

Re-wilding the Neighborhood

Discovering Ecological Harmony Through Design with
Habitats Along the Oak Ridges Trail

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

This thesis is a reflection on the impacts of suburban sprawl on ecosystem health and biodiversity in York Region, using a design proposal to repopulate pollinator habitat within the fabric of an existing neighborhood. The key research questions concern both the environmental and social consequences of a monotonous suburban landscape on our collective sense of community and emplacement. Drawing on existing theory from both scientific and poetic disciplines such as the essays of Wendell Berry and Lawrence Halprin, the design seeks to contribute a model of rewilding based on public participation and cooperation with wildlife that has agency in the process. Using the conservation initiatives along the Oak Ridges Trail as a case study, the thesis will first explore the role of site study in the design process, understanding the landscape a living being with a history and future as opposed to a blank slate to be built over. Expanding on this idea, the design proposal will include a main public garden and designs for patches and channels of vegetation that will create a contiguous network. If successful, this proposal will act as a model which could potentially be replicated across multiple neighborhoods to impact at a regional scale.

Acknowledgements

To my supervisor, Philip Beesley, thank you for your guidance, encouragement, and patience through a transformative two years.

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Introduction

The American dream envisioned only the single-family house, the smiling wife and healthy children, the two-car garage, eye-level oven, foundation planting and lawn, the school nearby and the church of your choice. It did not see that the subdivision is not a community, that the sum of sub-divisions that make a suburb is not a community, that the sum of suburbs that compose a metropolitan fringe of the city does not constitute community nor does a metropolitan region. It did not see that the nature that awaited the subdivider was vastly different from the pockmarked landscape of ranch and split-level houses...

The hucksters made the dream into a cheap thing, subdivided we fell, and the instinct to find more natural environments became the impulse that destroyed nature, an important ingredient in the social objective of this greatest of all population migrations.¹

Over the last 150 years, York Region has grown into one of the largest suburban districts in the Greater Toronto Area, absorbing much of the spillover from the City of Toronto's population boom. Characterized by boundless rows of houses and soccer fields, this development brought the promise of an escape from the pressures of urban life and a place to raise children in the natural landscape of southern Ontario. However, it is questionable that it has lived up to these ideals. The dominance of car transportation and property lines as design constraints has meant vital wetland, forest and grassland habitats have been irrevocably damaged. The loss of biodiversity, and thus the subsequent loss of the many services they provide, threatens the long-term stability of our climate, food security, and water quality.²

As beautifully described by Ian McHarg, the dream of homeownership and environmental stewardship do not need to be mutually exclusive. This thesis seeks to explore these tensions by using a collaborative gardening initiative to integrate existing

1. Ian L. McHarg, *Design with Nature* (New York: Natural History Press, 1969), 153.

2. "Part I: Biodiversity in Ontario – Why does it matter?" Sierra Club Canada Foundation, accessed August 28, 2021. <https://www.sierraclub.ca/en/video-biodiversity-in-ontario>

conservation areas and domesticated neighborhoods. The design offers a hybrid type of 'third fabric' that facilitates productive relationships between human environments and the wilderness.

This project is organized into two main sections, described as follows.

Site as an Entity – This section is a comprehensive analysis of the intervention site from several different time scales, with the goal of recognizing the land as a living being that has its own agency in the design process. The suburbs carry a fraught legacy, the pressure to keep housing cheap meant flattening and paving the region was preferred over designing alongside its rich topography. This subjugation of the land has resulted in a drastic loss in biodiversity and a sense of physical and psychological displacement from the ecological setting of the region. In order to change course and regrow a more resilient habitat, this section establishes the forces already in motion such that the design can work with them in greater harmony.

Re-wilding the Interstitial Fabric – This section presents the design proposal for both a public garden/nursery and a network of garden patches and channels to be integrated into an existing neighborhood. Building on an in-depth understanding of the soil, climate conditions, and species populations, the design sets the stage for collaborative gardening initiative that would welcome the surrounding wilderness to permeate into an otherwise rigid suburban fabric. The resulting landscape would create more opportunity for exchange between insect communities and home gardens, as well as strengthen social bonds amongst residents working together to maintain the emerging habitat.

Site as an Entity

The setting for this thesis takes place at the intersection between the Oak Ridges Corridor and the York Region suburbs, along Old Colony Road and Bond Lake. (fig.x) To get acquainted with this landscape, this chapter will be exploring the community surrounding Bond Lake at three different temporal scales. First, a series of mapping studies and deep section will explore the geological history of the region across multiple millennia to get a grasp on the rich variety of water and soil structures within which the design will take root. Second, an analysis of road development will investigate the legacy of suburban sprawl over the last two centuries and how the promise of homeownership wreaked destruction on vital habitats and generated a deeply polarized landscape. Third, this chapter will examine conservation efforts over the last two decades which have acted as a counterweight to the momentum of the housing market, and the impact of participation among residents to change course for the future. Altogether, these analyses seek to understand the intervention site as a living being with a history and future, and an entity which has agency in the design process which must be respected.



fig.1. Map of the Oak Ridges Corridor Planting Rows

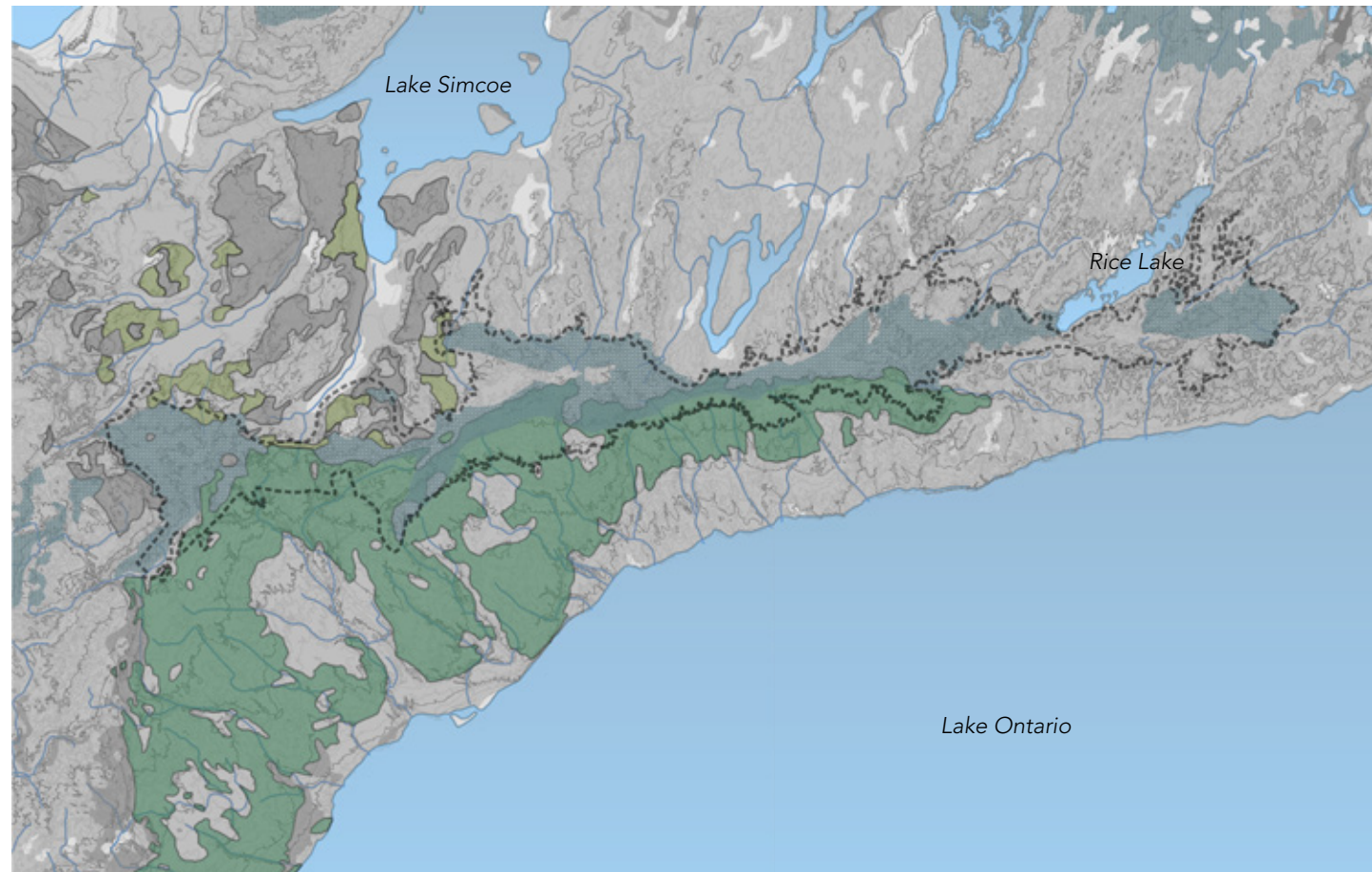


fig.2. Map of the Oak Ridges Moraine Geological History

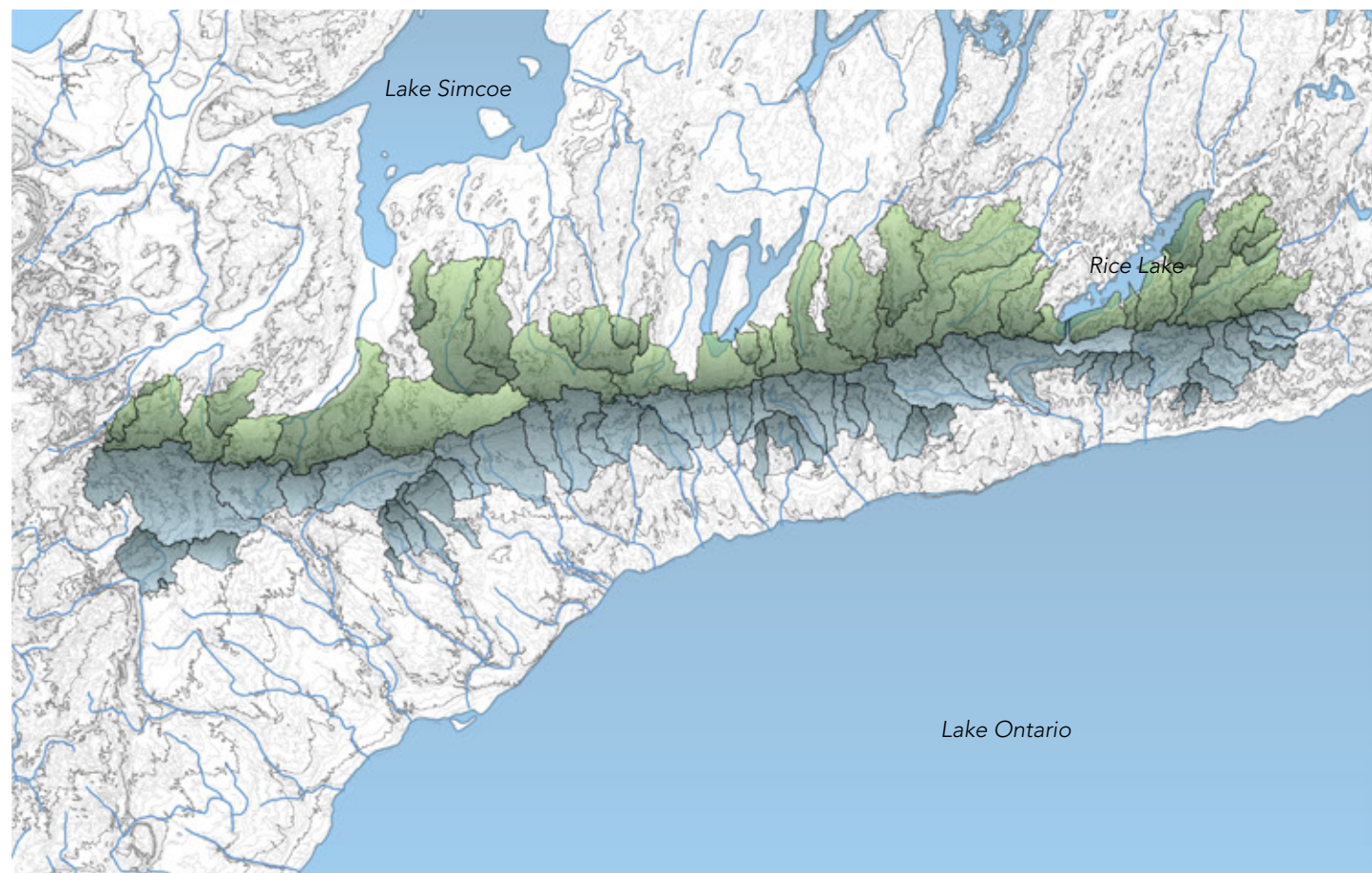
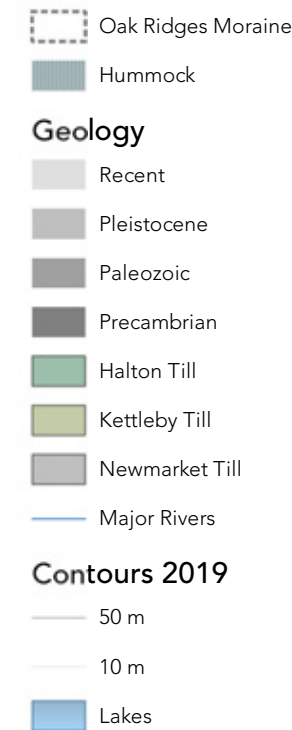


fig.3. Map of the Oak Ridges Moraine Watersheds



Deep History: Landscapes in Motion

Soil and Topography of the Oak Ridges Moraine

The geological conditions that shaped the landscape of York Region were first set in motion by the retreat of two glaciers over 10 000 years ago, along its north and south edges. Left in their wake was a long undulating ridge composed of gravel and debris, known today as the Oak Ridges Moraine.³ As ice melted, the runoff deposited sediments into five distinct wedges, rolling from west to east between the Niagara Escarpment and Rice Lake (fig.2). The intervention site for this thesis lies within the second wedge, along the north edge of the Halton Till.

The moraine bisects the territory between Lakes Ontario and Simcoe with dozens of watersheds, filtering freshwater supply to over 250 000 Ontario residents.⁴ This landscape feature also acts as a kind of regional threshold between York Region and Toronto, bounding the extents of development along the north edge of Vaughan and Markham. (fig.3) On its surface, the porous soils are composed in tight hummocky ridges and dotted with kettle lakes. Travelling west-east by bicycle, the hills are short and steepest, and more forgiving moving north-south. (fig.4) The soil character at Bond Lake is sandy loam in texture, and mostly wet (fig.5/fig.6).

Understanding the landscape below ground is important to figuring out what can potentially grow here in the future. There are incredibly rich ecosystems living right next to the neighborhoods, and the two could be better integrated overall. However, plan view maps can only take us so far; it's worth looking at some more dynamic precedents.

3. P.J. Barnett, D.R. Sharpe, H.A.J. Russell, T.A. Brennand, G. Gorrell, F. Kenny, and A. Pugin, "On the Origin of the Oak Ridges Moraine," *Canadian Journal of Earth Sciences* 35, no. 10 (October 1998): 1164, <https://doi.org/10.1139/e98-062>

4. "Water and the Moraine," Oak Ridges Moraine Land Trust, accessed August 11, 2021, <https://www.oakridgesmoraine.org/water/>.

