Restoring a Pollinator Boulevard at Terra Vita Design & Garden, Fernwood, Victoria, BC

Final Report – Restoration of Natural Systems Diploma, Capstone Project

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ABSTRACT

Urban pollinator populations are declining due to habitat loss, and boulevard gardens offer a practical opportunity to restore ecological function in small, high-visibility public spaces. This project restored the eastern boulevard of Terra Vita Design & Garden at 1240 Princess Avenue, Fernwood, Victoria, BC, transforming 52.5 m² of invasive grasses, weedy volunteers, and incoherent ornamental plantings into a drought-resilient pollinator garden. Working in collaboration with Terra Vita owner Jenelle Quitsberg, we assessed site conditions, designed and installed a garden of 31 species with continuous bloom succession from February through October, built a flagstone pathway, installed interpretive signage, developed webpage content for public education, and developed a seasonal monitoring and maintenance protocol. Species selection involved evaluating plants by ecological function and context rather than origin alone, resulting in a mix of 16 native and 15 non-native species chosen for drought resilience, pollinator value, and structural diversity. The garden survived its first winter and is showing early spring growth, though couchgrass regrowth confirms that invasive species management will remain an ongoing challenge. Consistent watering through the summer drought season and persistent weeding of couchgrass are the two most critical factors in the garden's establishment. A first-year assessment following the 2026 growing season will determine survival rates, bloom performance, and any species requiring replacement. The project demonstrates that restoration principles can translate to small urban sites through collaboration between restoration practitioners and commercial landscapers, using publicly available tools and regionally specific guidance.

1. INTRODUCTION

1.1 Pollinator Decline and Urban Habitat Fragmentation

Pollinators are critical to ecosystem function, yet many species are at risk across North America. A recent assessment found that 22.6% of native pollinator species in the United States and Canada are at elevated risk of extinction, with bees among the most threatened groups. Although the proportion of at-risk species is lower in Canada (~10%), habitat loss, climate change, and land-use change continue to place pressure on pollinator populations, particularly in northern and western regions such as British Columbia (Cornelisse et al., 2025). Many at-risk pollinators depend on woodland, grassland, and shrubland ecosystems and these habitat types have been extensively reduced and fragmented across southern Vancouver Island. In the Coastal Douglas-fir zone, Garry oak (*Quercus garryana*) ecosystems are among the most biodiverse but threatened in Canada, with less than five percent of their historical extent remaining (GOERT, 2011).

Urban landscapes contribute to habitat fragmentation but also present meaningful opportunities for ecological intervention. Small, well-designed urban green spaces can function as habitat nodes within fragmented landscapes, supporting pollinators and strengthening ecological connectivity (Brown et al., 2024). A three-year study across 18 Vancouver parks found that converting lawns to wildflower meadows increased local pollinator richness by 21 to 47 species per site, with over 100 species recorded total and 35 found exclusively in meadow plots (Ulrich & Sargent, 2025). Boulevard gardens cannot replace intact Garry oak habitat, but they can contribute to a network of refugia and reconnect residents with the plant communities of their bioregion. In Victoria, BC, are publicly owned, privately maintained, and walked past daily, positioning them at the intersection of ecological function and community life. Higgs et al. (2014) argue that contemporary restoration must evolve beyond technical ecological goals to integrate cultural meaning, aesthetics, and long-term social engagement. A high-visibility urban boulevard is the kind of site where ecological function and public education can reinforce each other.

This project's approach to species selection is grounded in ecological function and context rather than origin alone. Urban sites like this boulevard have been so thoroughly shaped by land conversion, soil modification, and contamination that Hobbs, Higgs, and Harris (2009) would classify them as novel ecosystems: systems whose species composition and function have been transformed beyond any recoverable historical state. For such systems, Hobbs et al. (2009) argue that management goals should be assessed through functional criteria rather than historical fidelity, asking whether the system provides ecosystem services, supports resilience, and can mature along a stable trajectory. Borrowing the concept from Kimmerer (2013), this project asks whether a plant is a good neighbour: does it contribute to its community and support the relationships that make a place ecologically alive? Together, these perspectives form the foundation for the design approach taken in this project, applied in detail in Section 3.2.

1.3 Project Overview and Goals

This project restores and redesigns the eastern boulevard of Terra Vita Design & Garden at 1240 Princess Avenue, Fernwood, Victoria, BC. Terra Vita's owner, Jenelle Quitsberg, has a background in environmental management, horticulture, and herbalism, and a clear interest in developing the property as a public teaching and demonstration site. Before this project, the boulevard supported an ecologically incoherent mix of invasive species, weedy volunteers, and ornamentals that did not reflect Terra Vita's values or aspirations. The project blends ecological restoration with interpretive design, treating the installation of a beautiful, functional garden as itself an act of public education. Two goals guided the work:

Goal 1: Lay the foundation for long-term ecological function and establish the garden as a public demonstration site.
Objective 1.1: Assess current soil, species composition, sun exposure, watering, and drainage to inform the new garden and maintenance plan.
Objective 1.2: Design a pollinator-friendly and drought-resilient garden, including native and non-native species, an inviting flagstone pathway, and functional pollinator habitat.
Objective 1.3: Remove invasive and poorly adapted species.
Objective 1.4: Install plants, pathways, pollinator habitat features, and appropriate mulch to support soil health, water retention, and weed suppression.
Objective 1.5: Establish a maintenance and monitoring protocol, including observational tools for tracking watering, plant health, non-native species spread, and pollinator presence.
Goal 2: Enhance the educational value of the garden for passersby to engage with and learn about drought-resilient pollinator gardens.
Objective 2.1: Develop a webpage hosted on terravitadesign.com that explains drought-resilient pollinator gardens using the boulevard as a case study, with species highlights, maintenance guidance, native/non-native discussion, and DIY pollinator garden tips.
Objective 2.2: Develop and install 2–3 interpretive signs on-site that highlight key garden features and link to the webpage.

