

Pollinator Patch: how things progressed

This document contains an exemplar of how a pollinator garden design can change over the course of a project. These plans were developed for a pollinator patch that is located on the corner of 4th and Pemberton. Plans inevitably change throughout the project but this gives a starting point to build off and a template with which to communicate your ideas to others. A general plan might also need to be drafted prior to an application to the district or private owner for land use..

A drafted garden plan is your first opportunity to understand how the physical features of your site will shape how you achieve your intended purpose for the garden. Consider:

- How do the features of your site (e.g. the sun exposure, soil type, precipitation exposure, etc.) will affect what plants can grow where?
- Where are the logical places to put infrastructure features (eg. Pathways, water elements, benches, flowerbeds, educational materials, etc.)?

Zoning the Patch

In order to simplify designing a garden plan for this very oddly shaped site, the first step we took was to divide the area into zones by ecological conditions. Zone 1 receives full sun and has primarily dry sandy soil. Zone 2 receives sun to partial shade and retains more moisture than zone 1. Zone 3 is in almost complete shade and has very moist soil with a great deal of clay. Zone 4 receives both sun and partial shade and has medium soil moisture. Zone 5 receives full sun and retains some moisture. Zone 6 receives full sun and is already a productive garden that is mulched and regularly watered.

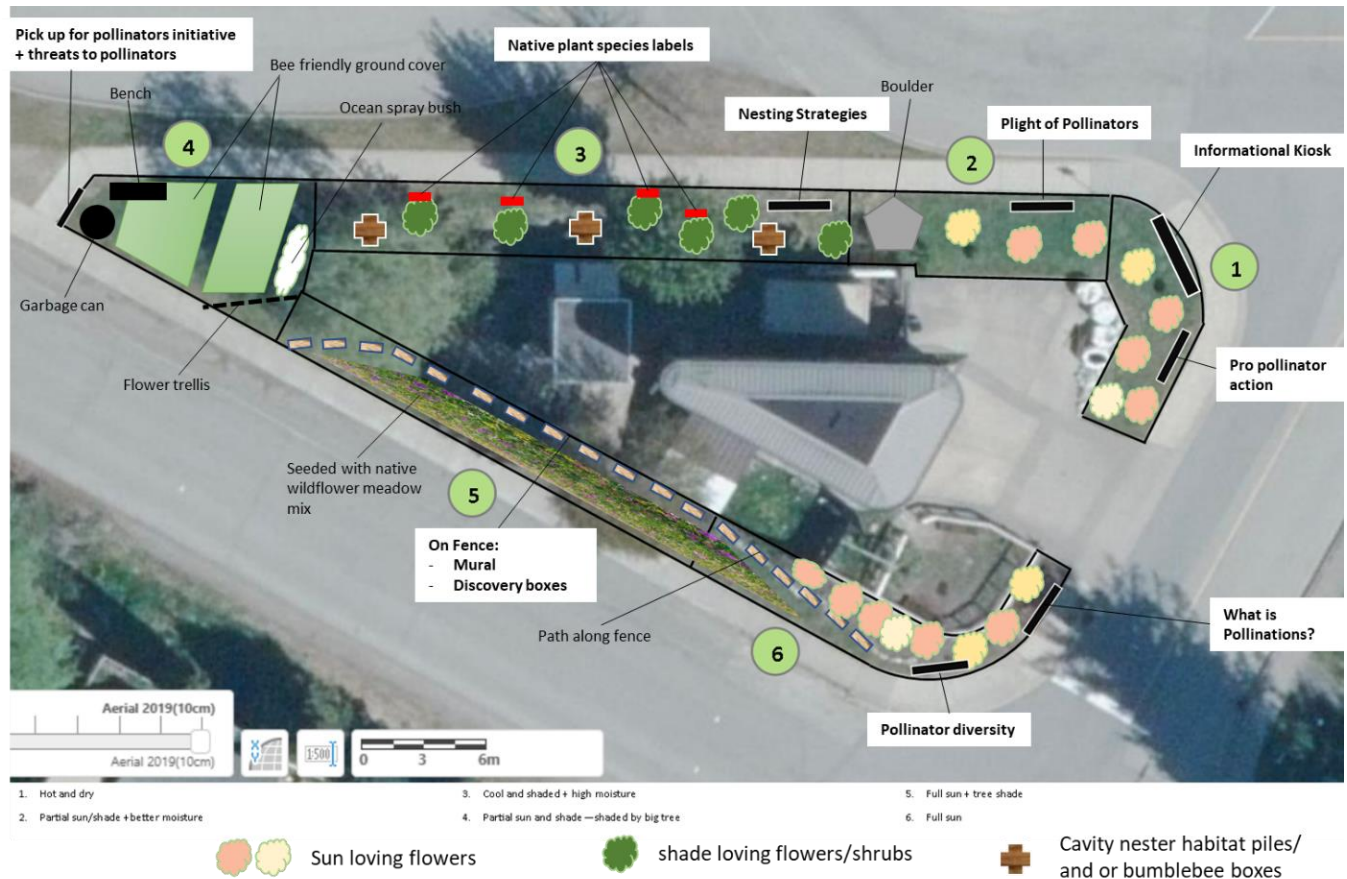


Draft 1



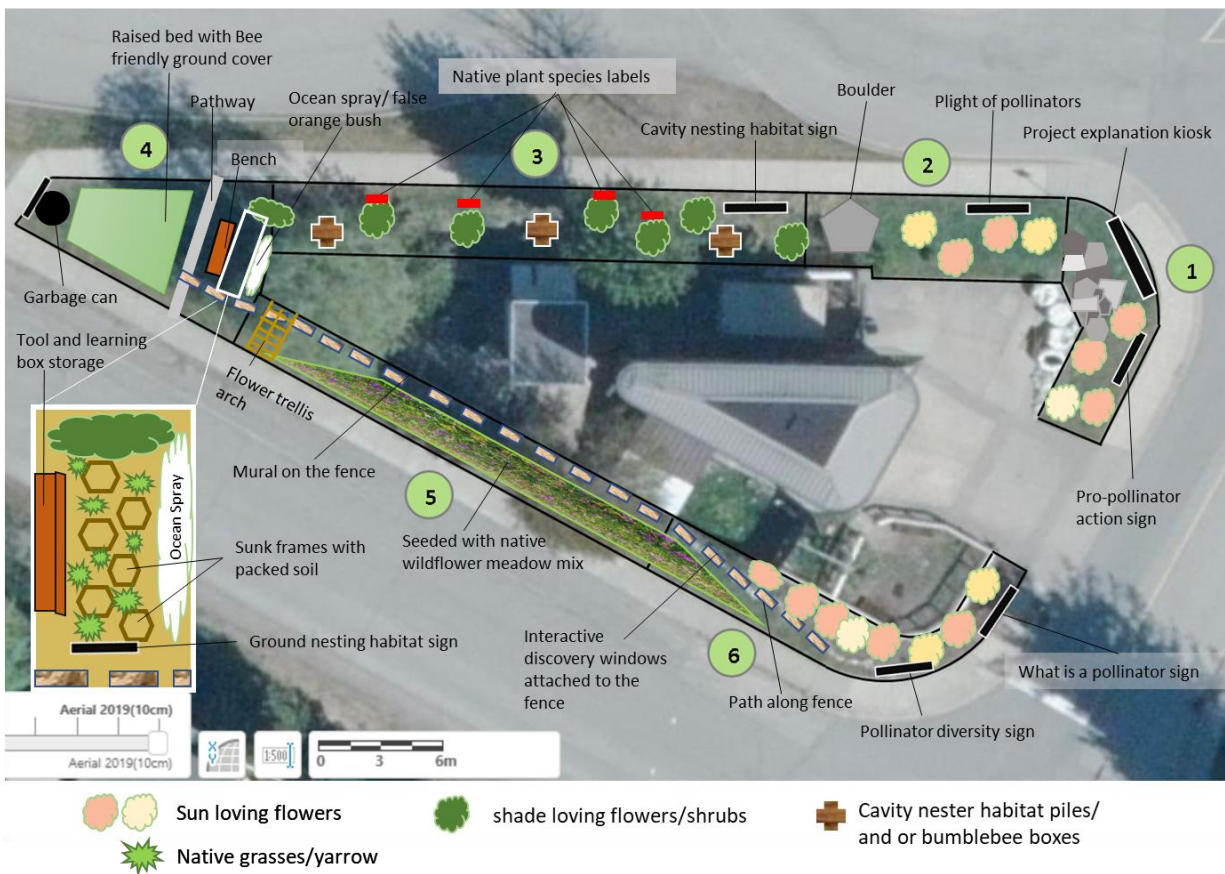
This first plan was not intended to be a fully fleshed out action plan with specifics (e.g. plant species, stone types, exact locations of elements), but a tool to start visualizing the potential and limitations of our space. It was created primarily using early ecological research and focused on matching plant types to the ecological conditions represented in the garden patch, matching educational elements to the landscape context that they will be most impactful in, and ensuring that all the habitat needs of pollinators are represented. Habitat needs included forage, ground nesting sites that were isolated from human foot traffic and cavity nesting sites composed of piled woody debris or wood installations with drilled holes. This plan also begins to address elements needed for passing community members to interact appropriately with the space, including pathways and garbage cans. Many of the elements of this plan remained, some were modified to be more effective in meeting our objectives, and some were removed in the face of new information. For example, the pollinator hotel that was planned for zone 1 was ultimately removed from the plan when research suggested that artificial nesting habitat might increase pollinator exposure to pathogens if not cleaned regularly or if improperly maintained. At this stage, we had yet to compile any lists of the specific plants we intended to use, reference the municipal landscaping bylaws, or confer with any local experts about best practices for the region.