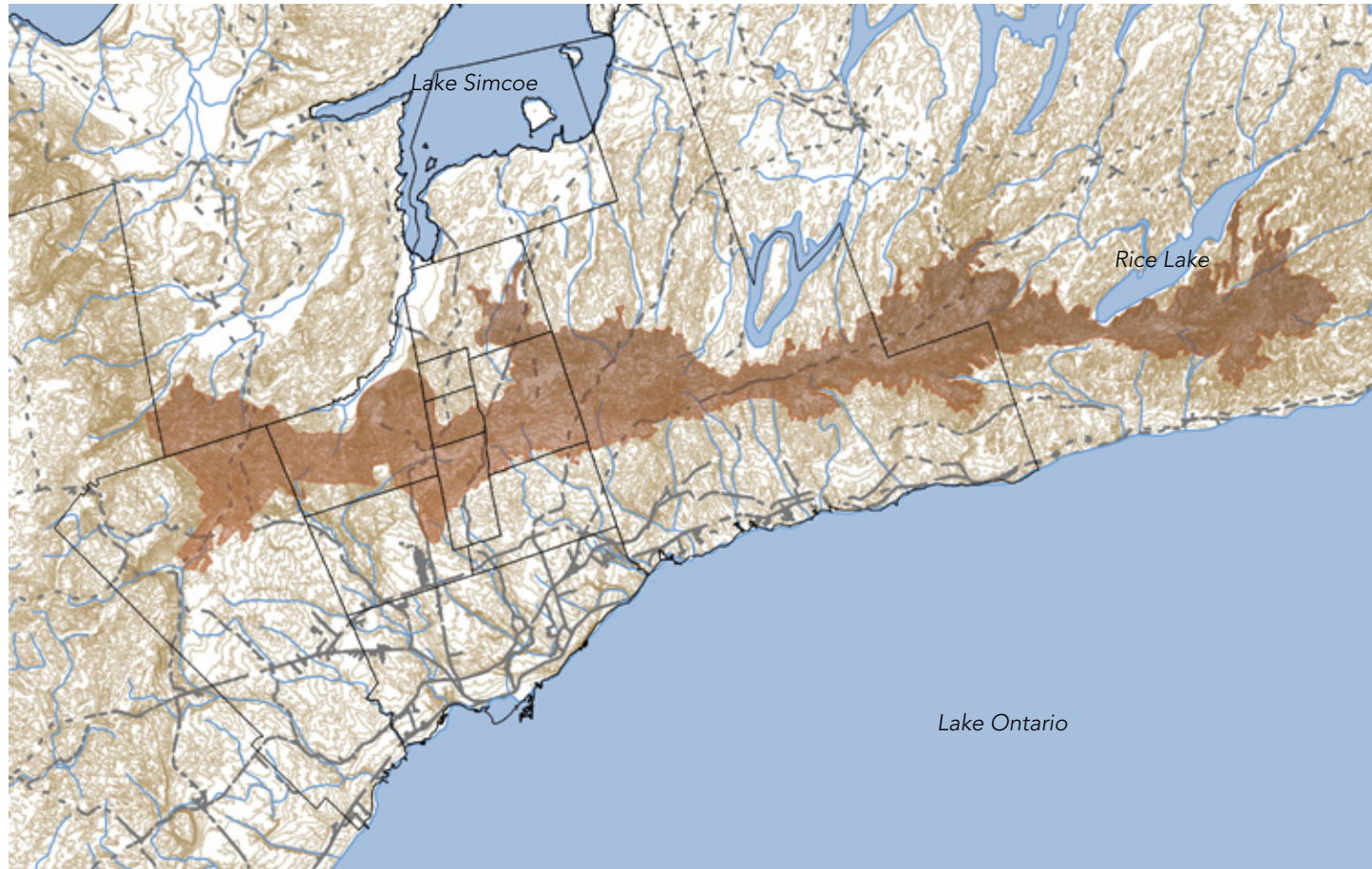


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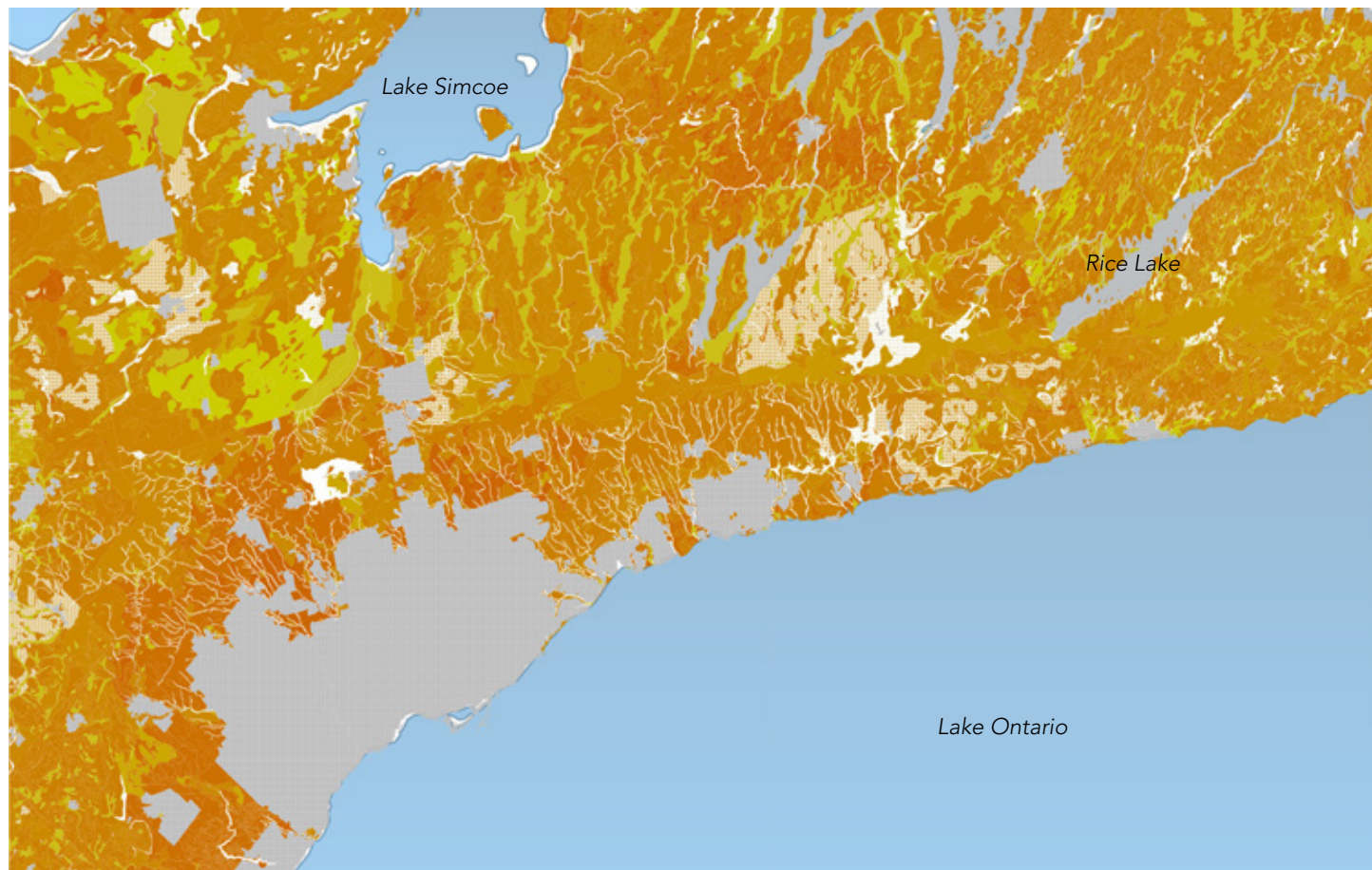


fig.5. Map of the Oak Ridges Moraine Surficial Geology

Soil Texture

- Clay
- Clay Loam
- Fine Sandy Loam
- Gravelly Loam
- Gravelly Sand
- Gravelly Sandy Loam
- Loam
- Loamy Sand
- Urban
- Organic
- Sand
- Silty Clay Loam
- Silt Loam
- Sandy Loam
- Lakes



fig.6. Soil Photos Along East Side of Site

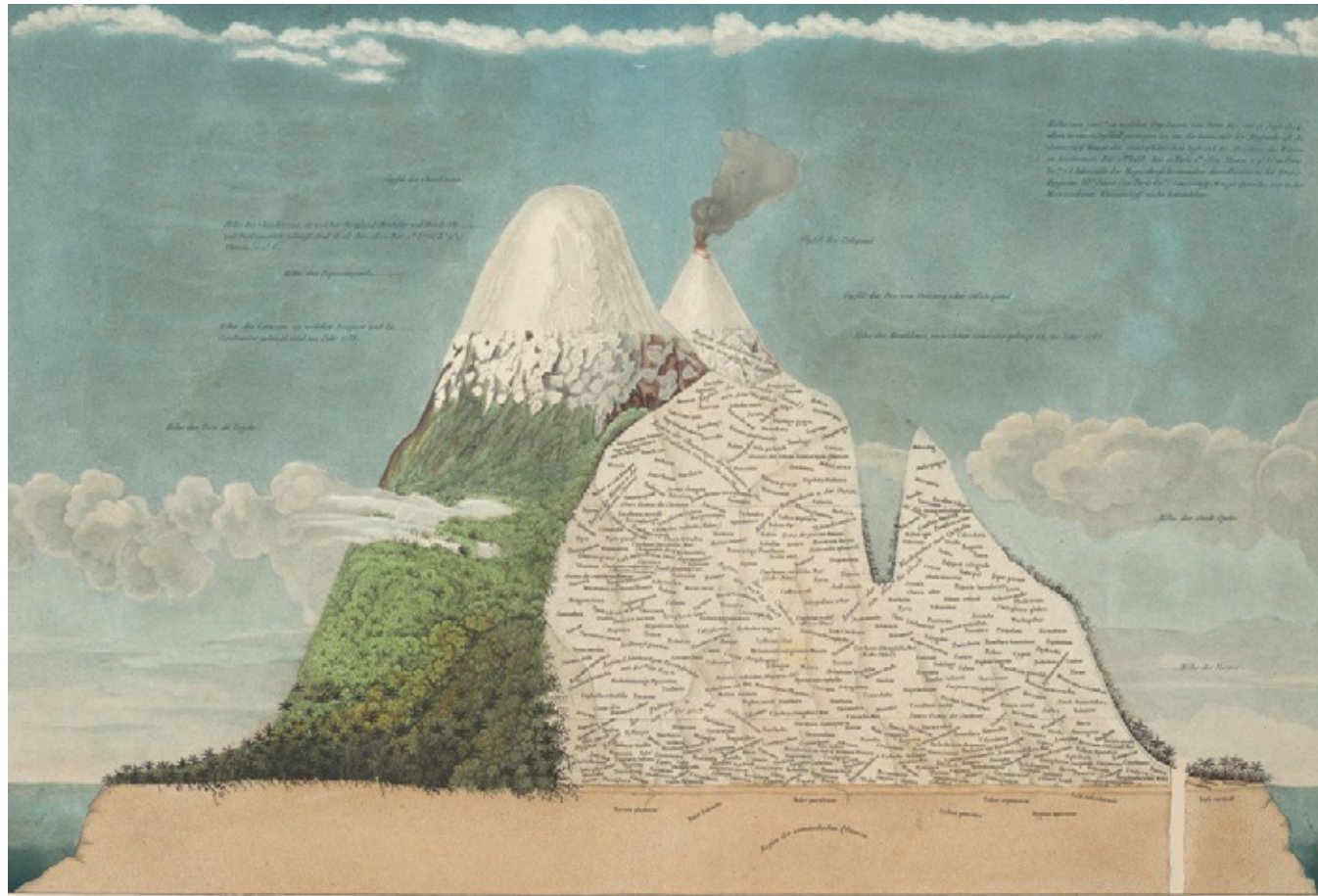


fig.7. Anatomy of a Mountain, Alexander von Humboldt

The Deep Section

In the past few decades, modern landscape theory has found a renewed fascination with the deep section as a mode of analysis, in contrast to the dominant diagrammatic plans. As a representational model, it has the potential to capture many phenomenological layers without becoming too abstract to capture the human perspective of what it would feel like to be there. Two in particular have something interesting to teach; Humboldt's mountain and McHarg's dunes.

The original scientific illustrations of Alexander von Humboldt encapsulate an interdisciplinary understanding of landscape. *Anatomy of a Mountain* (fig.7) depicts the Chimborazo volcano Humboldt documented on one of his expeditions to Ecuador. Written inside the cutline are the names and notes about all the various species he encountered while hiking the peaks. By drawing them into a clear and exaggerated depth, this illustration unlocks the interconnectedness of ground elevation and climate to the ability of more niche plant communities to take root.⁵

For a more recent example, Ian McHarg's *Landscape Transect* (fig.8) applies a similar logic in relating the saline and hydrological conditions of the ground to vegetation communities along the surface. The topography of the dunes has a direct effect on the exposure and drainage of seawater, which registers in the height, density, and species composition of the vegetation figures. McHarg's work doesn't just demonstrate the potential of this approach as an analytical tool, but shows how to make soil and topography agents in the design process itself.⁶ The predictive capabilities of a more rigorous section put new design constraints and data in play, making for a well involved and intelligent landscape architecture.

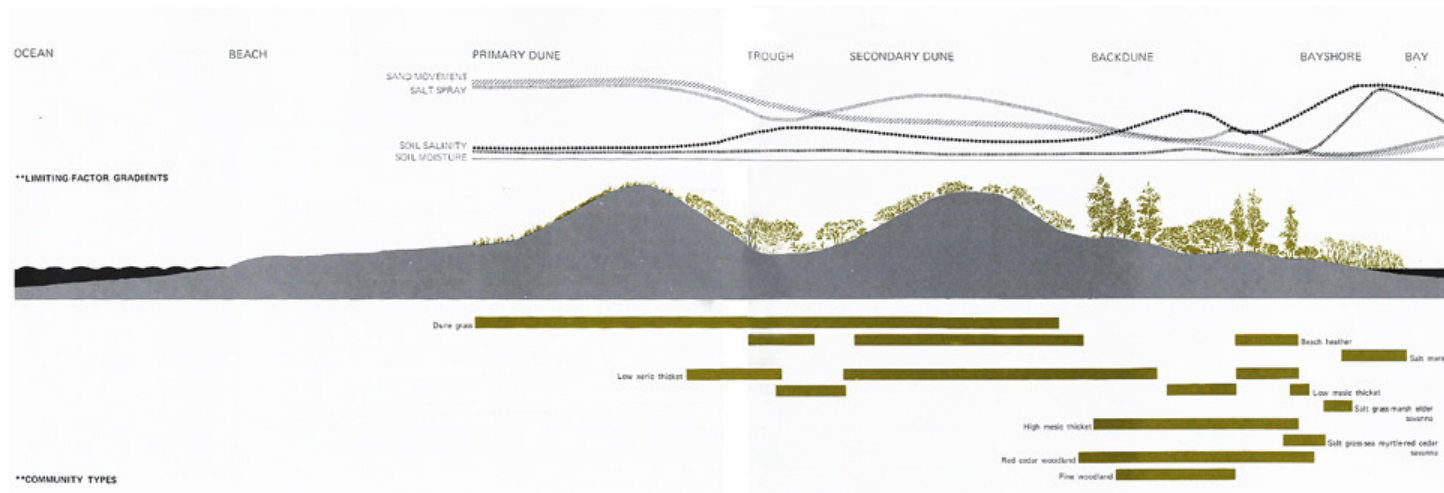


fig.8. Dune Community Types, Ian McHarg

5. Stephanie Carlisle, and Nicolas Pevzer, "The Performative Ground: Rediscovering the Deep Section," *Scenario Journal* 2, no. 7 (Spring 2012). <https://scenariojournal.com/article/the-performative-ground/>.

6. Aaron Sachs, "The Ultimate 'Other': Post-Colonialism and Alexander von Humboldt's Ecological Relationship with Nature," *History and Time*, Theme Issue 42, no. 4 (December 2003): 129-130, *The Ultimate "Other": Post-Colonialism and Alexander Von Humboldt's Ecological Relationship with Nature* on JSTOR.

Bond Lake

Learning from these precedents, the main agenda of the site documentation at Bond Lake is to establish a thorough understanding of the surrounding ecosystems which will be supplying insect activity to the design proposal. By visualizing the through line between its geological formation and soil character the design proposal will be able to make more informed choices about its wildflower species selections.

Using P.J. Barnett's documentation of the Oak Ridges Moraine as a base, this drawing (fig.9) reconstructs the site at Bond Lake in four layers.⁷ Starting with Whitby shale as the bedrock, the horizons build up beginning with the Newmarket Till (gravel, sand and clay), followed by the Oak Ridges Moraine deposits themselves, and finally a top layer of Halton Till. The section cuts through Yonge Street and Bayview Avenue looking north (see fig.1 for the cutline on a map). Traversing the site from left to right along the local walking trail, visitors first encounter steep, folding hills encircling Bond Lake with very old and tall coniferous forests. Beyond the hill, a flat, grassy plateau with relatively new tree planting in orchard rows, and finally the topography returns to short rolling hills as the trail passes under Bayview Avenue. This combination of open water, wetland, grasses, and forested areas together form a bustling habitat of birds and bugs that can be heard from blocks away.

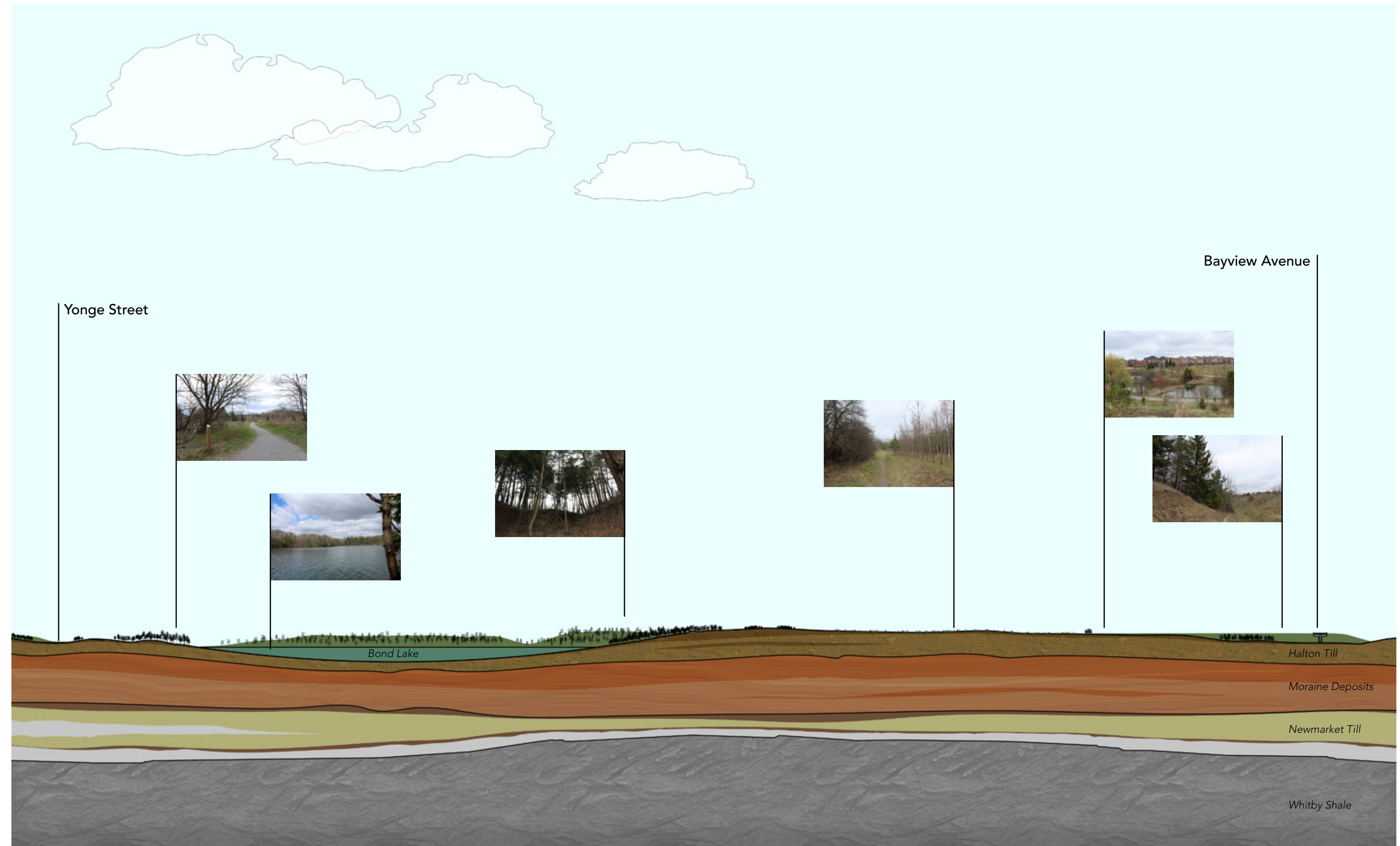


fig.9. Deep Section of the Oak Ridges Trail

7. P.J. Barnett, D.R. Sharpe, H.A.J. Russell, T.A. Brennand, G. Gorrell, F. Kenny, and A. Pugin, "On the Origin of the Oak Ridges Moraine," *Canadian Journal of Earth Sciences* 35, no. 10 (October 1998): 1164, <https://doi.org/10.1139/e98-062>

For a fuller inventory of the existing vegetation species around the intervention site, fig.10 lists the composition of eight types of wetland communities and graphs them by the percentage of the total wetland area.⁸ This data was compiled from a Ministry of Natural Resources survey done in 2000, extending across an area bounded by Yonge Street, Bloomington Road, Leslie Street, and Stouffville road (fig.50 in appendix). Since the survey was conducted, York Region has built over three dozen new residential streets with single family homes in this space. These wetlands are critical for regulating climate and supporting the process of water purification and nutrient cycling,⁹ but they are only as resilient as they are able to interact together.¹⁰ As this reality comes into increasing tension with the pressures of the housing market, new solutions are needed to resolve these competing human needs.