2. STUDY AREA

2.1 Location and Site Description

The project site is the eastern boulevard of the Terra Vita Design & Garden property at 1240 Princess Avenue, Fernwood, Victoria, BC (48°25'57.48"N, 123°20'51.16"W; elevation 29 m). The strip measures 21 m by 2.5 m, covering 52.5 m². It is bounded by a concrete sidewalk to the east and south, an asphalt driveway to the north, and a chain-link fence to the west, beyond which the soil continues into the main property garden. A cherry plum (*Prunus cerasifera*) maintained by the City of Victoria anchors the middle of the strip. The site receives full sun throughout the day with a south-facing aspect, creating a very hot, drought-stressed area (Figure 1) (Figure 2).

This project takes place on the traditional and unceded territories of the lək̓ʷəŋən peoples, including the Songhees and Esquimalt Nations, whose stewardship shaped the Garry oak ecosystems that define this bioregion. This project did not engage Indigenous knowledge holders or communities directly, but it acknowledges that the ecological relationships it seeks to restore exist within a rich and ongoing context of Indigenous land care.

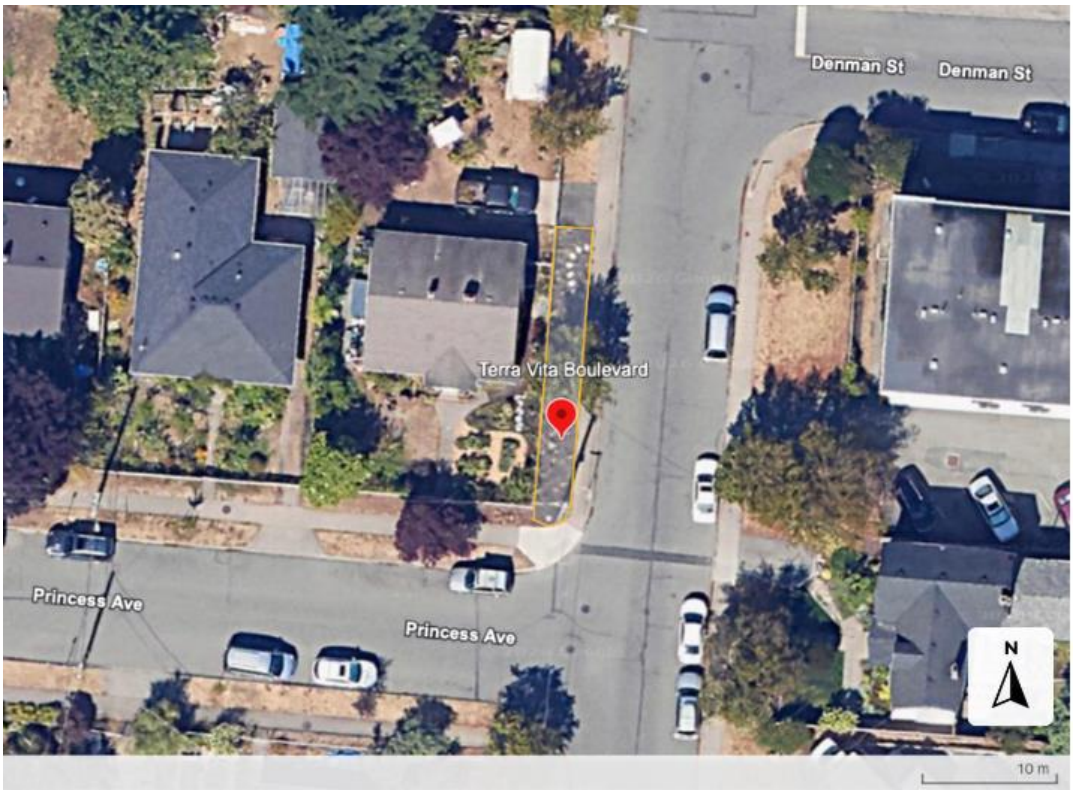

Figure 1. Terra Vita Boulevard restoration site (outlined in orange), 1240 Princess Avenue, Fernwood, Victoria, BC (48°25'57.48"N, 123°20'51.16"W; elevation 29 m). Source: Google Earth, 2025.

Figure 2. The Terra Vita Boulevard. Photos: S. Mains, June 2025.

2.2 Ecological and Neighbourhood Context

The site lies within the Coastal Douglas-fir moist maritime (CDFmm) biogeoclimatic zone, characterized by mild winters and dry summers. The surrounding Fernwood neighbourhood is pedestrian-active and family-oriented, with Fernwood Community Centre, Victoria High School, George Jay Elementary, the Fernwood Community Garden, and the Compost Education Centre all within 400 m.

2.3 Land Use History and Regulatory Context

According to oral history from Jenelle Quitsberg, the area behind the property is believed to have been a quarry. A brewery formerly operated across the road with possible waste disposal on adjacent lots. This land-use history left a measurable mark on soil conditions (Section 2.4). The boulevard strip is City of Victoria property. Under the City's Boulevard Gardening Guidelines (City of Victoria, 2019), adjacent property owners may transform boulevard lawns into ornamental or edible gardens, subject to conditions including plant height limits, pedestrian access, and tidiness. Jenelle first transformed the boulevard from lawn to garden bed in 2020, but due to lack of time for maintenance, it was quickly colonized by invasive grasses and weedy volunteers.

2.4 Soil Conditions

Soil texture is silt and sand with good drainage. An important finding was severe surface hydrophobicity. Water ran off rather than infiltrating, limiting root moisture availability and contributing to poor plant establishment. Despite this, microscopic assessment conducted in collaboration with Laura Fraser (Section 3.1) revealed a biologically active soil community including bacteria, ciliates, flagellates, fungi, amoeba, and protozoa, indicating a stressed but functional soil food web with restoration potential.

Heavy metal analysis through the Compost Education Centre's Healing City Soils program (2023) detected elevated concentrations of chromium, copper, and nickel at sample OB-54-B, the location closest to the boulevard strip, exceeding CCME Soil Quality Guidelines for both agricultural and residential land use (Table 2). These findings are consistent with the site's industrial history and confirm that planting for edible use was inadvisable.

Table 2. Heavy metal concentrations (mg/kg) at 1240 Princess Avenue. Values in red exceed CCME guidelines.