Draft 2



This updated plan draft was created for a grant award presentation. One of the key elements of the successful application was how the pollinator patch would serve as an educational resource for the community and help raise awareness about pollinators. Thus, the educational elements of the plan are highlighted in this draft. Sign topics were updated to ensure that key information was accessible in the most logical locations for the audience to connect the contents of the sign to what they will see in the garden. Information that could be communicated in other ways than interpretive signage (i.e. native plant diversity, pollinator lifecycles) were included in the draft with explicit reference to their medium of delivery. This plan draft was completed after the creation of a native plant list suitable for survival in each zone and compliant with District wildlife friendly landscaping bylaws, as well as after consultation with local landscape and design experts. Major revisions to garden design are primarily in zones 4 and 5. Rather than select the exact location of each plant in zone 5, the entire area will be sown with a mixture of native medium-tall perennial wildflowers and native grasses to create a meadow effect that will separate the fence line walkway from the sidewalk. Rather than simply replace the grass monoculture with a bee friendly lawn mix, we considered turning that area into multiple raised beds in which to display multiple alternative ground cover options for public perusal. We also included a bench to deter pedestrians from walking across that space and to sit and interact with the space.

Draft 3



This is the full detail working draft which we submitted to the District of Squamish for approval to proceed with our first season of garden landscaping work. In full detail, the plan for creating the pollinator patch included the following;

Phase One: Zones 1-4

April, 2020: Area Prep

Soil Remediation Plan

The north side (zones 1-4) will have the top layer of turf removed and new dirt added, and will be tilled to mix the new dirt into the old soil. The south side (zones 5) will be remediated by a full season on lawn composting. The uplifted turf from the north side will be stacked upside-down on top of the south side lawn, and the whole area (zone 5) will be covered in black plastic for the summer and winter of 2020. The black plastic sheeting will both prevent light from reaching the grass beneath and contain heat, creating an environment within which the lawn of zone 5 will decompose and become fertile soil for planting in the following year. Zone 6 is currently a productive garden that is mulched to contain moisture.

Create watering plan based on soil assessment

- Hand watering and weeping soaker hoses

- District water restrictions

May, 2020: Garden conversion plan

The summer of 2020 will be dedicated to the conversion of Zones 1 -4 from non native lawn monoculture to a mixed landscape of native plant species that prefer shade conditions and moist soils (zone 3) and full sun and dry soils (zones 1-2). The first step will be to seed the newly bared ground with a cover crop of sweet Alyssum to prevent weed infestation during the incremental installation of other native flora throughout the summer. We will avoid invasive plants and will source mostly native, drought-resistant plants that align with Bear Aware guidelines. Floral composition in these zones will be devised in collaboration with Hawthorn Landscaping, drawing from a precompiled [Plant list](#) and their expertise in both Squamish municipality landscaping requirements and native flora species. Plant choices will be made within these parameters based on sourcing and availability, and also with attention to planting a variety of sizes, shapes, colors, and blooming periods to support the highest diversity of pollinator types.