Thicket Swamps 22%

- Organic Soils, Willows
- Slender Willow
- Heart-leaved Willow
- Pussy Willow
- Shining Willow
- Red-osier Dogwood
- Narrow-leaved Meadow-sweet
- Winterberry
- Understoreys
- Canada Blue-joint
- Reed Canary Grass
- Water Horsetail
- Common Duckweed
- Awned Sedge
- Common Cattail
- Sensitive Fern
- Water Arum
- Cyperus-like Sedge
- Water-parsnip
- Lake Sedge
- Northern Manna Grass
- Water-plantain
- Retrose Sedge
- Rict Cut Grass
- Three-part Beggar Ticks
- Tufted Loosestrife
- Cinnamon Fern
- Wool-grass
- Green-fruited Bur-reed
- Water Smartweed

Deciduous Swamps 22%

- Trees
- Hybrid Willow
- Trembling Aspen
- Silver Maple
- Black Ash
- Red Maple
- Green Ash
- Peach-leaved Willow
- White Elm
- Balsam Poplar
- Yellow Birch
- White Birch

- Understorey
- Red-osier Dogwood
- Sensitive Fern
- Fowl Manna Grass
- Spotted Jewelweed
- Common Duckweed
- Three-part Beggar-ticks
- Water-parsnip
- Cinnamon Fern

Herbaceous Marshes 1%

- Three-part Beggar-ticks
- Spotted Jewelweed
- Devil's Beggar-ticks
- Sensitive Fern
- Wilcox-St. George
- Sugar Maple
- Eastern Hemlock
- Red Oak forests
- Beech forests
- White Cedar
- White Birch
- Trembling Aspen
- Large-toothed Aspen
- Balsam Poplar
- White Ash

Kettle Bogs 4%

- Southeast Kettle Bog
- Leatherleaf
- Three-way Sedge
- Water Arum
- North of Bethesda Bog
- Red Maple
- Tamarack
- Mountain Holly
- Winterberry
- Leatherleaf
- South of Swan Lake
- White Pine
- Red Maple
- Winterberry
- Leatherleaf

- Northwest of Wetland Context
- Tamarack
- Black Spruce
- Labrador Tea
- Velvet-leaved Blueberry
- Leatherleaf
- Shagnum
- Three-leaved Solomon's-seal
- Wild Lily-of-the-Valley

Conifer/Mixed Swamps 11%

- Trees
- White Cedar
- Eastern Hemlock
- Balsam Fir
- Tamarack
- White Spruce
- White Birch
- Black Ash
- Red Maple
- Yellow Birch
- Understorey
- Sensitive Fern
- Dwarf Raspberry
- Spotted Jewelweed

Low Thicket Swamps 3%

- Lake St. George
- Starwort
- Knotty Pondweed
- Slender Najas
- Common Coontail
- Common Bladderwort
- Fragrant Water-lily
- Bullhead Pond Lily
- Hard-stemmed Bulrush
- Water-willow
- Hard-stemmed Bulrush

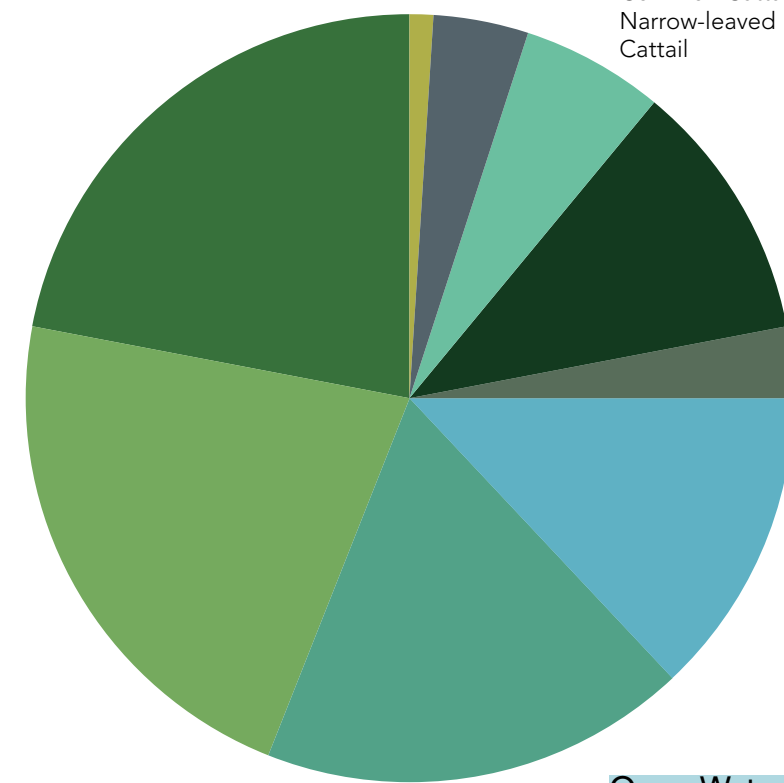
Open Water 13%

- Lake Wilcox
- Common Coontail
- Pale Water-milfoil
- Eurasian Water-milfoil
- Tape-grass
- Canada Waterweed
- Slender Najas
- Richardson's Pondweed
- Flat-stemmed Pondweed
- Large-leaved Pondweed
- Sago Pondweed
- Variable-leaved Pondweed
- Curly-leaved Pondweed
- Berchtold's Pondweed
- Floating Pondweed
- Bullhead Pond Lily
- Fragrant Water-lily

Graminoid Marshes 18%

- Grasses and Sedges
- Canada Blue-joint
- Tussock Sedge
- Rice Cut Grass
- Awned Sedge
- Lake Sedge
- Retrose Sedge
- Soft-stemmed Bulrush
- Woolly Sedge
- Cyperus-like Sedge
- South St. George Lake
- Inland Sedge
- Fowl Manna Grass
- Tussock Sedge
- Wild Timothy
- Yellow Sedge
- Little Yellow Sedge
- South Haynes Lake
- Hairy Sedge
- Beaked Sedge

- Swan Lake
- Bullhead Pond Lily
- Large-leaved Pondweed
- Water-willow
- Haynes Lake
- Eurasian Water-milfoil
- Flat-stemmed Pondweed
- Common Duckweed
- Great Duckweed
- Starwort
- Floating Pondweed
- Bullhead Pond Lily



8. Ontario Ministry of Natural Resources, *Southern Ontario Wetland Evaluation, Data and Scoring Record: Wilcox - St. George Wetland Complex*, S. Varga, A. Stagni, K. Van Allen, K. Mewa, H. Murdie, R. Thanbipillai, and L. Normand. 2000. Digital archive, https://web.archive.org/web/20060315025719/http://nhic.mnr.gov.on.ca/MNR/nhic/areas/areas_report.cfm?areaid=18494 (Accessed June 25, 2021)

9. "Part I: Biodiversity in Ontario – Why does it matter?" Sierra Club Canada Foundation, accessed August 28, 2021. <https://www.sierraclub.ca/en/video-biodiversity-in-ontario>

10. Richard T. T. Forman, "Some General Principles of Landscape and Regional Ecology," *Landscape Ecology* 10, no. 3 (1995): 137.

fig.10. Oak Ridges Trail Species Diagram

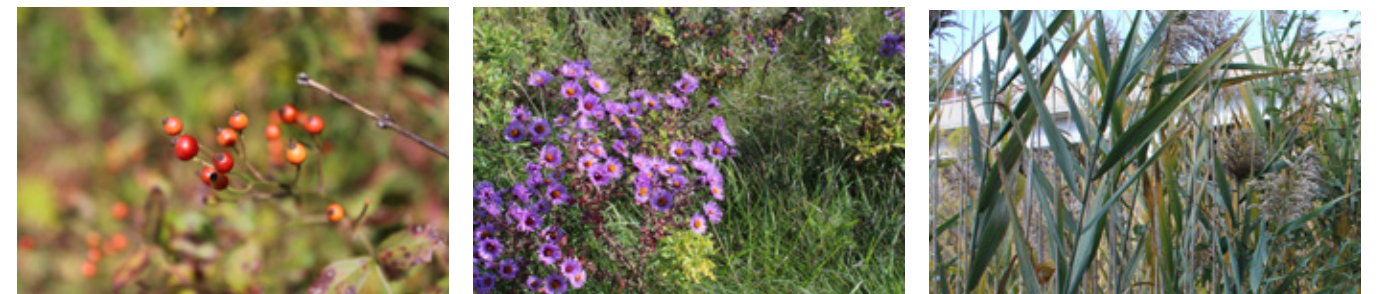


fig.11. Species Encounters

fig.12. Species Encounters

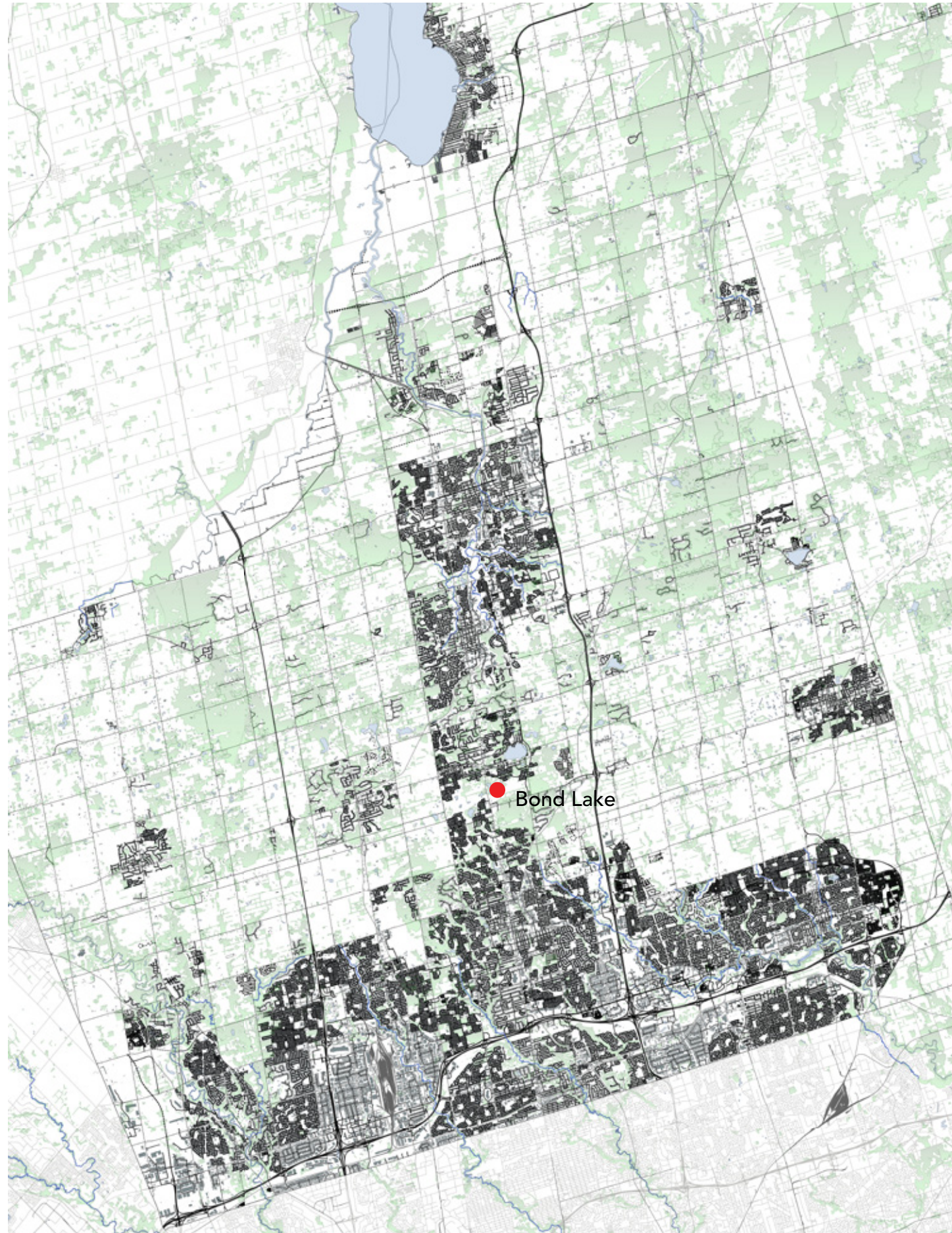


fig.13. Map of York Region Road Development from 1860 to Present Day

York Region from 1860: The Wake of Suburban Sprawl

Historical Shifts

The character of York Region's suburban landscape was shaped largely by its growth during two events: first, the imposition of the 1km by 1km grids onto the land colonized by the Toronto Purchase, and second the implementation of the highways 400 and 404 which enabled a commuter workforce to take root.

Early settlements in York Region were primarily centred around access to water and the first railways. As map making under the employment of rail companies became increasingly specialized, (and increasingly profitable), land was subdivided into rectangular lots that were advertised and sold to settlers for agricultural development. Yonge Street became the main vertical axis tethering the growth of rural territory to the burgeoning metropolis.¹¹ The 1km by 1km road grid which emerged went on to define the boundaries of several important developmental tools, including the census districts and zoning bylaws. This legacy can clearly be read in every map of York, the roads laid down the universal increment by which every subdivision, neighborhood and public space has adhered to.

After the conclusion of World War II, Ontario sought to bridge the gap between its settlements surrounding Lake Simcoe and Toronto with the construction of Highways 400 and 404.¹² The Highways both bisected the road grid with two lanes in each direction. Constructed in 1952 and 1977 respectively, they were met with very different development responses. Where King County fought hard to preserve its farmlands from the encroachment of housing, the 404 essentially replaced the function of Yonge Street as the main transportation axis for car commuters between York and Toronto, making for a population boom in Aurora and Newmarket in the 1980s through 2000s.¹³

11. Richard Harris, and Martin Luymes, "The Growth of Toronto, 1861-1941: A Cartographic Essay," *Urban History Review* 18, no. 3 (February 1990): 245, <https://doi.org/10.7202/1017721ar>.

12. "The King's Highway: The History of Ontario's King's Highways," Cameron Bevers, accessed September 3, 2021, <https://thekingshighway.ca/>.

13. Ibid.

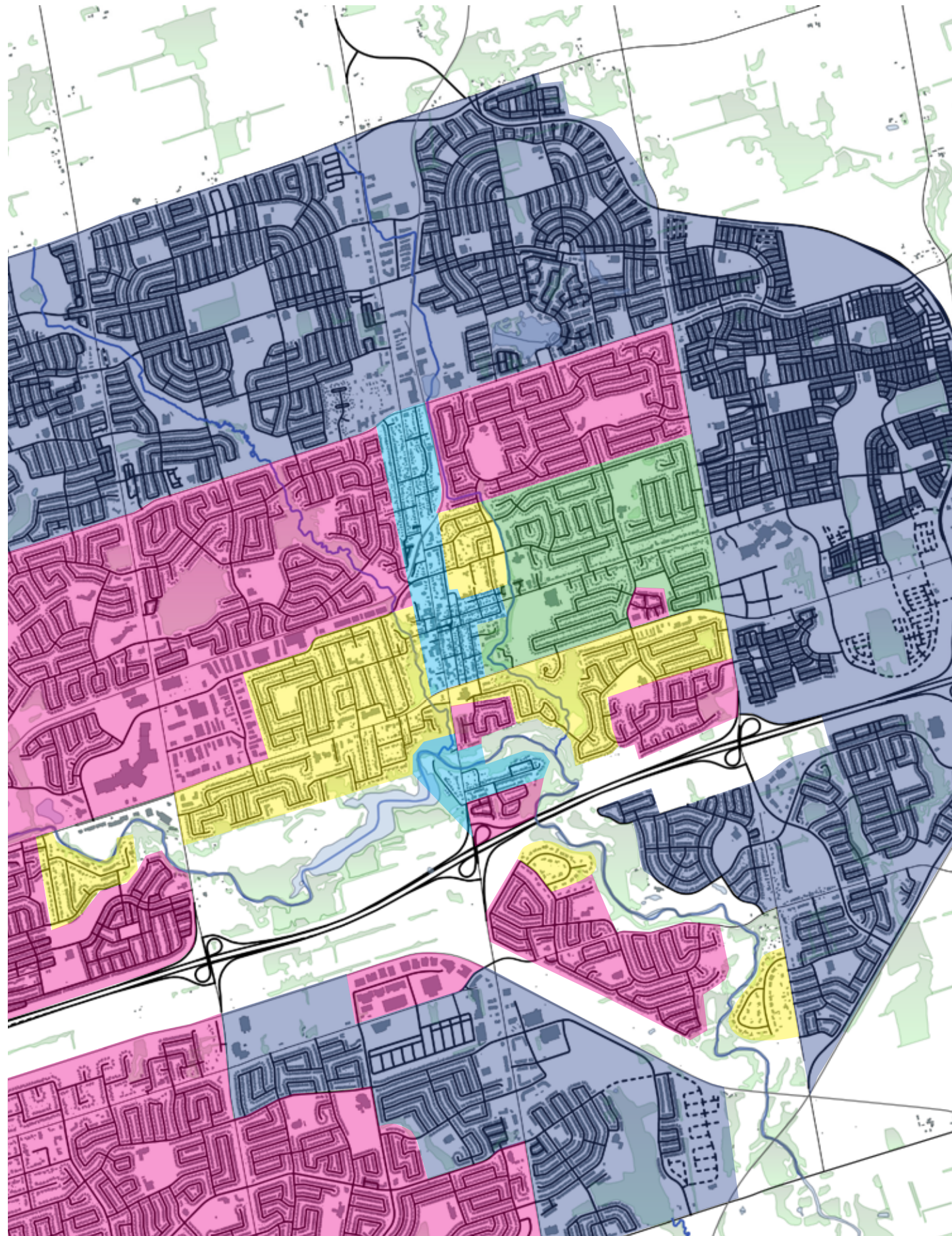


fig.14. Markham Road Development

- 1860-1940
- 1940-1970
- 1970-1990
- 1990-2000
- 2000-2020

Upon the implementation of the West-East running Highway 407 in 1997, massive growth in Vaughan and Markham solidified the distinctive upside-down T shape of the York Region suburbs in the modern day.¹⁴

Road Geometries and Constraints

Depicted in fig.13, the Map of York Region Road Development from 1860 to Present Day, is the entire census district with all of its road networks shown with incremental thickness based on the date founded. (Newer roads having darker line weights.) The purpose of this study was to visualize the patterns described above and place them within more specific urban typologies.