Sample Location	Cr (mg/kg)	Cu (mg/kg)	Ni (mg/kg)	Pb (mg/kg)	Zn (mg/kg)
OB-54-A: Backyard	60.9	62.9	**121.0**	62.7	159.2
OB-54-B: Driveway/boulevard	**66.2**	**67.0**	**94.2**	64.2	165.9
OB-54-C: Front garden	60.5	**83.6**	30.9	**187.1**	**416.1**
CCME Agricultural	64	63	45	70	250
CCME Residential	64	63	45	140	250

Source: Compost Education Centre, Healing City Soils Program, 2023, provided by Jenelle

2.5 Pre-Restoration Vegetation

Before restoration, the boulevard supported over 30 species: aggressive spreaders, weedy volunteers, intentional ornamentals, and a very small number of native species (Table 3). Couchgrass (Elymus repens) was the dominant concern as a rhizomatous Eurasian species capable of regenerating from root fragments and suppressing neighbouring vegetation - aggressive spreader. Many intentional ornamentals, including lavender, salvias, brachyglottis, and Mexican feather grass, had ecological value but lacked design coherence. The boulevard had an unfinished flagstone pathway. The site did support some existing pollinator habitat features, including bare ground, bunchgrasses, and plants with sturdy stems that remained standing through autumn

Table 3. Plant species documented at the Terra Vita Boulevard before restoration.

Scientific Name	Common Name	Origin	Status and Character
Achillea millefolium	Yarrow	Native	Native perennial forb, pollinator value
Anethum graveolens	Dill	Introduced	Weedy volunteer
Artemisia suksdorfii	Coastal mugwort	Native	Native rhizomatous perennial forb, pollinator value

Brachyglottis (Dunedin Group) 'Sunshine'	Brachyglottis	Introduced	Intentional ornamental, evergreen shrub
Brassica oleracea var. sabellica	Kale	Introduced	Weedy volunteer
Bromus rigidus	Ripgut brome	Introduced	Volunteer, aggressive self-seeder, dangerous to dogs
Elymus repens	Couchgrass	Introduced	Volunteer, very aggressive spreader
Foeniculum vulgare	Wild fennel	Introduced	Weedy volunteer, aggressive self-seeder
Geranium sp.	Geranium/cranesbill	Introduced	Intentional ornamental
Helianthemum 'Ben Ledi'	Rock rose	Introduced	Intentional ornamental, drought-tolerant groundcover
Hemerocallis sp.	Day lily	Introduced	Intentional ornamental, rhizomatous perennial
Hypochaeris radicata	Cat's ear	Introduced	Weedy volunteer, aggressive spreader
Iris sp.	Iris	Introduced	Intentional ornamental, bulb
Lavandula angustifolia	Lavender	Introduced	Intentional ornamental, drought-tolerant, pollinator value
Libertia chilensis	Chilean iris	Introduced	Intentional ornamental, grass-like perennial
Mahonia aquifolium	Oregon grape	Native	Native evergreen shrub, early pollinator value
Nassella tenuissima	Mexican feather grass	Introduced	Intentional ornamental, bunchgrass, habitat structure
Origanum vulgare	Oregano	Introduced	Intentional ornamental, spreading
Phlomis russeliana	Phlomis	Introduced	Intentional ornamental
Plantago lanceolata	Ribwort plantain	Introduced	Weedy volunteer
Prostanthera cuneata	Alpine mint bush	Introduced	Intentional ornamental, evergreen shrub
Prunus cerasifera	Cherry plum	Introduced	City-maintained boulevard tree
Salvia microphylla 'Hot Lips'	Hotlips salvia	Introduced	Intentional ornamental, pollinator value
Salvia nemorosa 'Caradonna'	Salvia 'Caradonna'	Introduced	Intentional ornamental, pollinator value
Sedum spectabile 'Autumn Joy'	Autumn Joy sedum	Introduced	Intentional ornamental, late-season bloom
Sisymbrium officinale	Hedge mustard	Introduced	Weedy volunteer
Solidago lepida	Canada goldenrod	Native	Native rhizomatous perennial forb, pollinator value
Symphyotrichum chilense	California aster	Native	Native perennial forb, pollinator value
Taraxacum officinale	Common dandelion	Introduced	Weedy volunteer, pollinator forage value
Trifolium pratense	Red clover	Introduced	Weedy volunteer, pollinator forage value
Verbena bonariensis	Verbena	Introduced	Intentional ornamental, self-seeding, pollinator value

Sources: Personal communication with Jenelle Quitsberg, iNaturalist, and the BC Invasive Species Council database for invasive status.

3. METHODS

The work was carried out between August 2025 and March 2026 in collaboration with Jenelle Quitsberg, owner of Terra Vita Design & Garden.

3.1 Site Assessment

Site assessment was conducted in August 2025 through field observation, oral consultation, soil analysis, and plant inventory.

The primary assessment involved a walk of the boulevard with Jenelle Quitsberg, during which site conditions were documented in a field notebook. Jenelle's experience tending the site provided an important data source: she supplied detailed oral history on sun exposure patterns, surface drainage, soil moisture retention, and the intensity of traffic along the strip. Personal observations confirmed her insights.

Soil physical properties were assessed through field observation and microscopic analysis. Microscopic analysis was done in collaboration with Laura Fraser, a Terra Vita colleague with training in soil analysis. Using Laura's microscope, we examined a single Boulevard soil sample taken from the center of the boulevard, between the southern edge and the Cherry Plum *(Prunus cerasifera)* to assess biological activity. Findings are reported in Section 2.4. Heavy metal data was obtained from Jenelle's participation in the Compost Education Centre's Healing City Soils program in 2023. Data confirmed the plant list would not include agricultural species (Section 2.4, Table 2).

Plant inventory was recorded by walking the site, section by section, identifying all species present in the Boulevard, then typed into a spreadsheet that would become the working plant list. Species were identified using visual recognition, the iNaturalist app, and cross-referenced against the BC Invasive Species Council database for invasive status and specific management recommendations. The recorded list was reviewed with Jenelle, who identified which plants had been intentionally established and which had arrived as volunteers. Findings are reported in Section 2.5, Table 3.

3.2 Garden Design

Garden design was developed in multiple steps, starting in August 2025. Jenelle provided a list of favourite plants that represent Terra Vita's design approach, from which I made a selection informed by pollinator project research. I then selected plants from the pre-restoration inventory (Section 2.5 Table 3) that were desirable and completed the list with additional native species that were either existing elsewhere on Terra Vita property or available for purchase at local native nurseries.