A raised flower bed will be constructed in the western half of the large triangular Zone 4, to be seeded with an [alternative lawn](#) mix from WestCoast seeds that contains primarily hard fescue, perennial ryegrass and white yarrow, providing examples for the public of how they might start to move away from a traditional lawn. The eastern half of zone 4 will be converted into a combination of usable pedestrian space and ground nesting bee habitat. A path will be created that bisects across the zone along the trajectory that is commonly used by foot traffic leaving the alleyway across the street. A bench will be placed adjacent to this pathway, that will both provide seating and storage for garden users (i.e. storing tools for garden care and learning items). Behind the bench will be an area of packed dirt and clumped native grasses (See [Plant list](#)) that will serve as nesting habitat for ground nesting native pollinator species that particularly struggle to find habitat in urban areas. Hexagonal frames will be sunk into the packed soil to help mitigate erosion and draw visitor attention. Pedestrian entrance to the area will be deterred by an overhanging canopy of ocean spray or false orange bushes planted next to the fence, pithy stemmed bushes (pacific ninebark, hydrangea) on the northern side (good for cavity nesting pollinator species), and an informational sign detailing the habitat needs and lifecycles of ground nesting pollinators on the southern side.

In addition to the assistance of Hawthorn Landscaping, The Squamish Men's Shed has graciously agreed to assist with the carpentry required for the implementation of this garden plan (i.e the bench, the raised garden bed, and various educational signs). Labor for the remediation, lawn removal, and planting will be done incrementally and/or with the assistance of volunteers (from the Quest university student body, Quest bee club, Squamish citizenry). Long Term maintenance will include regular selective weeding, end of season trimming/cutting back, and some mulching (only where necessary).

Phase 2: Zones 5-6

Over the course of the first season and through the winter, the lawn of zone 5 will be covered in an additional layer of turf and then black plastic and left to compost into soil. In the fall of the first season and in the spring of the second, the newly decomposed soil of this zone will be seeded with a wide variety of medium height native wildflowers, grasses, and herbs (SEE Plant List) to create a wildflower meadow that adheres to the same drought resistant, bear-aware, non-invasive criteria as the plants in zone 1-4). Zone 6, which is already a productive garden that hosts primarily lavender plants, will be augmented with additional perennial flower species. Basalt flagstones or similar will be salvage sourced from other remodeling projects in the community and used to construct a pathway that runs from the sidewalk along the fence through zone 5. This pathway will draw pedestrians into the garden space and give them access

to the learning materials and mural that is planned for installation on the fence. At the western end of the fence, where zone 5 meets zone 4, the basalt pathway will continue to merge with the pathway that will bisect zone 4 north to south. At the western end on the zone 5 pathway, an archway will be constructed over the path on which a climbing floral species (XXX) will be encouraged to grow. This installation and its flowers is intended specifically to provide forage for hummingbirds, as well as aesthetic value.

Longterm:

Over the long term, a series of educational elements will be installed in the garden, with the timeline for construction and installation to be when it is feasible with funding and with prospective partner availability. These educational elements will include:

Interpretive signage for:

- Project explanation and progress information
- Pro- pollinator action for community members
- What is pollination
- Native pollinator diversity
- Pollinator nesting habitat
- Land stewardship /urban threats to pollinators
- Plight of pollinators (Global declines and their driving forces)

Fence mural

- in cooperating with the Squamish mural project

Discovery windows on the fence

- cabinet style information portals on the fence that describe different pollinator lifecycles

Self-guided learning boxes (stored in bench)

- Developed in conjunction with the k-12 curriculum, these boxes provide teachers and parents the material and a guide to teach children about big ideas that pollinators are a part of (e.g. Environmental stewardship, Agriculture, biodiversity, counting etc.)

Project Timeline

April, 2020: Lawn removal and soil remediation for Zones 1-4

May, 2020: Installation of plants in Zones 1-4

June-August 2020: establishment of plants

Ongoing maintenance:

- o Hand watering augmented by weeping soaker hoses
- o Weeding of beds

September, 2020

October, 2020

April, 2021: installation prep for planting

May, 2021: installation of second phase area (zones 5-6)

June-August 2021: maintenance

Ongoing maintenance

- Hand watering augmented by weeping soaker hoses

September, 2021

- Maintenance of last year