Taking an individual slice of this map from Markham, fig.14 reveals some more interesting housing patterns as each of the townships in York have grown in relatively similar concentric rings around their original settlements. Starting from the middle, early streets were generally tight and rectilinear, sited next to rivers to service mills at the time. Throughout the 50s and 60s when the first suburbs settled in, streets were organized into rectangular rings and rows harbouring smaller bungalows on sparser properties. Sprawl in the 80s through 90s took on a more curvilinear pattern of narrower laneways with wider crescents branching off of them, with lot density steadily increasing, likely influenced by Garden City districts such as Don Mills (1954).¹⁵ Finally, the most recent neighborhoods have returned to a more efficient street distribution in its use of longer, narrower street corridors and long lot slices more emblematic of central Toronto. (For a more comprehensive mapping study, see fig.52 – fig.59 in appendix).

14. "The King's Highway: The History of Ontario's King's Highways," Cameron Bevers, accessed September 3, 2021, <https://thekingshighway.ca/>.

15. "Garden Cities in Canada," The International Garden Cities Institute, accessed September 3, 2021, <https://www.gardencitiesinstitute.com/publication/garden-cities-in-canada>.



fig.15. Site Plan from 1860 Land Surveys



fig.17. Site Plan from 1995 Aerial Imagery



fig.16. Site Plan from 1954 Aerial Imagery

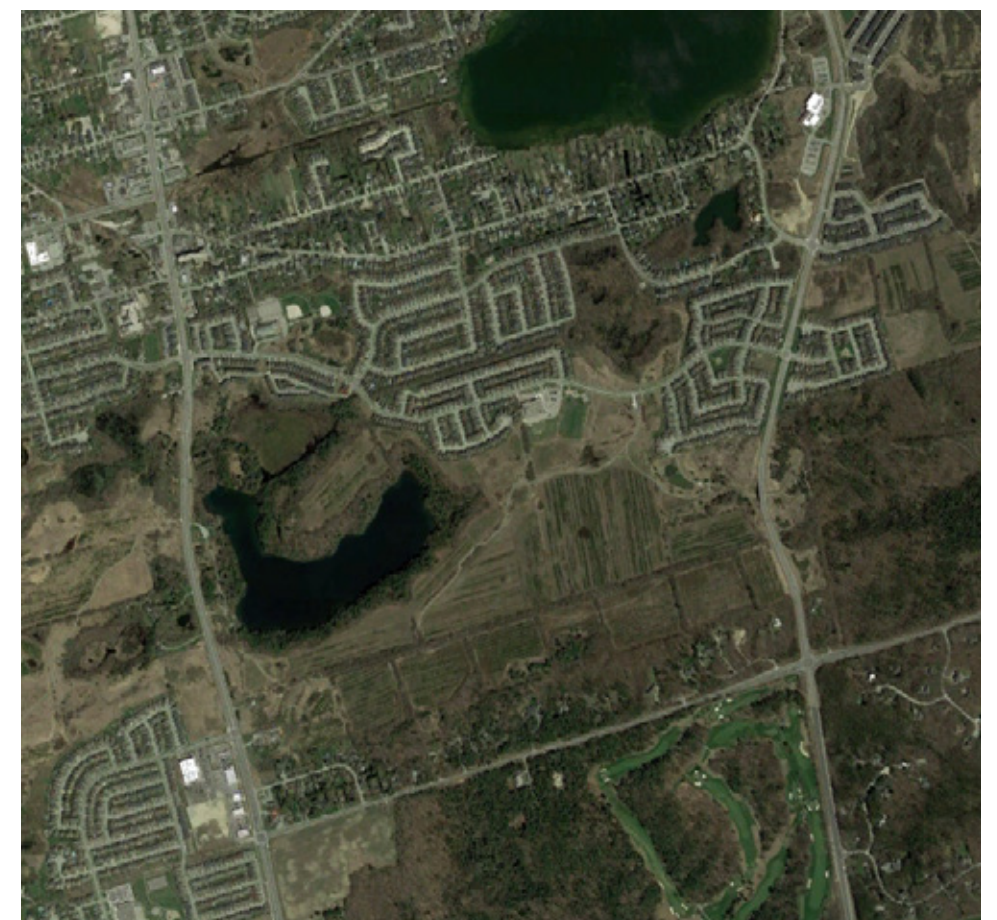


fig.18. Site Plan from 2020 Aerial Imagery

With some exceptions, the design of these suburbs has often neglected environmental considerations in favour of flattening land for cheaper development. Both the Rouge and Humber River watersheds have become constrained, and much of the original forestry for the region has been gutted as housing has ballooned. However, this degradation doesn't have to be an inevitability of population growth. In his writing on the plan for Philadelphia, Ian McHarg makes the case for a more a strategic incorporation of natural features into city planning. Rather than treating open space simply as the domain for parks and fields, he argues that the integration of marshes, floodplains, recharge areas, and woodlands are worth the short-term sacrifice of their potential for development to reap the long-term benefit that these natural features provide for the health and function of cities. He notes here the common problems with the treatment of open space in planning,

Urbanization proceeds by increasing the density within and extending the periphery, always at the expense of open space. As a result – unlike other facilities – open space is most abundant where people are scarcest. This growth, we have seen, is totally unresponsive to natural processes and their values. Optimally, one would wish for two systems within the metropolitan region – one the pattern of urban development. If these were interfused, one could satisfy the provision of open space for the population. The present method of growth continuously pre-empts the edge, causing the open space to recede from the population centre.¹⁶

Interestingly, York Region has sprawled in a somewhat inverted fashion. Density has only concentrated along the edges, leaving the original neighborhoods in the centre still spacious enough for fairly generous greenery along the street setbacks. Given that this excess has been underutilized, this thesis explores the potential of recapturing the suburban lawn to take an 'inside-out' approach to habitat restoration.

Historical Impacts on Bond Lake

Zooming in to the intervention site itself, fig.15 through fig.18 depicts Bond Lake in four historical moments. The original survey from 1860 reveals 5 horizontal lots, the lines of which still register today in the oldest trees collated at the property lines. By 1954, the land was further subdivided for agriculture which ultimately proved unprofitable on the sandy moraine soils. Between 1995 and the present day, Bond Lake was redesignated as a conservation area known as the Oak Ridges Corridor and established popular walking trails enjoyed today.

This site was chosen for the design intervention for a few reasons. First, while Old Colony Road is a relatively new neighborhood it is small enough and sparse enough to foster the kinds of wildflower habitats that are being proposed. Second, the close proximity to more established ecosystem patches improve the chance for success of the finer grain patches, as species can more easily move between them to repopulate after a decline. Given the shape and structure of York Region's neighborhoods, its conceivable that the proposal for wildflower gardens could be transposed to a few other locations in the region that have these attributes, such as the surrounding neighborhoods of the Mackenzie wetland in Newmarket (fig.51 in appendix).

16. Ian L. McHarg, *Design with Nature* (New York: Natural History Press, 1969), 57.

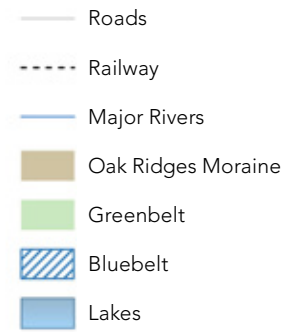
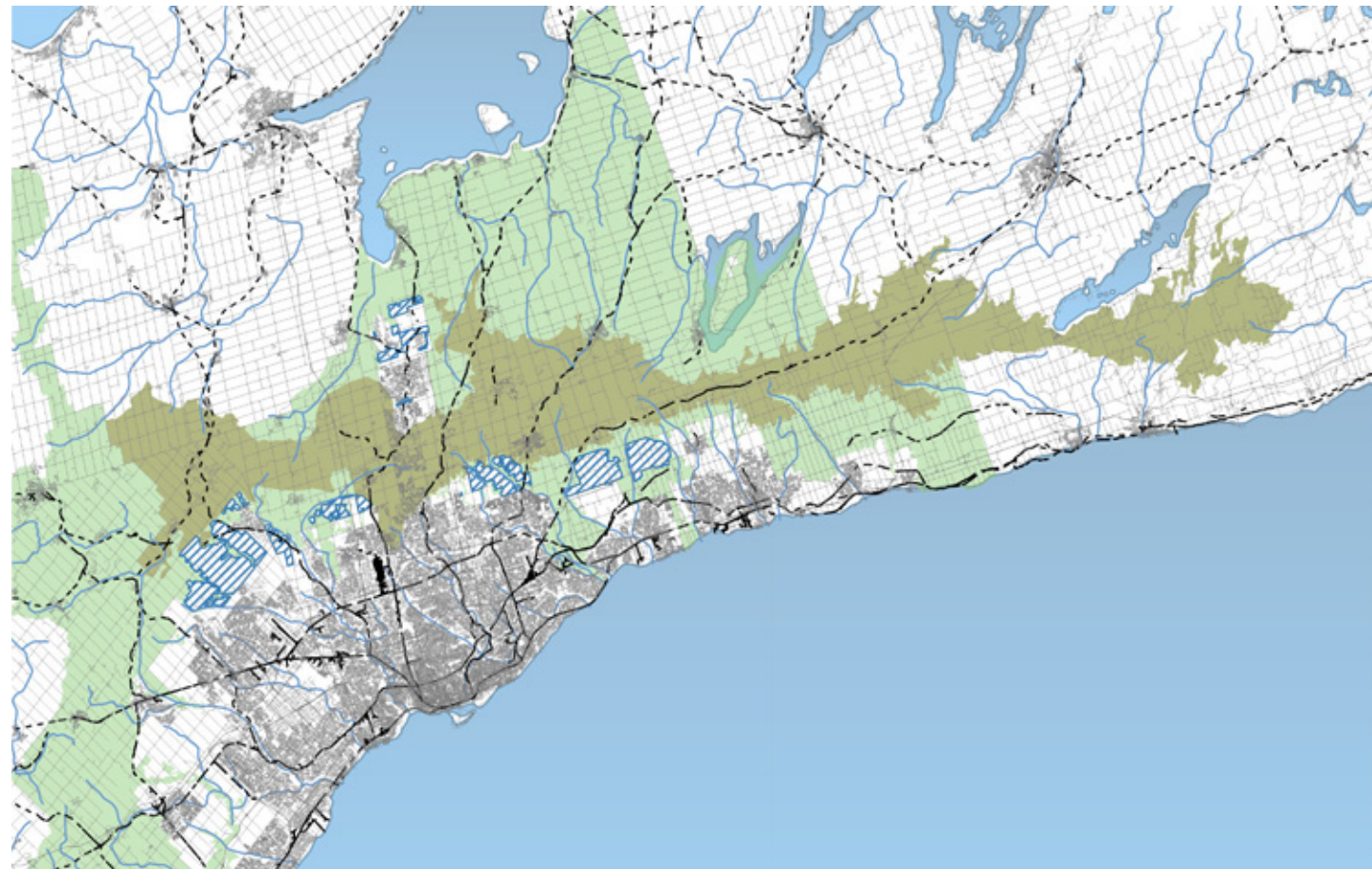


fig.19. Map of Oak Ridges Moraine Greenbelt and Bluebelt

Greenbelt to the Modern Day: Natural Leisure as Advocacy

Towards Conservation

In response to the rapid growth of the suburbs at the turn of the millennium, York Region faced a rising concern about the integrity of its wetlands and agricultural infrastructure. Local organizations such as STORM (Save the Oak Ridges Moraine) recognized that the scenic moraine landscape which brought their members together would soon need protection from the encroachment of insensitive development.¹⁷ In 1992, the founding meeting for the Oak Ridges Trail Association was held. The agenda was, in their own words, to ‘plan, promote and create public recreational trails on the Oak Ridges Moraine from the Niagara Escarpment in the west to the Northumberland Forest in the east’ and ‘engage in and promote conservation, appreciation and renewal of the natural environment surrounding the trail system, and to encourage ecologically responsible attitudes towards it.’¹⁸

The success of the trails motivated action from the Mike Harris provincial government, creating the initial designation of the Oak Ridges Moraine as a protected area. This set the stage for the later expansion of the Greenbelt to guard the integrity of Ontario’s farmland, which was further expanded to include urban river valleys in 2017 and the ‘Bluebelt’ guarding the watersheds feeding them. (fig.19) Altogether, this initiative has captured over 2 million acres of land, including 720000 acres of habitat and 750000 acres of farmland under careful development restrictions.¹⁹

While these efforts seem to have effectively achieved what they set out to do, the results are a highly polarized landscape. Housing developments have continued to sprawl, concentrating



fig.20. Oak Ridges Moraine Trail Key Map

17. “The Oak Ridges Trail Association Story: 25 Years Across the Moraine, 1992-2017,” Stan Butcher, Kevin Lowe, Peter Scholefield, and Harold Sellers, accessed July 14, 2021, <https://oakridgestrail.org/history/>.

18. Ibid.

19. “History of the Greenbelt,” The Greenbelt Foundation, accessed July 14, 2021, <https://www.greenbelt.ca/history>.

right up to the very edge of what has been allowed by zoning restrictions. The sharpness of these edges is perhaps not a concern for internal workings of ecosystem patches protected from development but could be a problem for the long-term resiliency of habitats living in isolation and unable to interchange at a regional scale.²⁰

The Oak Ridges Corridor

By the time that these initiatives were underway, the province recognized that a bridge was needed to connect the Humber and Rouge watersheds. Separated by the dividing line of Yonge Street, these watersheds both played an integral role in the recharge of headwater streams, and would benefit greatly from maintaining their continuity from West to East without interruption from burgeoning neighborhoods. The Province of Ontario purchased the privately owned lands surrounding Bond Lake in the Pickering Land Exchange Agreement reached in 2004, and working together with the aforementioned NGOs as well as private citizens developed a management plan for the Oak Ridges Corridor Park.²¹ Having been used primarily as farmland for the past 200 years, the plan sought to restore healthy habitats as well as establish a new trail connection to engage the public with the Moraine's various ecosystems.²²

The master plan subdivided the corridor into 86 patches, designating them into grassland, forest, and wetland categories for restoration. (fig.21) Working with the Toronto Regional Conservation Association, seed mixes were chosen to include a variety of species native to the region to repopulate each of the patches. The forests were laid down using a combination of machine planting on flatter ground and volunteer planting on the hillier patches. (fig.22)

20. Richard T. T. Forman, "Some General Principles of Landscape and Regional Ecology," *Landscape Ecology* 10, no. 3 (1995): 136.