Species selection applied the middle-ground framework and "good neighbour" approach described in Section 1.2. Volunteer plants already on site were assessed for invasive risk, competitive behaviour, ecological function, and compatibility with the garden's design and

educational goals. Plant selection also drew on the Satinflower Nurseries pollinator plant guide (Satinflower Nurseries, 2020), the Pollinator Partnership Canada planting guide for the Eastern Vancouver Island ecoregion (Pollinator Partnership Canada, 2017), the Native Bee Society of BC Seasonal Forage Guide (Native Bee Society of BC, 2024) and the Stellata Plants pollinator species list (Stellata Plants, 2025). Species were required to be drought-resilient, deer-resilient, adapted to full sun exposure, as per site conditions, and provide continuous bloom succession from early spring through late autumn to ensure continuous foraging, as well as pollinator nesting and overwintering resources (Pollinator Partnership Canada, 2017; Xerces Society, 2019). Jenelle's design principles guided the overall composition: a mix of groundcovers, shrubs, grasses, bulbs, and herbaceous perennials offering varied structure and texture, with enough spacing to avoid crowding.

Hardscape design included flagstone pathways to support community engagement and the discovery of pollinator plants.

With the plant list finalized, Jenelle and I collaborated on a garden design layout using CAD landscape design software. Jenelle ordered missing plants from Stellata Plants in Saanichton, BC, and Satinflower Nurseries in Metchosin, BC. The final plant list and design outcomes are reported in Section 4.

3.3 Site Preparation

Site preparation was carried out in October 2025. Weedy volunteers and aggressive spreaders, primarily couchgrass (*Elymus repens*), ripgut brome (*Bromus rigidus*), and wild fennel (*Foeniculum vulgare*), were removed by hand-pulling to ensure rhizomatous roots were removed as much as possible, as opposed to using a garden fork or hoe. Using glyphosate was not an option due to its negative effects on bee health (Pollinator Partnership Canada, 2017; Xerces Society, 2019). Intentional ornamentals that no longer fit the new design were transplanted elsewhere on the property.

3.4 Planting and Installation

Planting was carried out in November 2025 after the autumn rains began, reducing the need for supplemental watering. All new plantings were watered in with a transplanter fertilizer (5-15-5 NPK) to encourage root growth, per Jenelle’s expert recommendation. Two drip irrigation lines were laid along the front and back of the boulevard, positioned to connect to the house for daily watering during summer drought months. This method was selected to reduce water waste and evaporation and to deliver moisture directly to root zones despite the hydrophobic surface layer identified during assessment.

Over the irrigation lines, salvaged unwaxed cardboard free of tape, staples, and printed coatings was laid as sheet mulch to suppress aggressive weeds during the establishment period. Dark bark mulch was applied over the cardboard to further suppress weeds and hold the cardboard in place. No compost was added to avoid accelerating cardboard breakdown, given that soil analysis had already confirmed an active soil food web (Section 2.4). Five salvaged flagstones

were added to complete the pathway through the garden. The species composition, planting quantities, and layout of the completed garden are reported in Section 4.

3.5 Educational Materials Development

Plant identification pins were used to help passersby identify species. They were sourced from Terra Vita's shed and identified with handwritten common and scientific plant names.

Two interpretive signs were developed and installed. The first interpretive was a piece of driftwood legally sourced from a local beach (approximately 60 cm) on which I carved outlines of pollinator insects and the Terra Vita logo, using a wood-burning tool. I attached the sign to the chain-link fence with brackets and screws. The second was a 5x7 aluminum sign I designed in Canva and had printed by the online service VistaPrint. The aluminum sign helps the community understand the garden's purpose and invites them to terravita.com to learn more. Both signs comply with the City of Victoria's boulevard guidelines, which permit temporary installations that do not obstruct pedestrian access (City of Victoria, 2019). Interpretive signage is a recommended practice for public demonstration gardens (Pollinator Partnership Canada, 2017) and serves as a point of connection between passersby and Terra Vita's services.

Webpage content for terravitadesign.com was developed between February 2026 and March 2026, drawing on species research, site photographs, and the ecological literature informing the design. Content was structured for a general public audience with an interest in gardening.

3.6 Monitoring and Maintenance Protocol

A seasonal monitoring and maintenance protocol was developed and delivered to Jenelle Quitsberg and the Terra Vita garden crew to support the garden's long-term ecological function. The protocol draws on the Xerces Society Habitat Assessment Guide (Xerces Society, 2019) and is structured as a seasonal checklist organized around plant health, soil and irrigation management, weed management, pollinator habitat care, and community engagement. The protocol is presented in Appendix B.

4. Results

Site assessment (Section 3.1) established the baseline conditions reported in Section 2, which directly informed the design decisions that followed.

4.1 Garden Design Outcomes

The collaborative design process (Section 3.2) produced a garden designed for continuous bloom succession from early spring through late autumn, with structural diversity ranging from low groundcovers to mid-height perennials to tall grasses and shrubs. The final plant list includes 31 species (16 native, 15 non-native) totalling 239 individual plants. Of these, 118 were

already present on the property. The remaining 121 were ordered from Stellata Plants and Satinflower Nurseries. Plants retained from the pre-restoration garden included established lavender, salvias, goldenrod, Mexican feather grass, and native species that met the selection criteria described in Section 3.2. Table 4 below lists the plants that were planted. A comprehensive plant list with quantities is found in Appendix A.

Bloom succession spans early spring (camas, Oregon grape, crocus) through late autumn (goldenrod, Autumn Joy sedum, California aster), providing continuous pollinator forage across the growing season. Plant structure varies from low groundcovers (creeping thyme, broad-leaved stonecrop, rock rose) to mid-height perennials (yarrow, salvia, lavender) to tall grasses and shrubs (Mexican feather grass, Peruvian feather grass, Oregon grape, alpine mint bush), creating a layered habitat for foraging, nesting, and overwintering. Jenelle Quitsberg's landscape design plan (Figure 3) guided the spatial arrangement of species across the 21 m strip.

