like growing up. Change the microclimate of root balls (if planted higher) or pools water. Mulch volcanoes are bad.
- Norway maples were workhorse shade trees in yards for decades. Two issues: 1) very prolific at seeding and invasive. Most wish lists of trees for cities no longer include Norway Maples. Have very thick canopies. Don't let light through (often zero). 2) Solution is some good arboriculture. Thin the crown to increase light. Can use an app to analyze light penetration (take a picture of the tree canopy and figures out % of sky, foliage and rough % of light getting through. Plant shade tolerant species.
- A pet peeves is that because they recognize ecological services & benefits of trees a lot of municipalities are developing urban tree management plans that call for increasing canopy. He says city tree planting costs a lot (\$600-1000 for balled and burlap). Much easier to just stop cutting the grass and wait for natural succession. Can accelerate succession with some planting. Turf grass will take up all water.
- Notion of "green fertilizers" (e.g. nitrogen fixing trees) relatively new.

- Talk suggestions (would love as much advance notice as can give us. May & June are good times):
 - Forest Communities of SE Ontario
 - Creatures that will be coming to Little Forests
 - What's going on in terms of soil biology
- [Johnson Su method](#) of creating a fungally dominant compost (we should do this summer!)
- Overwatering or over fertilization creates an environment that's toxic and anaerobic. If overwater clay may end up with a perched water table.

Resources to dig into

Resources Oliver developed:

- Natural Heritage Review of the 1000 Islands:
<http://www.oliverkilian.com/ecology/thousand-islands/papers-reports/natural-heritage-review/1000-islands.html>
- Species Lists for the 1000 Islands Region (will be great for when we do our bioblitz)
http://www.oliverkilian.com/ecology/thousand-islands/species/tie_species_lists.html

Site change / Succession:

<http://www.oliverkilian.com/ecology/park-ecosystem-management/Figure10.jpg>

Follow Oliver on iNaturalist:

- Profile: <https://inaturalist.ca/people/arborsphere>
- Tree Issues: <https://inaturalist.ca/lists/414162-Tree-Issues>
- Kingston Project: <https://inaturalist.ca/projects/natural-history-of-the-kingston-study-area>
- 1000 Islands Project: <https://inaturalist.ca/projects/biodiversity-of-the-thousand-islands>

Resources to read:

- Ecological Land Classification (ELC) 101
- Ecosystems of Ontario Part 1: Ecozones and Ecoregions (deeper dive)
- The Ecosystems of Ontario, Part 2: Ecodistricts
- Presettlement Forest in Southern Ontario
- Differences between immature and mature ecosystems
- [Wildlife Food Habits](#) (I have a copy of this)

Things to know when planning:

- We're in Ecozone 6E. Carolinian Forest is 7E. Some species we'll be planting at Lakeside in the Edible/Carolinian Forest are 7E species (assisted migration).

Oliver says: "If nothing else, all that info about the wild stuff that's naturally going on around here should take your 'wildscaping' aspirations to the next level. Think of the ELC stuff as a cookbook and pick a "recipe" based on local site conditions. Which tasty dish(es) would you like to serve the next generation?"