21. Toronto and Region Conservation, *Oak Ridges Corridor Park Management Plan*, AMEC Earth & Environmental Envision – The Hough Group, Suzanne Barrett, UrbanMETRICS, D.R. Poulton & Associates Inc, and Andre Scheinman Heritage Preservation Consultant. 2006. Digital PDF, P:\EARD\PROJECTS\TC51410 Oak Ridges Corridor Park\Reports\Management Plan\WITHOUT Appendices\Oak Ridges (no App) - August 2006.doc (Accessed August 2, 2021)

22. Ibid.

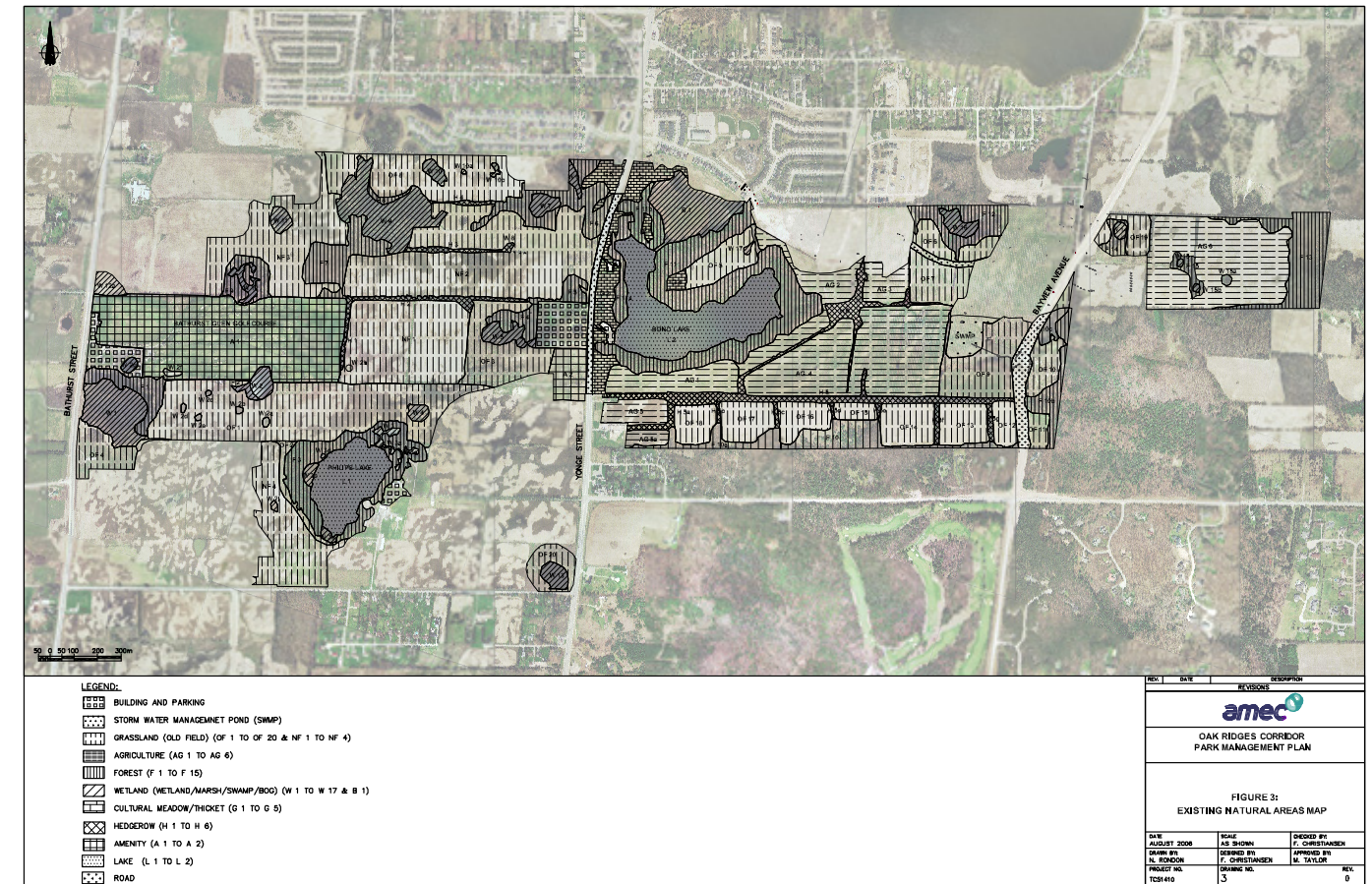


fig.21. Existing Natural Areas Map from Management Plan

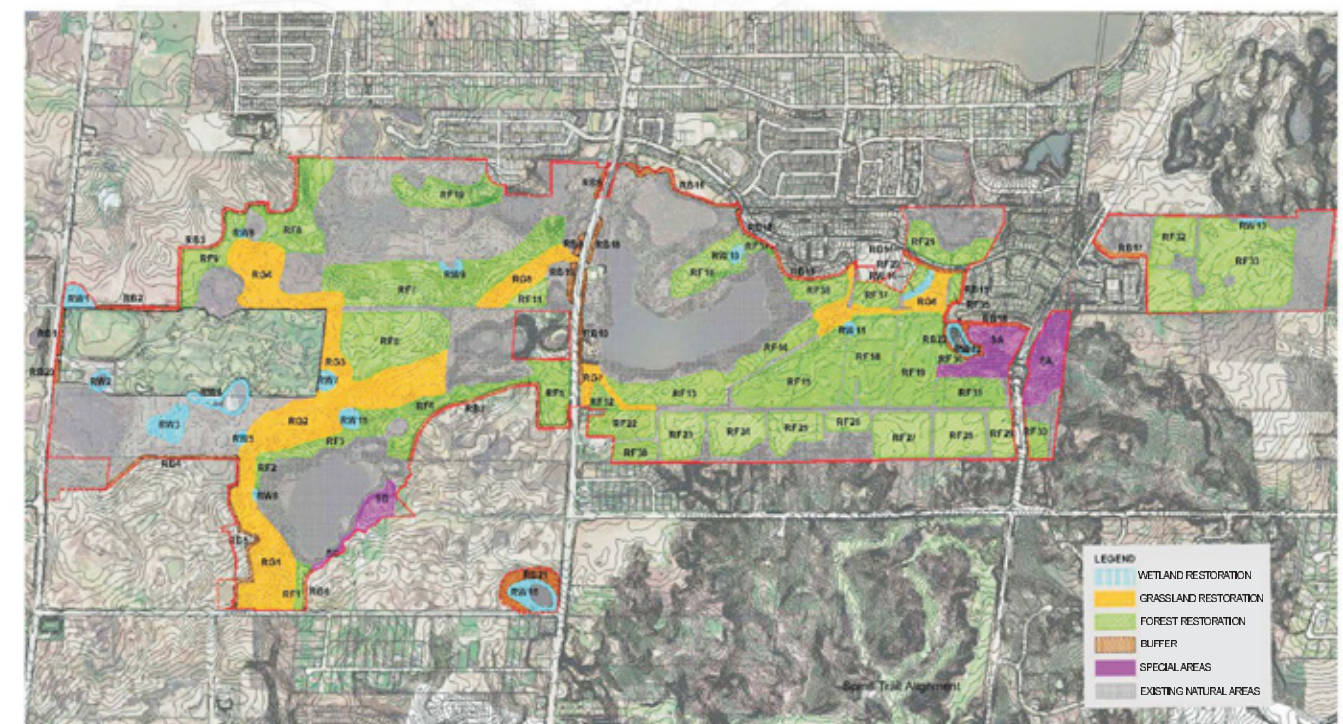


fig.22. Restoration Areas Map from Management Plan

Bond Lake Today

What we might learn from the impact of the Greenbelt is that a strictly defensive approach to environmental management misses out on the unique opportunities for habitat integration which low density housing can offer. Restricting development has not halted population growth, just concentrated it along the boundaries of what is permitted. This is a shame, as the suburb is one of few urban typologies which is both dense enough to harbour a modest community, but sparse enough to sustain softer landscaping, potential which has been largely squandered on stale turf lawns.

To be clear, this thesis is not making an argument against the further expansion and development of the suburbs, but rather for a more intelligent approach that includes the existing ecosystems as stakeholders in the planning design.

15 years after its initial implementation, the habitat planted by the Oak Ridges Corridor Park management plan presents a striking contrast with its historical precedents. By treating it not just as a haven from housing sprawl, but a recreational asset for the adjacent communities the park is creating the culture that will ensure its care and enjoyment for generations to come.



fig.23. Tree Planting by Highway Underpass



fig.24. Volunteer Planting



fig.25. Machine Planting

Summary and Vision

Chapter Conclusions

While the anti-development agendas of the Greenbelt and conservation advocates achieved their goals, its questionable whether or not a strictly defensive approach to environmental management will continue to serve us in the future. The developing landscape is going to need to respond to many competing demands for its resources, and planning strategies based in nostalgia which don't accommodate a changing climate and population will miss the opportunity to build lasting emplacement. In his introduction *Recovering Landscape as a Critical Cultural Practice*, James Corner writes of this phenomena,

The difficulty of advancing landscape is not only an issue of sentimentality and conservatism; it is further hindered by a growing contingent that believes landscape concerns ought to be directed solely towards the stewardship of the natural world. The extreme proponents of this view protest that culturally ambitious landscape projects are largely irrelevant in the face of environmental problems – that is, of course, unless such projects are solely focused on biotic restoration and habitat diversification. A culturally ambitious landscape architecture that does not revolve around ecological concerns is often construed by environmentalists as belonging to the domain of elitist and intellectual art practices rather than to the more practical aspects of healing the earth.²³

What one might glean from Corner's analysis is not that ecological restoration is an unworthy objective, but that landscape design without a vision for cultural engagement beyond aesthetic enjoyment will be caught flat-footed. Restoration initiatives in the coming decades are going to call for more than just an attempt to return to an imaginary past, but a robust and experimental spirit which could accommodate the inevitable uncertainty of a future post-climate change. The purpose of exploring the environmental and cultural history of this thesis' site plan is not to

23. James Corner, "Introduction: Recovering Landscape as a Critical Cultural Practice," in *Recovering Landscape: Essays in Contemporary Landscape Architecture*, ed. James Corner (New York: Princeton Architectural Press, 1999), 3.

dwell in the past, but recognize the forces already in motion such that emerging ecosystems can work with them in concert. The stark reality is that the original habitats that have been lost are not going to return exactly as they once were, but Southern Ontario is still going to need pollination, water recharge, and nutrient cycling. The necessity to improve the biodiversity and resilience of remaining habitats is the perfect opportunity to try again with the next generation of suburbanites - perhaps this time instead of fearing our own presence in the landscape, a lifestyle participating more directly in its ongoing processes could begin to mend the breach between Nature and Culture.

Design Opportunities and Ideas

The original design vision for this thesis was for a bicycle trail and bus route along the axis of Bathurst Street. The trail would be paved but spaced with the road to allow a continuous flower bed to line either side, which would be partly populated with native wildflowers by volunteers and partly left to be seeded by natural means. (Similar to the new bicycle route along Homer Watson of the Grand River Trail in Kitchener, see fig.26) At the stop intervals, there would be a bus shelter with more organized gardens and bee hotels. (fig.60 and fig.61 in appendix) This likely would have worked as a design proposal on its own, however I became interested in trying on a re-wilding scheme at a far more intimate scale in part because I could see a similar tried and true trajectory with the initiative to restore the Oak Ridges Corridor. The public interest in rejuvenating this land grew out of local hiking groups who recognized its value and saw the opportunity. I can imagine that if successful, a gardening initiative like the one outlined in the following chapter would enable a much greater undertaking to replenish habitat at a regional scale through policy change. By retethering suburban residents to a deeper sense of environmental history and stewardship through natural leisure, the proposal creates the social context to pursue more radical change.



fig.26. Grand River Trail Extension by Homer Watson



fig.27. Neighborhood Patch and Channel Designs

Re-wilding the Interstitial Fabric

Introduction to the Design

Sited within the neighborhood adjacent to the Oak Ridges Trail entrance, the wildflower gardens and nursery design seeks to build an interstitial fabric to reintegrate an otherwise displaced and interrupted regional ecology. The proposal works to accomplish two goals. First, to disrupt an aggressively monotonous suburban landscape and introduce opportunities for greater biodiversity. This will be achieved using a network of garden patches and backyard channels, which are structured into the existing excesses at street corners and along the fence lines of private backyards. Second, to facilitate the creation of stronger social bonds amongst neighbors through collective gardening efforts. This will be achieved using the main garden as a site of information and social exchange. Together, these interventions establish new living patterns within the fabric that could potentially be scaled to other neighborhoods in the district. Overall, the design hopes to chart a model of harmony that allows both the wild and domestic to coexist and reinforce each others best attributes.

Garden Patches

Scope

Beginning with the core components of the neighborhood gardens, the corner patches act as the primary nodes about which these new ecosystems can take root. Shown as gradient blobs in the master plan, (fig.27) these patches are each laid out with a variety of plant species knit together. Some also contain small nesting structures for cavity bees, and/or dishes with rocks to collect water. Ideally, these gardens would require very low maintenance, and each patch carries a combination of flowers, grasses, and sedges that can support all the basic necessities for insects to thrive.

Within the neighborhood scheme, the corner patches occur in the underutilized space between the curbs and sidewalks at the corners of residential streets, (Patches 1-4 and 6-8, in fig.28) and one in the excess space collected at the back of one of the larger properties on Trish Drive. (Patch 5 in fig.28). The gardens would be installed and planted by the municipality using a simple metal edge detail to distinguish it from the rest of the turf.

Process

Using a simple shadow plan, fig.38 identifies the likely planting conditions in terms of sun exposure and notes necessary tolerances, such as the risks of road salt or compaction from wandering feet for patches close to footpaths. The soil conditions of each patch noted are partially speculation, and partially design. Patch 5 for example is dug out to allow water to collect.

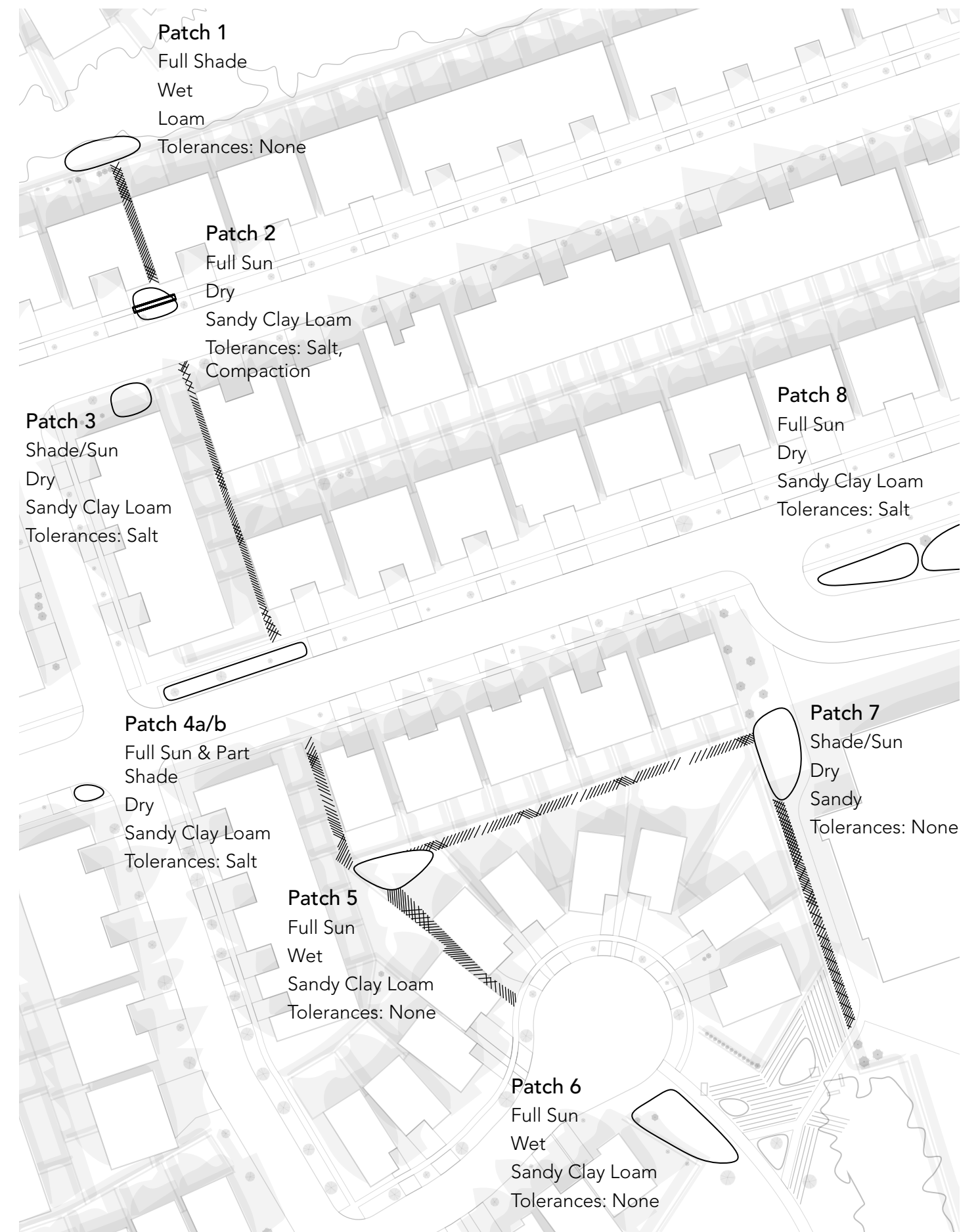
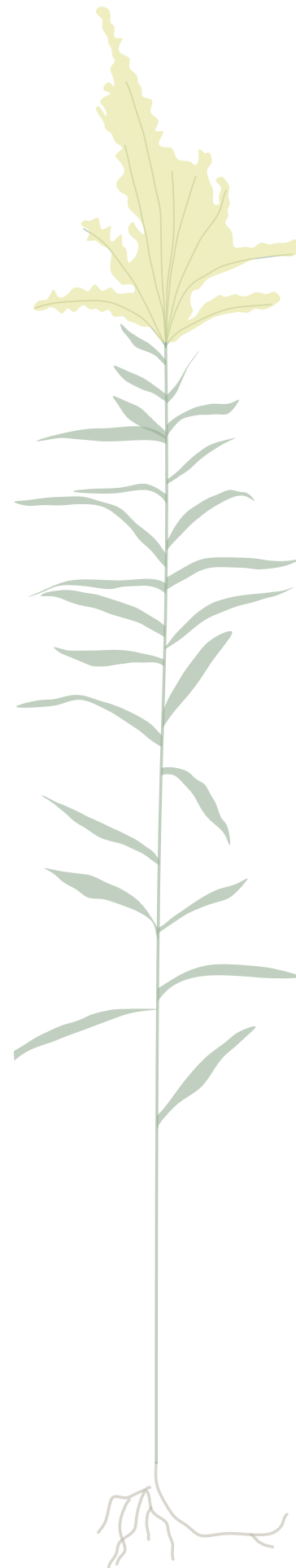


fig.28. Neighborhood Patch Designs and Shadow Plan

From here, the main resource that was used to curate the various species in this design was the *Native Plants for Pollinators* brochure from the Credit Valley Conservation Authority, as well as both the *Prairie & Meadow Plants for Landscaping* booklet and *Woodland Plants for Landscaping* booklet from the same organization. The Pollinator brochure lays out basic information for bee and butterfly care and offers a large spreadsheet of 60 different flower species native to the region in alphabetical order.²⁴ To fully visualize the species available and their desired planting conditions, the mind map shown in fig.29 represents this data in 5 layers. Along the x axis, the bloom time from May through November. Along the y axis, the preferred sun exposure from full shade to 6 or more hours of sun. Box colour represents bloom colour, the border represents soil moisture (dry or wet), and the background colour represents soil texture, sandy clay loam being the default condition with yellow for sandy, red for sandy loam, and brown for loam.

Using this collated data, the gardens are then curated using the following criteria; Firstly, 3-5 flowers are selected which match the speculated/ designed planting conditions. Secondly, species are chosen to capture multiple colours and bloom separately throughout the season, meaning there will always be a blossom to land on. And lastly, flowers are matched to attract insect species with similar nesting habits (ground nesting vs. cavity nesting). The resultants can be seen in fig.30 through fig.31.