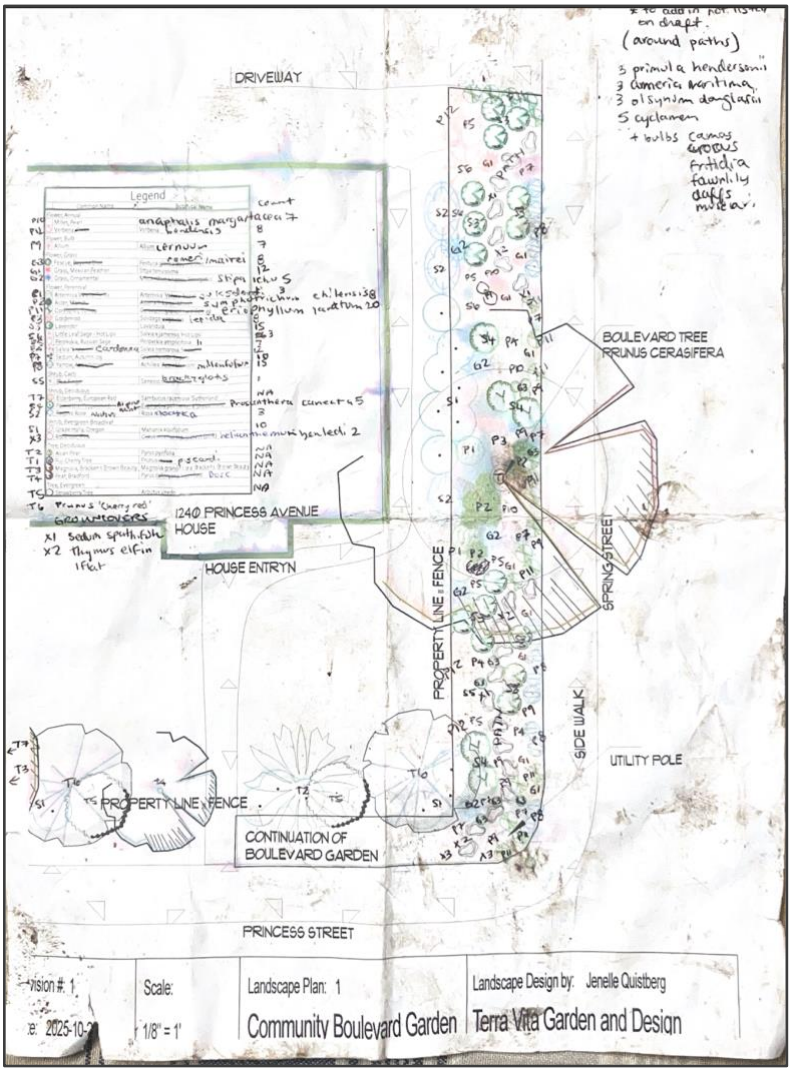

Figure 3. Landscape design sketch for the boulevard garden. Landscape design by Jenelle Quitsberg, Terra Vita Garden and Design, on CAD, October 2025.

Table 4. Final plant selection for the boulevard, including species, bloom period, origin, and habit

Scientific Name	Common Name	Bloom Period	Origin	Habit / Structure
Achillea millefolium	Yarrow	May-Sep	Native	Rhizomatous perennial forb
Allium cernuum	Nodding Onion	May-Jul	Native	Perennial forb (bulb)
Anaphalis margaritacea	Pearly Everlasting	Jun-Aug	Native	Rhizomatous perennial forb
Armeria maritima	Sea Thrift	May-Jul	Native	Taprooted perennial forb
Artemisia suksdorfii	Coastal Mugwort	Jun-Jul	Native	Rhizomatous perennial forb
Camassia quamash ssp. maxima	Common Camas	Apr-Jun	Native	Perennial forb (bulb)
Cerastium arvense	Field Chickweed	Apr-Jun	Native	Perennial forb
Eriophyllum lanatum	Woolly Sunflower	May-Aug	Native	Perennial forb
Festuca roemeri	Roemer's Fescue	May-Jun	Native	Perennial bunchgrass
Mahonia aquifolium	Oregon-grape	Mar-May	Native	Evergreen shrub
Olsynium douglasii	Satinflower	Feb-Apr	Native	Perennial forb (bulb)
Primula hendersonii	Broad-leaved Shootingstar	Mar-May	Native	Perennial forb
Rosa nutkana	Nootka Rose	May-Jul	Native	Deciduous shrub
Sedum spathulifolium	Broad-leaved Stonecrop	May-Jun	Native	Evergreen succulent groundcover
Solidago lepida	Canada Goldenrod	Aug-Sep	Native	Rhizomatous perennial forb
Symphyotrichum chilense	California Aster	Jul-Sep	Native	Perennial forb
Antirrhinum molle	Dwarf Snapdragon	Jul-Sep	Introduced	Semi-evergreen groundcover
Crocus spp.	Crocus	Feb-Mar	Introduced	Perennial forb (corm)
Helianthemum 'Ben Ledi'	Rock Rose	May-Jun	Introduced	Evergreen groundcover
Lavandula angustifolia	Lavender	Jun-Aug	Introduced	Evergreen subshrub
Perovskia atriplicifolia	Russian Sage	Jul-Oct	Introduced	Deciduous subshrub
Prostanthera cuneata	Alpine Mint Bush	Jun-Sep	Introduced	Evergreen shrub
Salvia microphylla 'Hot Lips'	Hotlips Salvia	Jun-Oct	Introduced	Herbaceous evergreen perennial
Salvia nemorosa 'Caradonna'	Salvia 'Caradonna'	May-Oct	Introduced	Herbaceous perennial
Sedum spectabile 'Autumn Joy'	Autumn Joy Sedum	Aug-Sep	Introduced	Evergreen upright succulent
Senecio greyi (Brachyglottis)	Brachyglottis Sunshine	Jun-Aug	Introduced	Evergreen shrub
Stipa tenuissima	Mexican Feather Grass	Jun-Aug	Introduced	Bunchgrass
Stipa ichu	Peruvian Feather Grass	Jul-Sep	Introduced	Bunchgrass
Thymus serpyllum 'Elfin'	Creeping Thyme	Jun-Aug	Introduced	Evergreen groundcover
Verbena bonariensis	Verbena	Jul-Oct	Introduced	Herbaceous perennial (self-seeding)
Prunus cerasifera	Cherry Plum	Mar-Apr	Introduced	Deciduous tree

Sources: Satinflower Nurseries (2020), Pollinator Partnership Canada (2017), Stellata Plants (2025), and personal communication from Jenelle Quitsberg.