For patches hosting ground nesters, such as Patch 5 (fig.34) the garden would leave bare soil in the centre for use, away from footprints or unwanted digging. Patches hosting cavity nesters, such as Patch 2 (fig.33) have bee hotels installed and include pithy-stemmed plants such as sumac to ensure adequate materials to plug the nest openings. The bee hotels are assembled from fairly simple materials, including plywood and common lumber with wire mesh to hold the nesting material together. (fig.32) Inside, bundles of hollow sticks, pinecones, dried grasses, leftover bricks, and drilled out logs can be populated by cavity nesting leafcutter or mason bees.

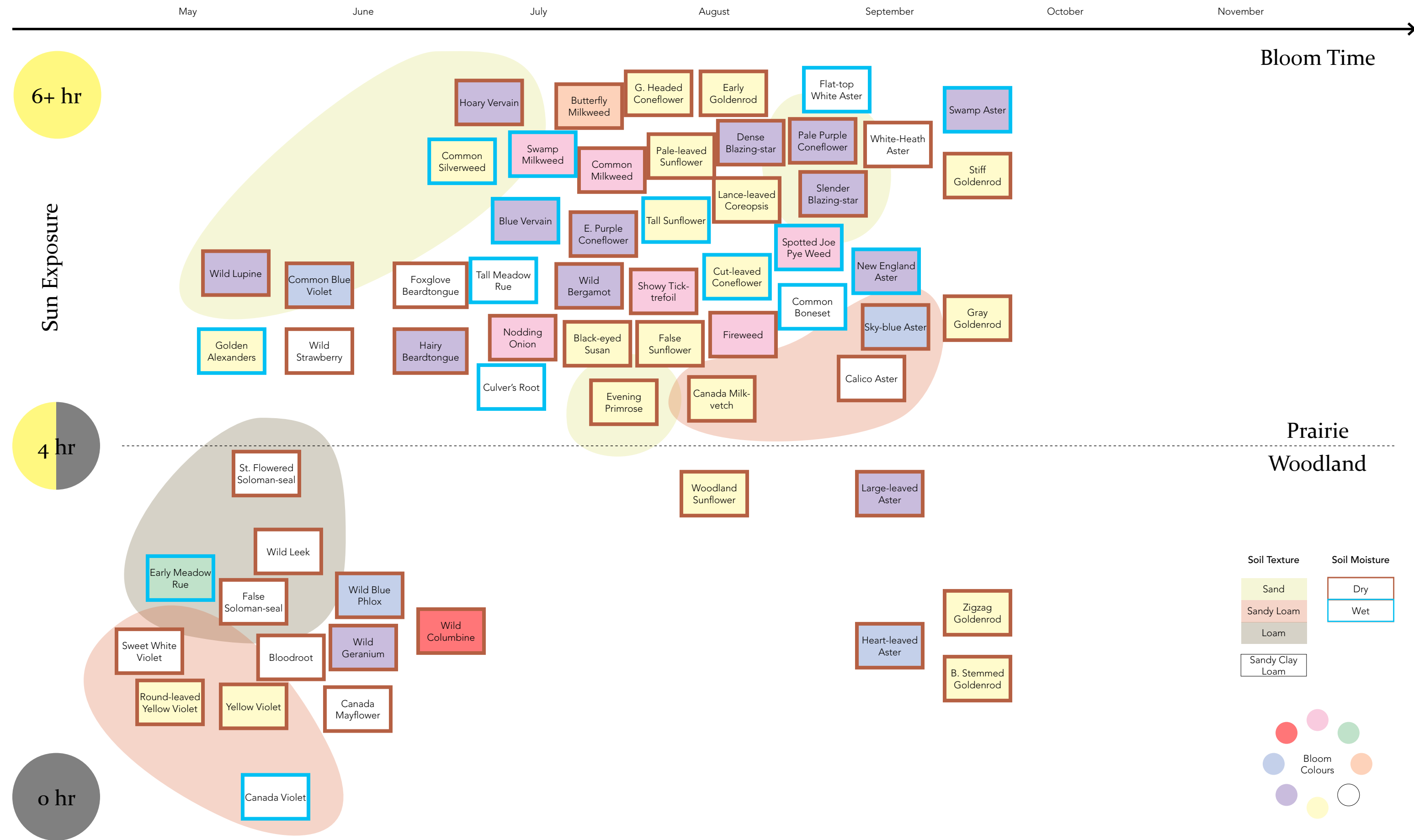


fig.29. Pollinator Friendly Wildflower Species Mind Map

24. "Native Plants for Pollinators," Credit Valley Conservation, last modified 2017, https://cvc.ca/wp-content/uploads/2021/03/com_uo-nativeplantsforpollinators_f-web.pdf

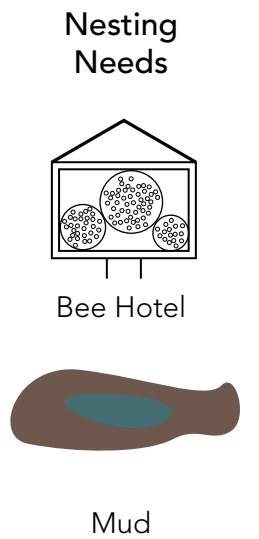
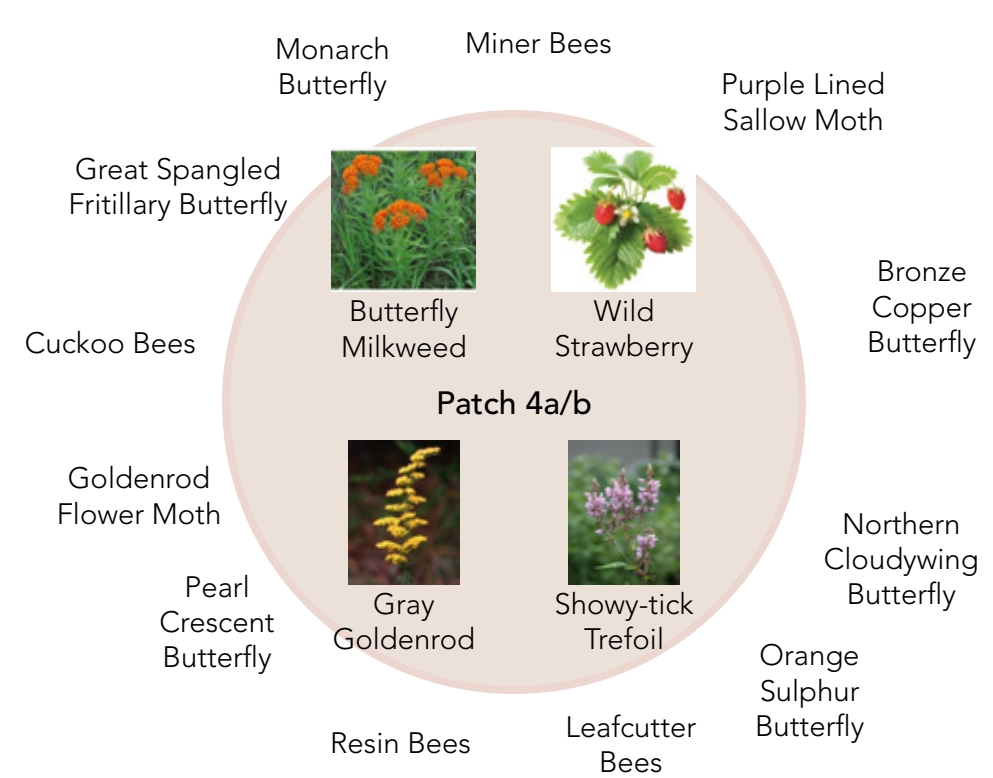
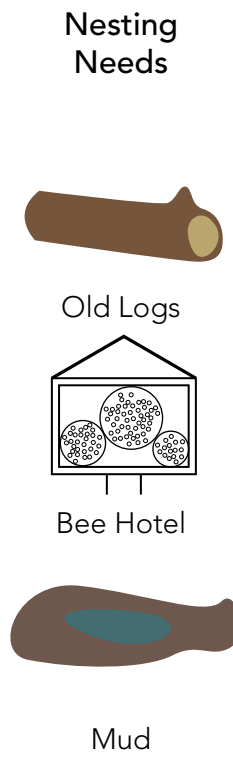
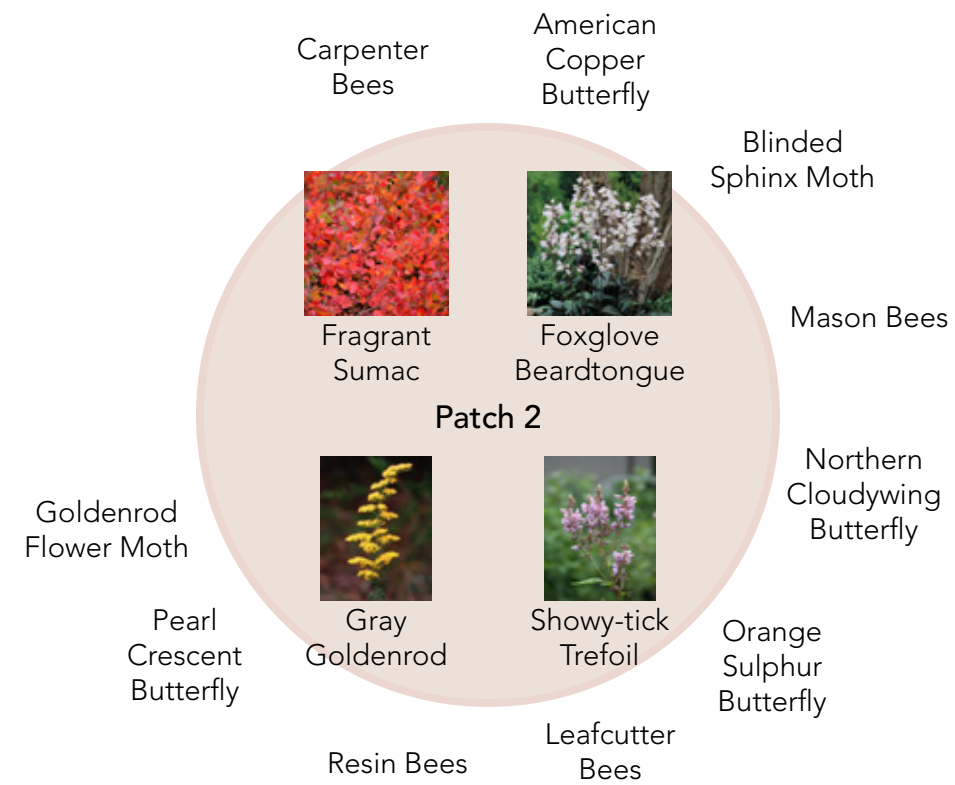
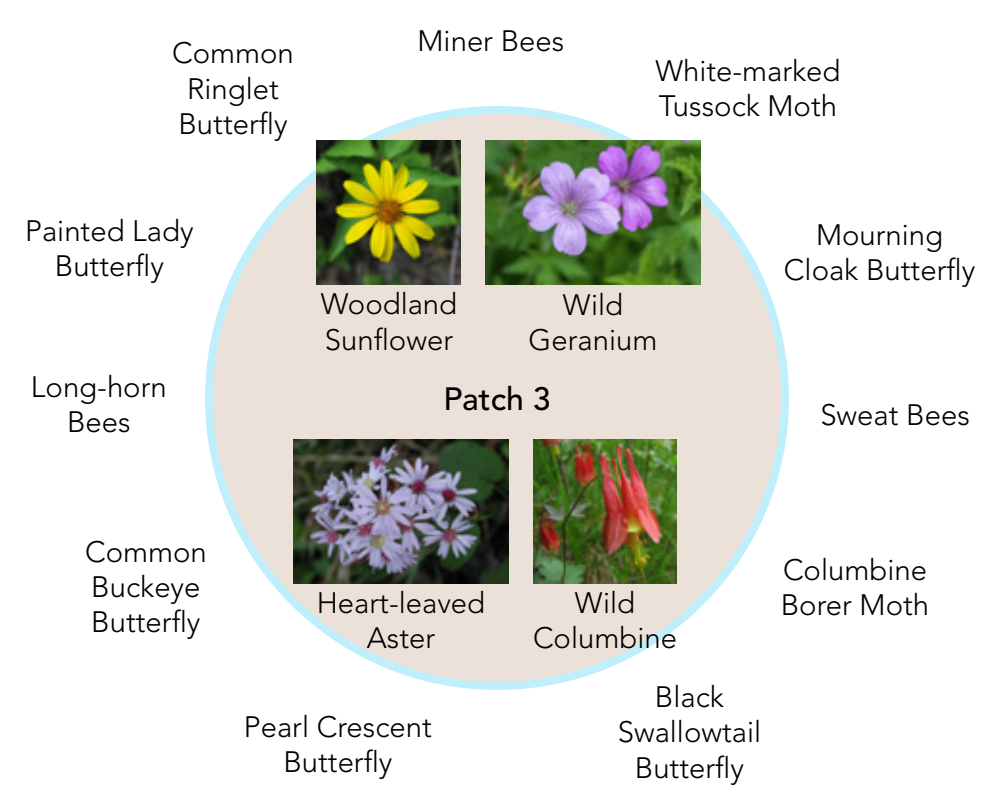
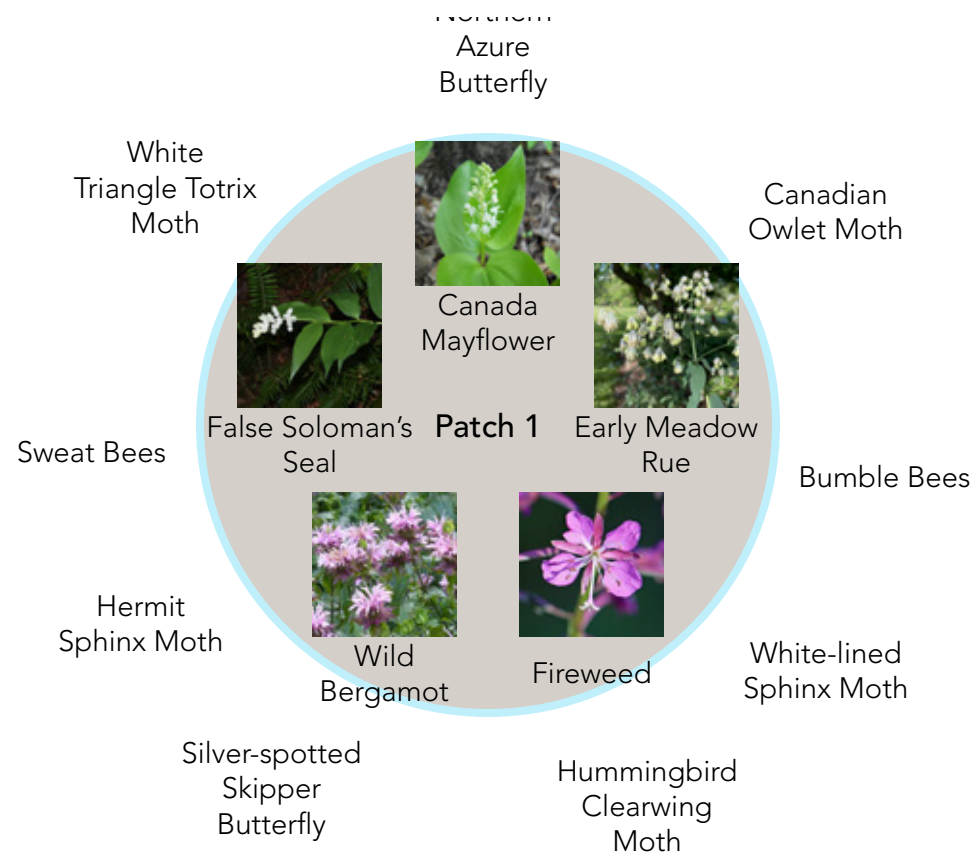
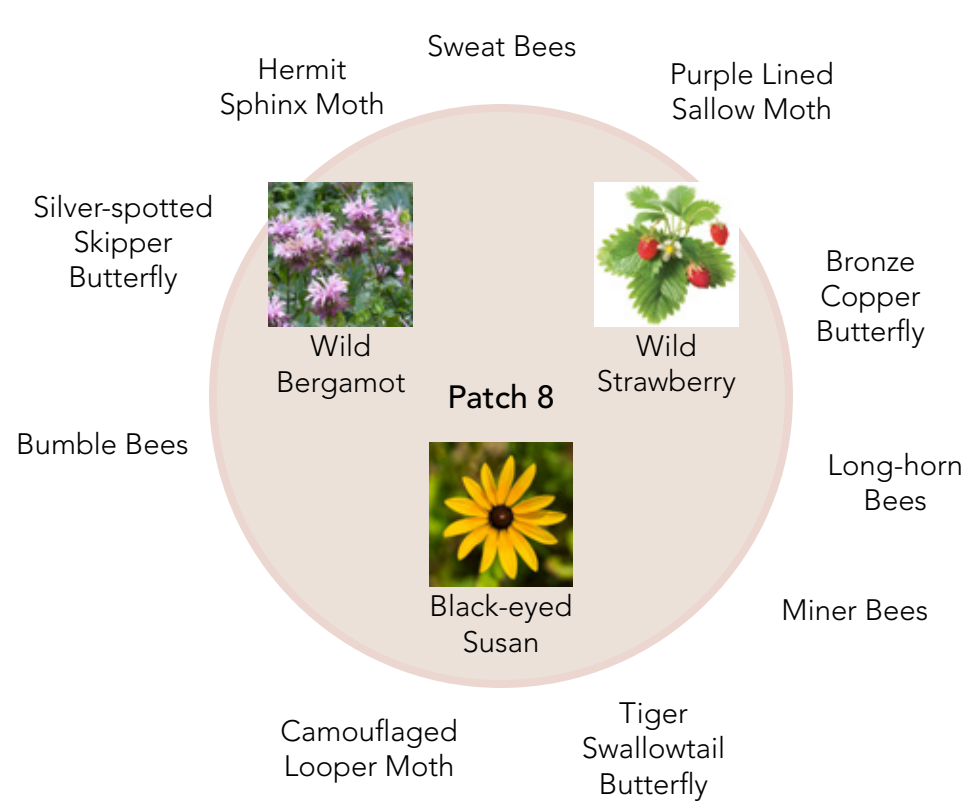
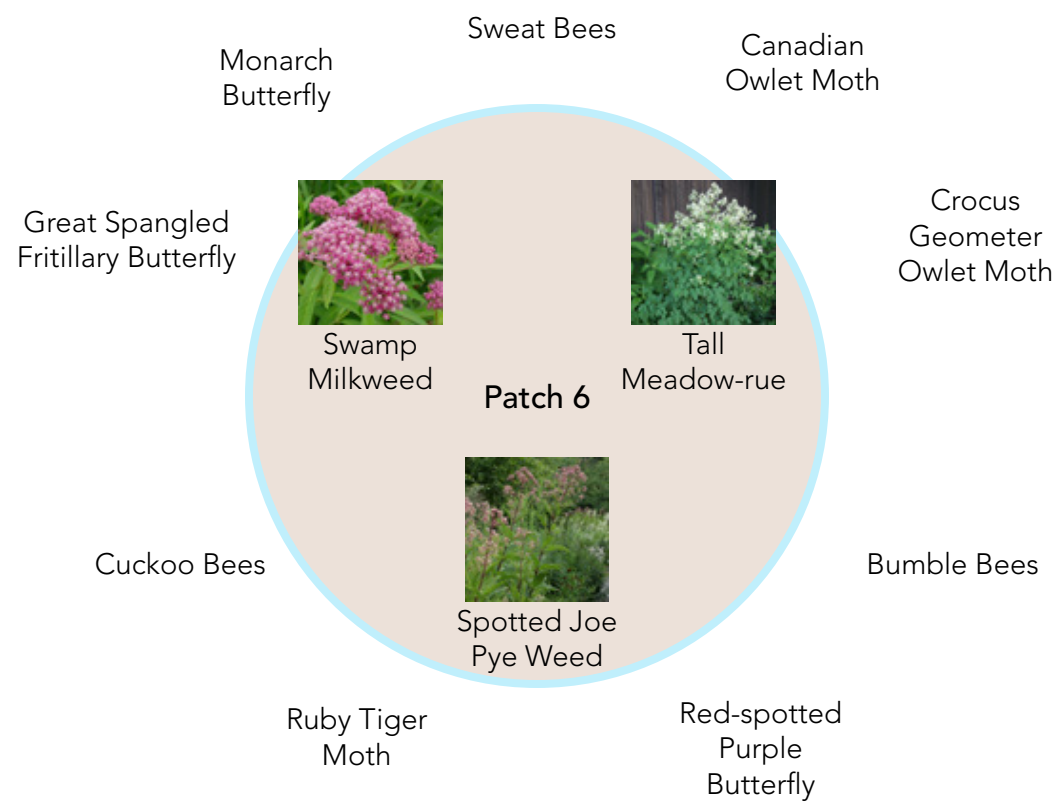
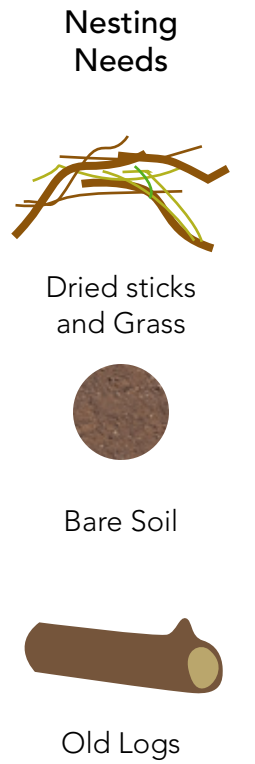
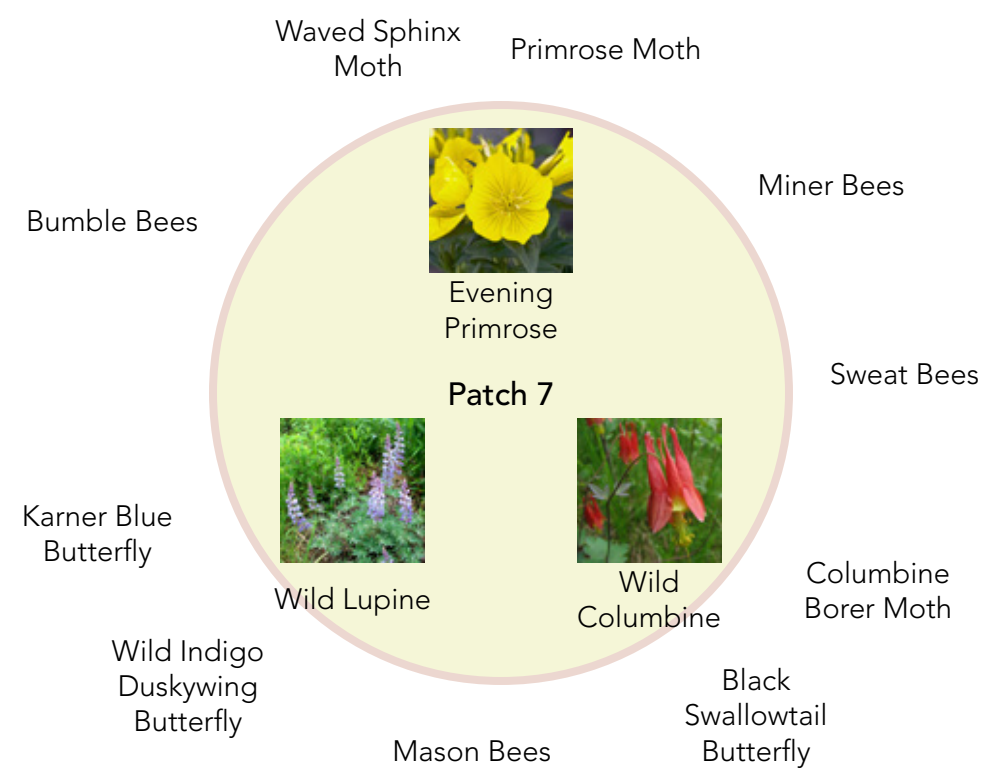
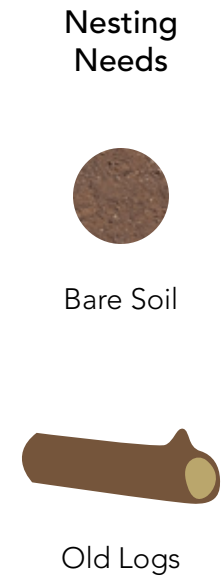
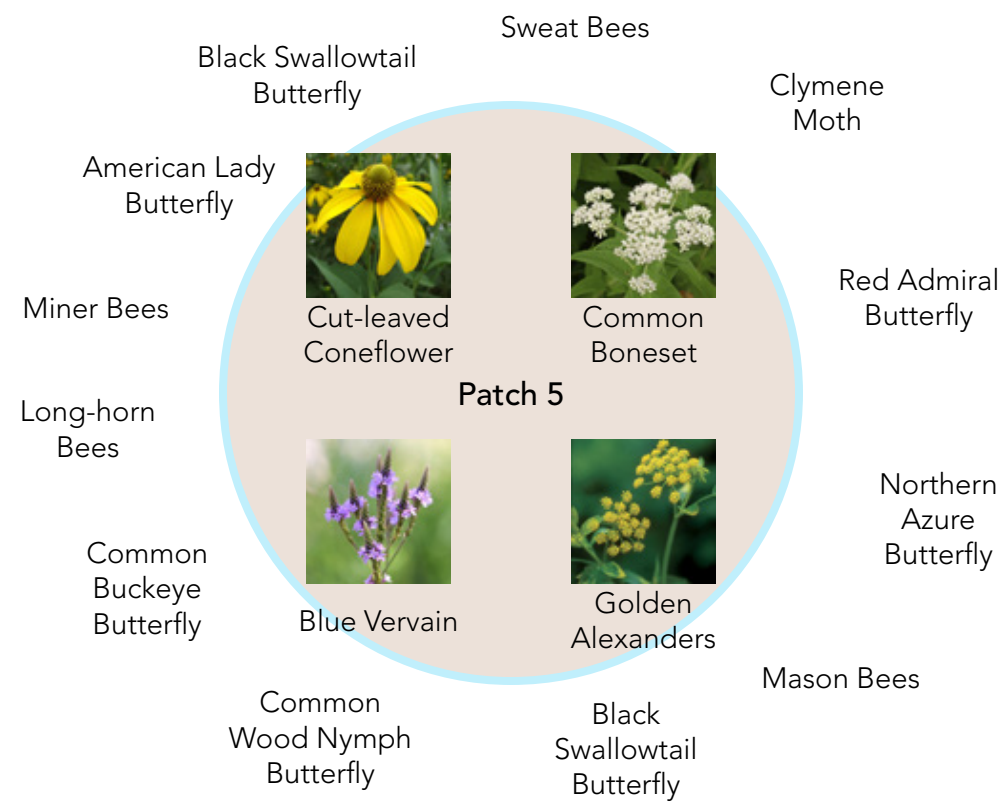