4.2 Site Preparation and Installation

Site preparation in October 2025 removed aggressive spreaders, weedy volunteers and relocated ornamentals that were not adapted to site conditions or of no value to pollinators (Secton 3.3). Planting followed in November 2025 after the autumn rains. Drip irrigation, sheet mulching, and bark mulch were installed to support establishment (Section 3.4). Five salvaged flagstones completed the pathway.

Figure 4. The boulevard garden before restoration. Notice the dry couchgrass and ripgut brome, wild fennel, and lack of overall design and management. Photos: S. Mains, June 2025.

Figure 5. The boulevard garden following restoration. Some plantings are very small and nearly invisible in photos - visit in person if you can. Photos: S. Mains, November 2025.

4.3 Educational Materials

Three types of interpretive materials were installed in the garden (Section 3.5). Plant identification pins were placed strategically away from pathways and visible to passersby. A hand-carved driftwood sign featuring a variety of native pollinators and the Terra Vita logo was installed on the chain-link fence. A printed aluminum sign (5x7) was installed on the fence, inviting visitors to the Terra Vita website to learn more about pollinator gardens (Figure 6).

Figure 6. Interpretive signage installed at the boulevard garden: driftwood sign (top), aluminum plant identification pins (left), and printed aluminum sign (right). Photos: S. Mains, December 2025.

Webpage content for terravitadesign.com/education was drafted and submitted to Jenelle for review. The content covers the design rationale for the boulevard garden, profiles of key species with pollinator value and care notes, an accessible discussion of native and non-native species in urban gardens, and practical guidance for readers wishing to create their own pollinator gardens. The content is under review. Publication is pending.

4.4 Monitoring and Maintenance Protocol

A seasonal monitoring and maintenance protocol was developed and delivered to Jenelle and the Terra Vita garden crew. The protocol provides a maintenance checklist for each of the four seasons, organized around five components: plant health, soil health, weed management, pollinator habitat, and community (Appendix B).

4.5 Early Observations

As of March 2026, the garden is emerging from its first winter. Initial observations indicate that the garden is waking up slowly, with early signs of spring growth. The Terra Vita crew has already conducted weeding, targeting the gradual return of couchgrass and ripgut brome, and cutting back of dead stems. Weed management will be an ongoing requirement, consistent with the monitoring protocol. A full assessment of first-year establishment success, including survival rates and bloom performance, will be possible following the first complete growing season (spring through autumn 2026).

Figure 7. The boulevard garden 4 months after installation. Photos: Laura Fraser, March 2026

5. DISCUSSION

This project met its core goals. The boulevard garden is installed, designed for continuous bloom succession, structural diversity, and pollinator habitat. Interpretive signage is in place, the monitoring protocol has been delivered to Terra Vita, and webpage content has been drafted and submitted for review. Two deliverables remain in progress: the webpage is not yet live on terravitadesign.com, and the monitoring protocol has been delivered but not yet tested through a full growing season.

5.1 What Worked

The collaborative model with Jenelle Quitsberg was central to the project's success. Jenelle's years of testing drought-tolerant species on the boulevard gave the design an empirical foundation that no literature review alone could provide. Her knowledge of which plants had thrived and which had failed under the site's specific conditions shaped the plant list in ways that were practical and grounded. I handled research, coordination, and labour; Jenelle contributed design expertise and site-specific knowledge. This division of labour produced a garden that is both ecologically functional and authentically representative of Terra Vita's practice.

Evaluating plants by ecological function and context rather than origin alone allowed the design to include proven performers like lavender, salvia, and creeping thyme alongside native anchors like camas, yarrow, and goldenrod. This approach made the native/non-native question accessible and less polarized, both in the garden itself and in the educational materials developed for the webpage. On a site with modified and contaminated soil, disrupted hydrology, and no surviving reference community, strict native-only planting would have been ecologically unjustifiable and would have reduced pollinator value. This boulevard is not a remnant of a historical ecosystem. It is a novel urban system, and the design treated it as one. The garden demonstrates that responsible, function-first species selection can produce a planting that is ecologically effective, visually compelling, and replicable by other urban gardeners.

Several practical decisions proved effective. Waiting for the autumn rains before planting reduced water demand during establishment. Sheet mulching after planting rather than before avoided the problem of cutting through cardboard to install plants. Drip irrigation lines placed beneath the sheet mulch deliver water directly to root zones, addressing the hydrophobic surface layer that had contributed to plant failure in previous years. It helped immensely that I worked with a crew of skilled horticulturists and gardeners who could help me think through some of these decisions.

The project relied on grey literature for plant selection, including nursery guides, Pollinator Partnership Canada publications, and the Xerces Society habitat assessment guide. These resources represent a mature body of regionally specific, field-tested guidance developed to make pollinator habitat creation accessible to non-specialists. Their use here is intentional: this project was designed to demonstrate an approach that other property owners and landscapers can replicate using the same publicly available tools that will be made available on the garden’s webpage

5.2 Limitations and Challenges

Site preparation (weeding) consumed a disproportionate share of project time. Hand-pulling couchgrass and ripgut brome from 52.5 m² was labour-intensive, and early observations confirm that regrowth is already underway from the seed bank and from rhizomes spreading under the fence from the main property. This is a persistent challenge that no single intervention will resolve.

Formal pollinator monitoring was not feasible. Identifying and recording pollinator species requires time, training, and repeated observation that exceeded the scope of this project. Instead, plant species were selected based on documented pollinator value from published guides and Jenelle's direct experience. The monitoring protocol relies on observation of plant health, bloom periods, and informal audible assessments of “buzzing” activity, rather than a pollinator species survey. This is an honest limitation, but it is appropriate for the site's scale and for the capacity of the Terra Vita crew who will maintain the garden going forward.