fig.30. Garden Patch Layout Diagrams 1-4



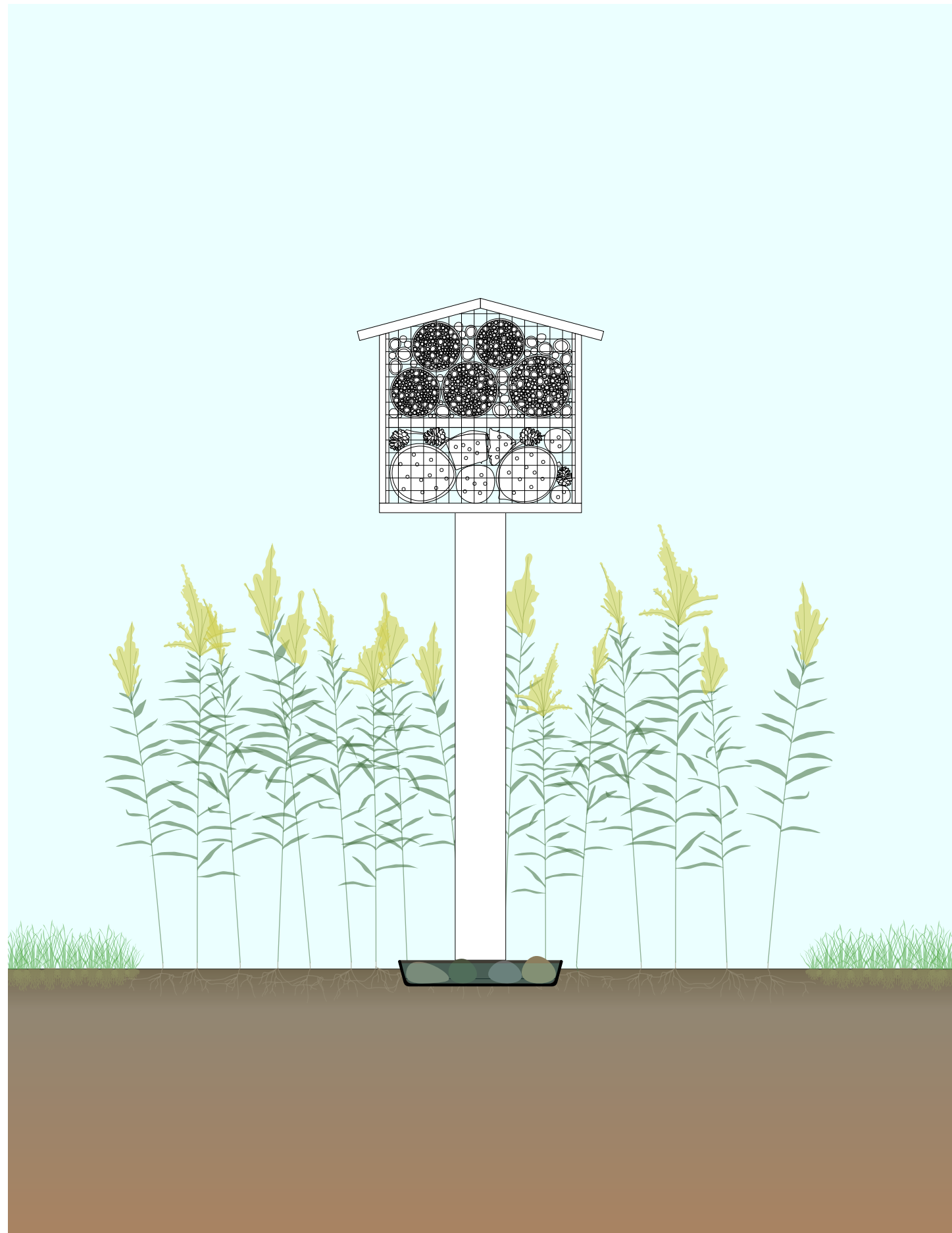


fig.32. Small Bee Hotel Detail

Lastly, for water supply each of these installments will include dug out puddles or small clay troughs with stones intended to fill up with rainwater for insects to drink from, such as butterflies and moths in addition to the bees. (fig.32) Altogether, these nesting structures blend into the suburban fabric alongside other repeated objects such as the mailboxes, fire hydrants, power boxes, and telephone poles, establishing a system across the neighborhood.

Results

It's worth noting that with exception to their placement in between the curbs and paving, the formal expression of these gardens is ultimately arbitrary. What is important is their performance as a network. In his introduction to *Recovering Landscape: Essays in Contemporary Landscape Theory*, James Corner outlines the importance of the agency of landscape over a strictly aesthetic pursuit. He makes the case that within a design approach that foregrounds process, 'The emphasis shifts from landscape as a product of culture to landscape as an agent producing and enriching culture.'²⁵ It was this design framework that initially inspired this thesis' focus on elevating the weeds and bugs over a more traditional conception of gardening. It would seem that the messier, uglier aspects of the ecology are in truth the unsung heroes of Southern Ontario's agricultural health and sustainability and are more critical to our continued subsistence than endless rows of rose bushes and pansies.

This is why while the resulting garden patches fulfill a distinct and independent purpose of replenishing pollinator habitat, they are also furthering the subtler agenda of 'selling' the residents on participating in the broader initiative outlined later in this chapter. There is perhaps no other urban typology as hegemonic in North America as the image of the American Dream, the single-family house with opaque grassy lawns and white picket fencing. Seeing is believing, and save-the-bees activism which neglects to deal with this nostalgia, instead placing the burden of imagination on

25. James Corner, "Introduction: Recovering Landscape as a Critical Cultural Practice," in *Recovering Landscape: Essays in Contemporary Landscape Architecture*, ed. James Corner (New York: Princeton Architectural Press, 1999), 4.