The driftwood sign, while visually appealing, proved less effective than expected. Rain darkened the wood and reduced the visibility of the woodburned logo. The printed aluminum sign is more legible and durable. Future projects should prioritize weather-resistant materials for outdoor interpretive signage.

The project slightly exceeded its budgeted hours, primarily due to the labour intensity of site preparation. This is worth noting for future boulevard restoration projects of similar scope.

5.3 Recommendations

Connect the drip irrigation lines to the house before the summer drought season begins, with priority watering directed to the most sensitive and newly established species.

Continue aggressive weeding of couchgrass and ripgut brome on both the boulevard and the property side of the fence to reduce the source population and slow recolonization.

Complete and publish the webpage on terravitadesign.com to activate the educational component of the project.

Conduct a first-year establishment assessment following the full 2026 growing season, documenting plant survival rates, bloom performance, and any species requiring replacement.

Consider a second-year follow-up to evaluate whether bloom succession functions as designed across a full spring-to-autumn cycle.

5.4 Broader Implications

This project operates on the premise that small urban spaces, designed with ecological intention, contribute meaningfully to pollinator conservation. Ulrich and Sargent (2025) and Brown et al. (2024) provide empirical support for this premise. What this project adds is a demonstration of how that intention can be translated into practice through a collaboration between a restoration practitioner and a commercial landscaping company.

Terra Vita is not a restoration consultancy; it is a landscaping company with ecological values. The fact that this garden was co-designed with a landscaper, using a framework developed by restoration ecologists, and communicated to the public through signage and web content, is itself a form of knowledge transfer. If other landscaping companies in Greater Victoria adopted similar practices, the cumulative effect on urban pollinator habitat could be significant. Baldock

et al. (2019) found that small urban habitat patches function as pollinator hotspots and that connectivity between them is a key factor in urban pollinator conservation. Locally, the Good Neighbours Biodiversity Project in Saanich restored native pollinator habitat across over 50 private properties along identified biodiversity corridors (Buccioni & Erickson-McGee, 2025), demonstrating that residential-scale interventions can contribute to landscape connectivity when coordinated across a neighbourhood.

The City of Victoria's Boulevard Gardening Guidelines already provide the regulatory framework for property owners to transform lawns into pollinator gardens. What is often missing is accessible guidance on how to do it well. This project, and the webpage it produced, attempt to fill that gap for one neighbourhood. There is potential for a connected pollinator corridor along the boulevards of Fernwood and beyond. Not all municipalities of Greater Victoria allow residents to transform boulevards; maybe that is an idea to submit to your city councillor.

6. CONCLUSION

This project transformed a 52.5 m² strip of neglected urban land into a functioning pollinator garden with continuous bloom succession, structural diversity for nesting and overwintering, a public pathway, interpretive signage, and a framework for ongoing care. It was the result of collaboration with Terra Vita Design & Garden, a boutique landscaping company based out of Fernwood, using publicly available tools and regionally specific guidance that any property owner or landscaper could access, rooted in peer-reviewed urban pollinator restoration research. The garden is not a finished product. It is the beginning of a longer process of establishment, observation, and adaptive management that now rests with Terra Vita and the Fernwood community.

The project tested whether restoration principles developed in academic and large-scale conservation contexts could translate to a small, highly constrained urban site. They can. This boulevard has been too thoroughly altered by land conversion, soil contamination, and decades of urban disturbance to be governed by historical fidelity. Treating it as a novel system, as defined by Hobbs et al. (2009), and selecting species for what they contribute ecologically rather than where they originated, gave the design a principled and practical basis that held up in the field. Higgs et al. (2014) call for a version of restoration that integrates cultural meaning, aesthetics, and social engagement alongside ecological goals. A boulevard garden is the kind of site where that integration happens, not in theory but on the ground. No restoration project is too small to matter, and much of the restoration that will shape urban landscapes in the coming decades will be done not by ecologists but by gardeners, landscapers, and residents who care about the species they share their neighbourhoods with.

Whether this garden succeeds over the long term depends on sustained attention in its establishment period: consistent watering through summer drought, persistent management of couchgrass, and willingness to observe, learn, and adapt. The monitoring protocol and webpage provide tools for that work. The rest is stewardship.

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Note on Use of Artificial Intelligence

This report was written with the assistance of Claude (Anthropic), a large language model. Claude was used as an assistant throughout the writing and editing process, including proposing an outline, correcting grammar and syntax, refining to trim word count, formatting references, and providing feedback. All content, field observations, design decisions, and interpretive judgments are my own, developed through research, fieldwork, RNS coursework, and collaboration with Jenelle Quitsberg and the people acknowledged above. I have reviewed and edited all AI-generated text and take full responsibility for the final content.

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APPENDIX A –
POLLINATOR BOULEVARD PLANT LIST

Scientific Name	Common Name	Qty	Bloom Period	Native/ Introduced	Habit/ Structure	Pollinator Value
Achillea millefolium	Yarrow	15	May-Sep	Native	Rhizomatous perennial forb	Bees, butterflies, hoverflies; broad pollinator appeal
Allium cernuum	Nodding Onion	7	May-Jul	Native	Perennial forb (bulb)	Bumblebees, hummingbirds
Anaphalis margaritacea	Pearly Everlasting	7	Jun-Aug	Native	Rhizomatous perennial forb	Specialist host for American Painted Lady butterfly; bees
Armeria maritima	Sea Thrift	3	May-Jul	Native	Taprooted perennial forb	Bumblebees, hummingbirds
Artemisia suksdorfii	Coastal Mugwort	3	Jun-Jul	Native	Rhizomatous perennial forb	Habitat structure; shelters overwintering insects
Camassia quamash ssp. maxima	Common Camas	10	Apr-Jun	Native	Perennial forb (bulb)	Bees, butterflies; critical early-season forage
Cerastium arvense	Field Chickweed	3	Apr-Jun	Native	Perennial forb	Small bees, hoverflies
Eriophyllum lanatum	Woolly Sunflower	20	May-Aug	Native	Perennial forb	Bees, butterflies
Festuca roemeri	Roemer's Fescue	8	May-Jun	Native	Perennial bunchgrass	Habitat structure for ground-nesting bees
Mahonia aquifolium	Oregon-grape	10	Mar-May	Native	Evergreen shrub	Bees; critical early-season pollen and nectar
Olsynium douglasii	Satinflower	3	Feb-Apr	Native	Perennial forb (bulb)	Early-season bees
Primula hendersonii	Broad-leaved Shootingstar	3	Mar-May	Native	Perennial forb	Bumblebees (specialist pollinator)
Rosa nutkana	Nootka Rose	1	May-Jul	Native	Deciduous shrub	Bees, butterflies; host plant
Sedum spathulifolium	Broad-leaved Stonecrop	18	May-Jun	Native	Evergreen succulent groundcover	Small bees, butterflies
Solidago lepida	Canada Goldenrod	8	Aug-Sep	Native	Rhizomatous perennial forb	Bees, wasps, beetles, butterflies; late-season forage
Symphyotrichum chilense	California Aster	8	Jul-Sep	Native	Perennial forb	Bees, butterflies; critical late-season forage

Scientific Name	Common Name	Qty	Bloom Period	Native/ Introduced	Habit/ Structure	Pollinator Value
Antirrhinum molle	Dwarf Snapdragon	3	Jul-Sep	Introduced	Semi-evergreen groundcover	Bumblebees (tube-shaped flowers)
Crocus spp.	Crocus	10	Feb-Mar	Introduced	Perennial forb (corm)	Critical early-season forage for emerging queen bumblebees
Helianthemum 'Ben Ledi'	Rock Rose	2	May-Jun	Introduced	Evergreen groundcover	Bees
Lavandula angustifolia	Lavender	15	Jun-Aug	Introduced	Evergreen subshrub	Major bee attractant; bumblebees, honeybees, solitary bees
Perovskia atriplicifolia	Russian Sage	7	Jul-Oct	Introduced	Deciduous subshrub	Bees, butterflies
Prostanthera cuneata	Alpine Mint Bush	5	Jun-Sep	Introduced	Evergreen shrub	Bees
Salvia microphylla 'Hot Lips'	Hotlips Salvia	3	Jun-Oct	Introduced	Herbaceous evergreen perennial	Hummingbirds, bees
Salvia nemorosa 'Caradonna'	Salvia 'Caradonna'	12	May-Oct	Introduced	Herbaceous perennial	Bees; long bloom period
Sedum spectabile 'Autumn Joy'	Autumn Joy Sedum	10	Aug-Sep	Introduced	Evergreen upright succulent	Bees, butterflies; late nectar; winter seed heads for birds
Senecio greyi (Brachyglottis)	Brachyglottis Sunshine	1	Jun-Aug	Introduced	Evergreen shrub	Bees, hoverflies
Stipa tenuissima	Mexican Feather Grass	12	Jun-Aug	Introduced	Bunchgrass	Habitat structure; shelter for overwintering insects
Stipa ichu	Peruvian Feather Grass	5	Jul-Sep	Introduced	Bunchgrass	Habitat structure
Thymus serpyllum 'Elfin'	Creeping Thyme	18	Jun-Aug	Introduced	Evergreen groundcover	Bees; prolific when blooming
Verbena bonariensis	Verbena	8	Jul-Oct	Introduced	Herbaceous perennial (self-seeding)	Bees, butterflies
Prunus cerasifera	Cherry Plum	1	Mar-Apr	Introduced	Deciduous tree	Early-season bees
TOTAL	**31 species**	**239**				

Sources: Pollinator Partnership Canada (2017); Satinflower Nurseries (2020); Stellata Plants (2025); Pollinator Partnership Canada (2020); Xerces Society for Invertebrate Conservation (2019). Species selection also drew on personal communication with Jenelle Quitsberg and the BC Invasive Species Council database for invasive status.

APPENDIX B –
MONITORING AND MAINTENANCE PROTOCOL

Season	Plant Health	Weed Management	Soil Health / Irrigation	Pollinator Habitat	Community
SPRING Mar-May	Walk garden in early March. Note emergence, winter damage, gaps. Replace dead plants. Note what is in bloom each month. Record observations with a quick photo and date.	Most critical weeding window. Hand-pull couchgrass and ripgut brome before they seed. Assess new volunteers - good neighbour or not? - before removing.	Connect drip lines by mid-April. Test for leaks. Check soil moisture. No supplemental watering typically needed before May. Consider mulch if soil is deprived of nutrients.	Leave overwintering stems until April to let insects emerge. Cut back dead stems after consistent warm weather. Note any noticeable early pollinators.	Check aluminum sign and plant ID pins. Replace any damaged or displaced over winter.
SUMMER Jun-Aug	Peak bloom. Walk garden twice monthly. Note blooms. Note non-native plant propagation. Note wilting, browning plants. Record observations with a photo and date.	Continue hand-pulling couchgrass and ripgut brome, especially around plant stems.	Run drip daily in dry weather, early morning. Prioritize new plantings. Once established, this garden will be drought-tolerant.	Confirm bare ground patches remain uncovered by mulch or plant spread. Listen for pollinator presence. Note noticeable pollinators.	Peak foot traffic. Welcome curiosity. Direct visitors to website. Common questions: what is this garden, how do I make one, are these native.
FALL Sep-Nov	Walk garden monthly. Note blooms. Do not deadhead. Let seed heads form and stand. Record observations with a photo and date.	Assess volunteers - good neighbour or not? Pull couchgrass, ripgut brome.. Final weed before winter to reduce seed bank.	Disconnect drip lines when fall rains arrive consistently. Drain lines. Check soil quality, consider mulching to protect sensitive root systems over winter.	Do not cut back garden. Standing stems, seed heads, leaf litter = overwintering habitat. Leave hollow stems for cavity-nesting insects. Only back lavender to preserve shape.	Garden will look less tidy. This is intentional. If neighbours ask, explain standing structure supports overwintering pollinators.
WINTER Dec-Feb	Review the season's photo log and notes. Were there gaps in bloom? Use observations to inform any spring replacements or additions.	Minimal. Low priority.	None.	Leave everything standing. Do not rake leaves or remove debris. Leaf litter insulates roots and shelters insects.	Review maintenance and monitoring plan with TV crew, adapt yearly. What else can we do to contribute to community education?

Sources: Xerces Society for Invertebrate Conservation (2019); Pollinator Partnership Canada (2017, 2020)