Fragrant Sumac

Foxglove Beardtongue

Gray Goldenrod

Showy-tick Trefoil

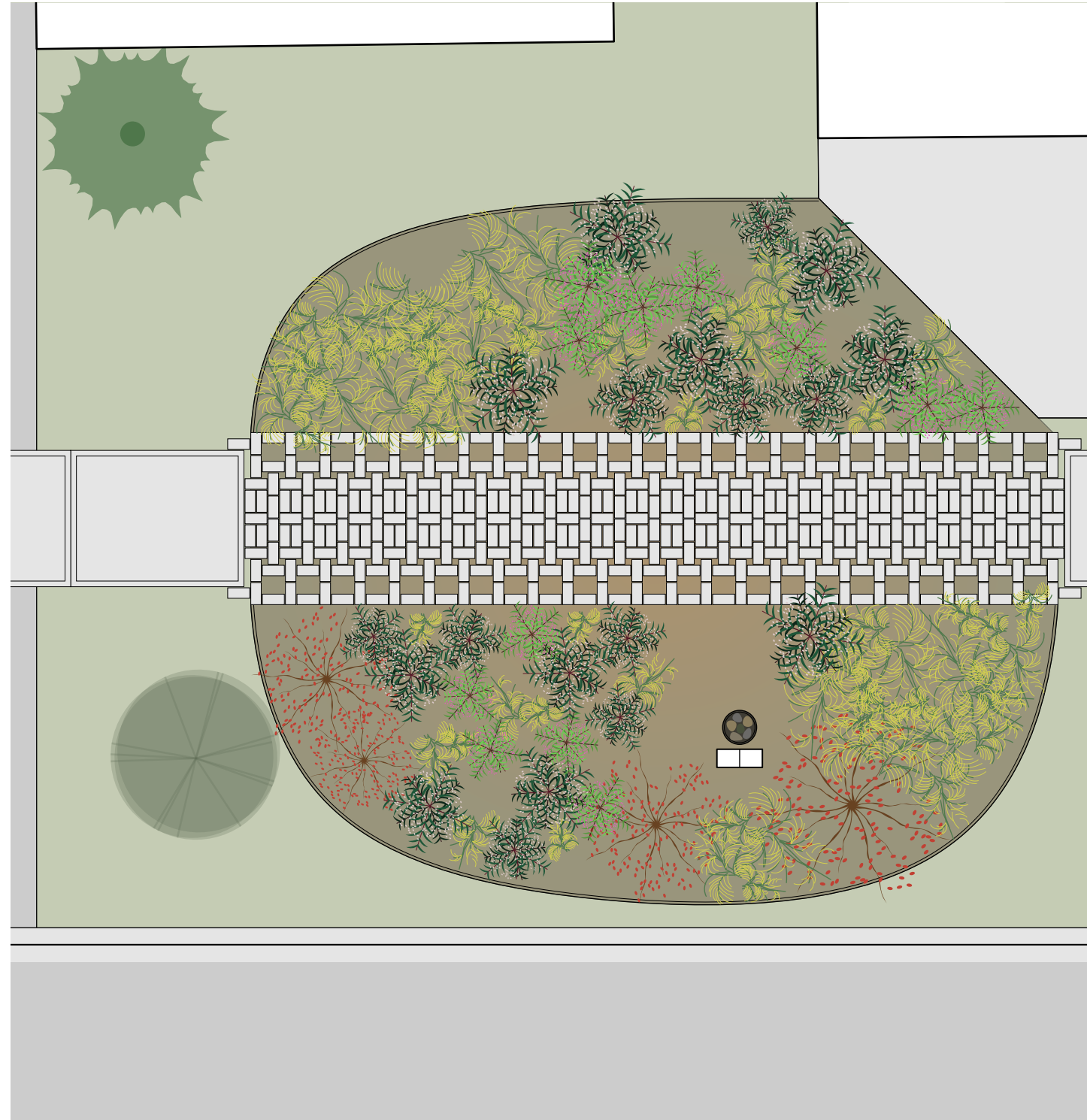


fig. 33. Patch 2 Design



Blue Vervain

Common Boneset

Golden Alexanders

Cut-leaved Coneflower

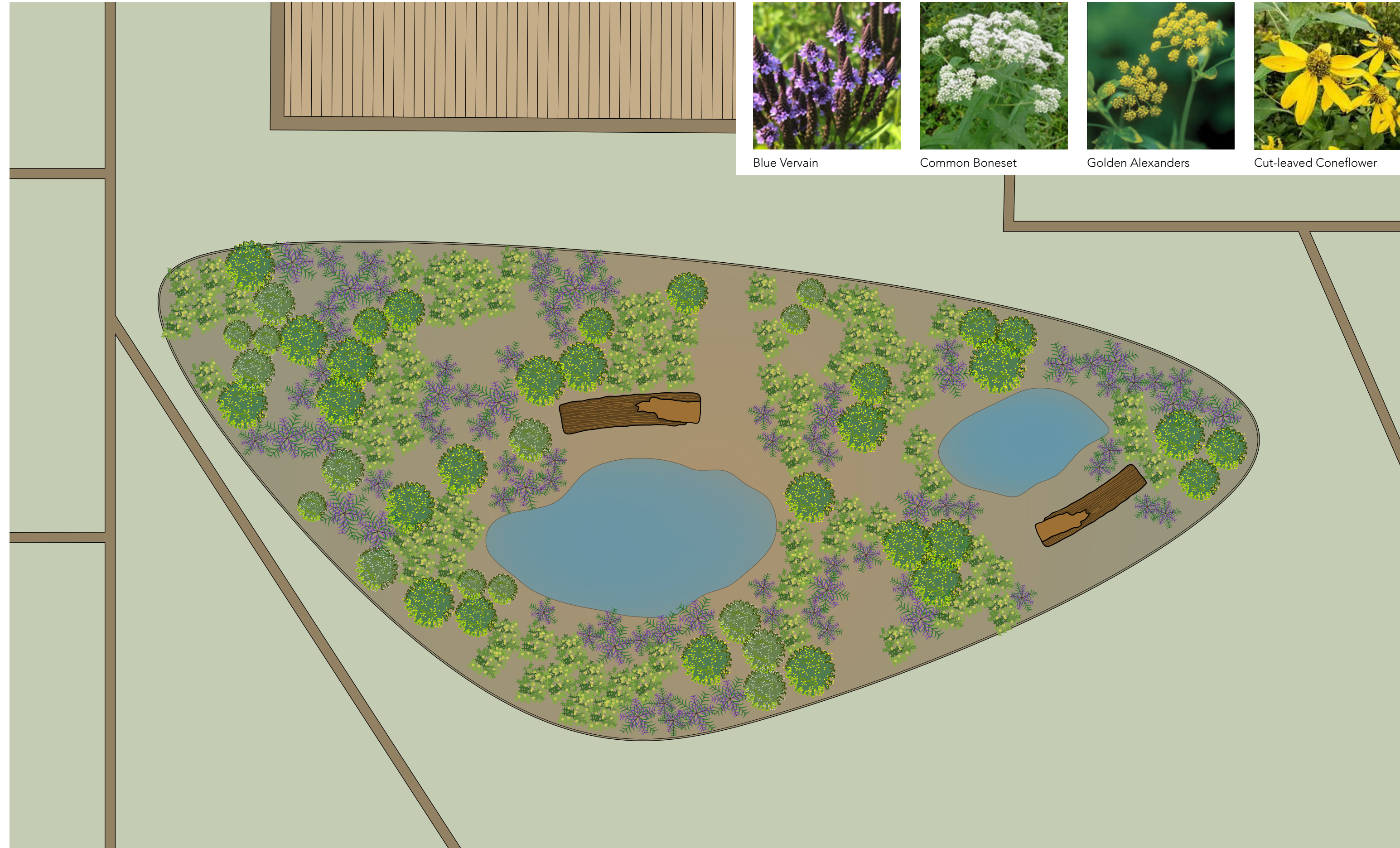


fig. 34. Patch 5 Design

individual property owners opting in will fail to make a difference at scale. There is no shortage of local news stories outlining neighborly disputes over unwanted mowing or complaints of 'unkempt' property.²⁶ For this emerging landscape to succeed, it must in the words of William Wordsworth, itself 'create the taste' by which its unique beauty is to be enjoyed.²⁷

26. Lorraine Johnson, "Battle over front-yard meadow thick with irony," *Toronto Star*, September 1, 2020, <https://www.thestar.com/opinion/contributors/2020/09/01/battle-over-front-yard-meadow-thick-with-irony.html>.

27. William Wordsworth to Lady Beaumont, May 21, 1807.

Backyard Channels

Scope

In order to thread together these individual ecosystem patches and create a closed circuit with the existing habitat, the backyard channels are placed both between existing houses along the side yards and along the back fences of residential yards (fig.35). Earlier iterations of this design imagined that the space for these would be allocated by either removing fences entirely or moving them back 1-2 metres. With property lines shifted back to accommodate, these channels would function like a wildlife 'sidewalk' offering a path of travel for insects from garden to garden (fig.36) Like an actual sidewalk, residents would be responsible for maintaining their individual section of it ensuring adequate water and pruning such that all properties can benefit from the increased activity from pollinators. While this idea of creating a tartan grid with vegetation backchannels could be a strong feature of a new development adequately spaced for it, in this particular context the houses and lots are too narrow to fully support that vision. (Not to mention soliciting the cooperation of over 20 properties to volunteer land is a tough sell). It's then more appropriate to treat these components as a dotted line of 'micro-patches', small flowerbeds along the fence lines populated by residents participating the in the broader gardening initiative.



fig.35. Neighborhood Channel Designs and Shadow Plan

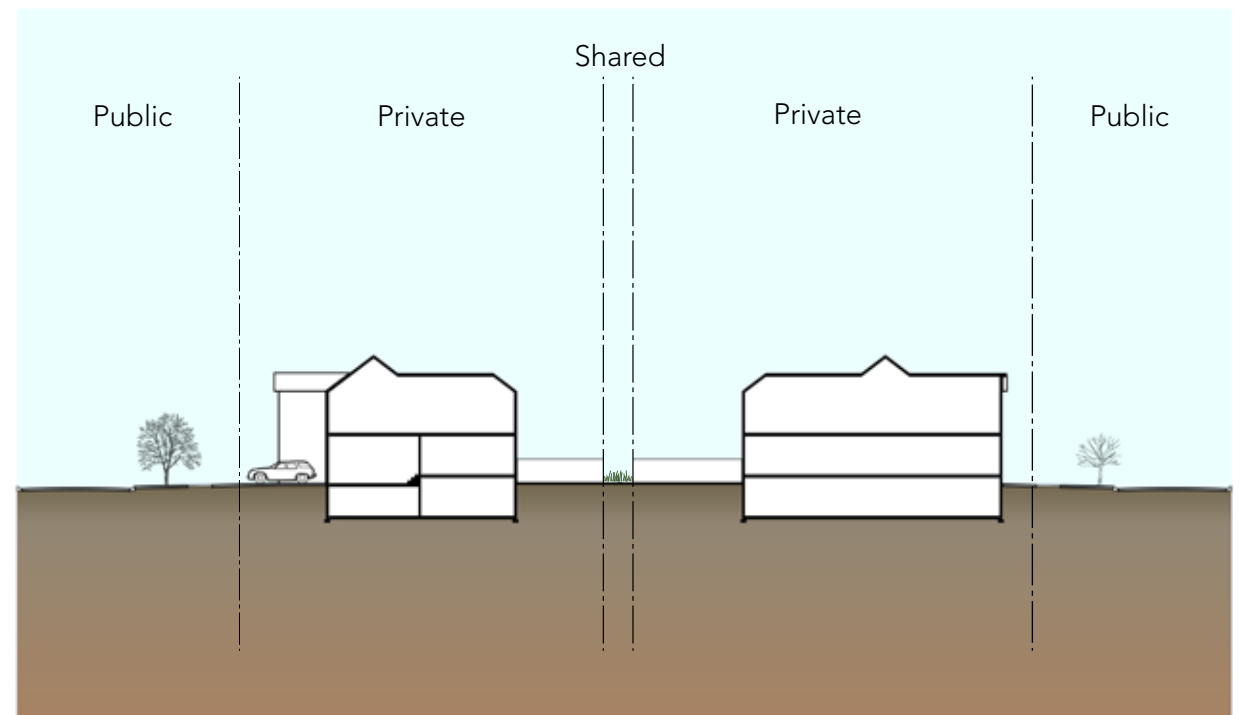


fig.36. Backyard Channel Design (early iteration)

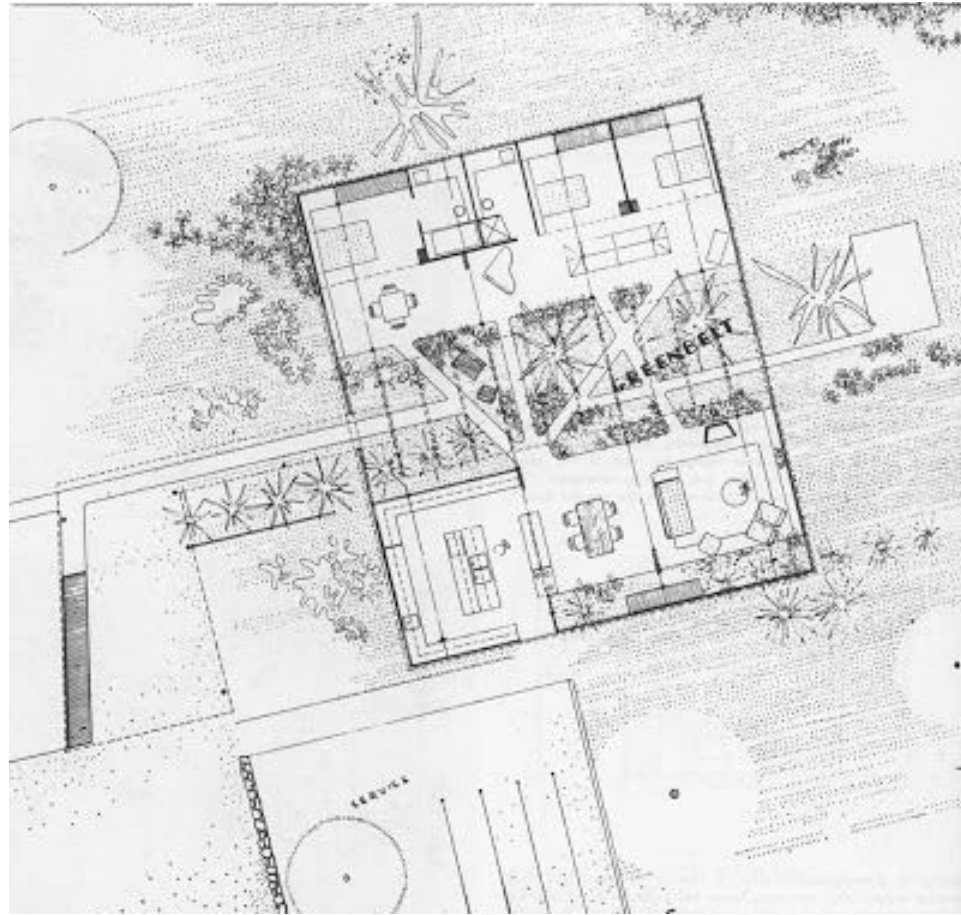


fig.37. Ralph Rapson's Case Study House #4, Greenbelt House Plan

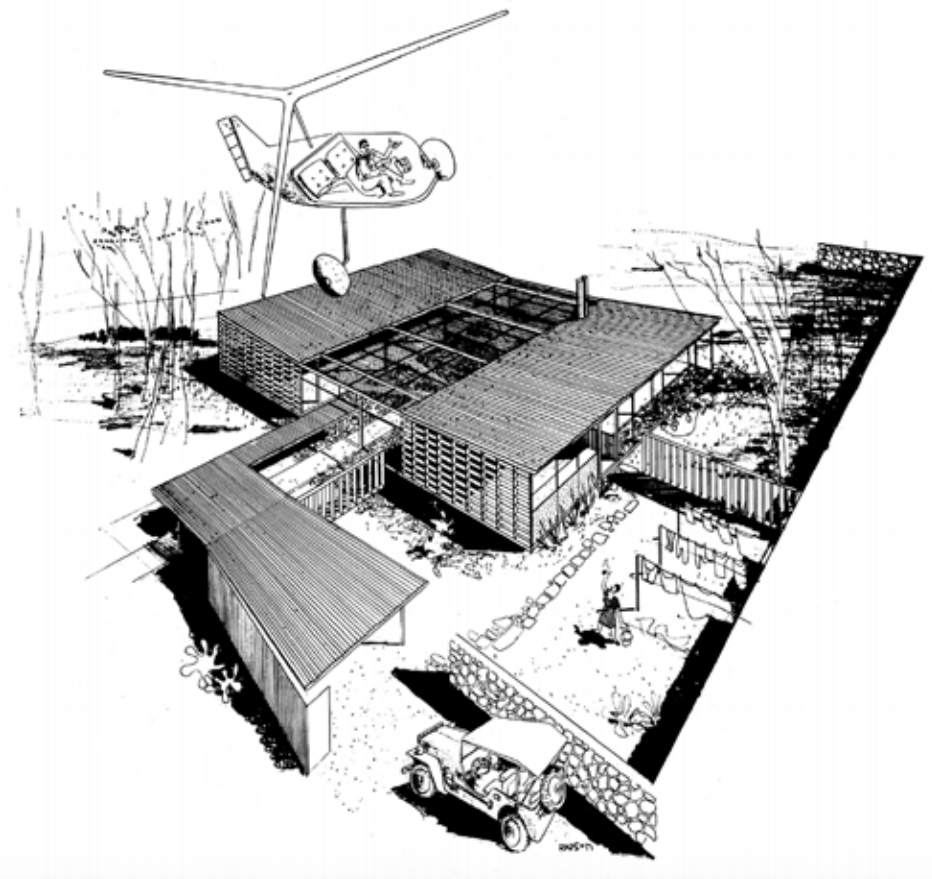


fig.38. Ralph Rapson's Case Study House #4, Greenbelt House Exterior Perspective

Precedents

In addition to building an integrated wildlife network, the channels also set the stage for deeper relationships between ecosystems and the domestic garden. Drawing on Ralph Rapson's Greenbelt House as a precedent, the channels seek to bring important ecological structures into contact with our usual vegetables and roses.

Rapson's Greenbelt House featured an open indoor floor plan bisected by an expansive indoor garden, under a large skylight to supply adequate sunlight to the plants below. (fig.37/fig.38) Completed as a case study proposal for John Entenza's Arts and Architecture magazine in the 1940s, Rapson's stated intent was to 'bring nature within the house – not in small, pretty, planted areas but in a large scale that will do justice to nature. For once, the open plan will have been achieved; for once, the complete integration of the inside and outside will have been accomplished.'²⁸

While Rapson's original design was never built, many of the themes it embodies informed domestic design staples now standard across York Region homes. The idea of bringing together the kitchen and garden into closer proximity can be read in the standard home section with the kitchen located near the back and sliding glass doors leading to outdoor porches that then connect to the backyard (fig.40). Taking this section one degree further, this thesis proposes a delineation between the productive realm of the domestic vegetable garden to a newer conception of gardening that receives activity and gives back to a broader ecosystem. The symmetry of Rapson's plan is powerful, symmetry that can be recognized in the mirrored plots of many houses across subdivisions in York Region. By reclaiming the shared fence as a space for wilder growth, this architecture opens up opportunity for a more ecologically harmonious and socially conscientious

28. Francisco Gomes, "Ralph Rapson's Greenbelt: The Evolution of a Prototype," *ACSA Fall Conference*, (2012): 275.



fig.39. Gertrude Jekyll's Munstead Wood Garden Beds

gardening culture. (fig.41)

A much older, but perhaps more instructive precedent to these ideas can be found in the border gardens of Gertrude Jekyll from Victorian England. Credited with pioneering the 'cottage-garden' aesthetic, Jekyll was best known for her work in the experimental gardens of Munstead Wood, where she spent decades cultivating hundreds of species and lovingly documenting their attributes and care instructions in her various handbooks. (fig.39)

The gardens were highly inspired by her study of painting, pairing colours to bloom in concert throughout the seasons. While at first appearing chaotic compared to previous English gardening traditions, the flower beds were in fact highly manicured to achieve a delicate tapestry.

In her article *Gertrude Jekyll and the Late-Victorian Garden Book: Nature-Culture Relations*, Grace Kehler writes about Jekyll's contemplation of the balance between her connection to and differentiation from the natural world;

Jekyll's preoccupation with the aesthetics of the garden led her to an ongoing negotiation with place, and in her accounts of Surrey generally and of Munstead Wood specifically, the land and nature accrue qualities as complex as those of humans. This complex figuring of the natural renders it an agent in its own right and suggests an aesthetic that attempts (at least intermittently) to orient itself to other forms of life that the human is connected to but not consonant with, for the good garden and the good house in Jekyll's estimation testify to the architect's sympathy with the particulars of place.²⁹

Jekyll's writing embodied this tension between nature and culture, while she regarded herself a student of nature, the gardens were deeply rooted in the realm of art which resisted imitation of the uncultivated wilderness. She accepted equally the frustration and wonder of nature's resistance to her control, and generated a lasting cultural contribution to gardening practice well into the 20th century.³⁰

29. Grace Kehler, "Gertrude Jekyll and the Late-Victorian Garden Book: Representing Nature-Culture Relations," *Victorian Literature and Culture* 35, no. 2 (2007): 626-627.

30. *Ibid.*, 627

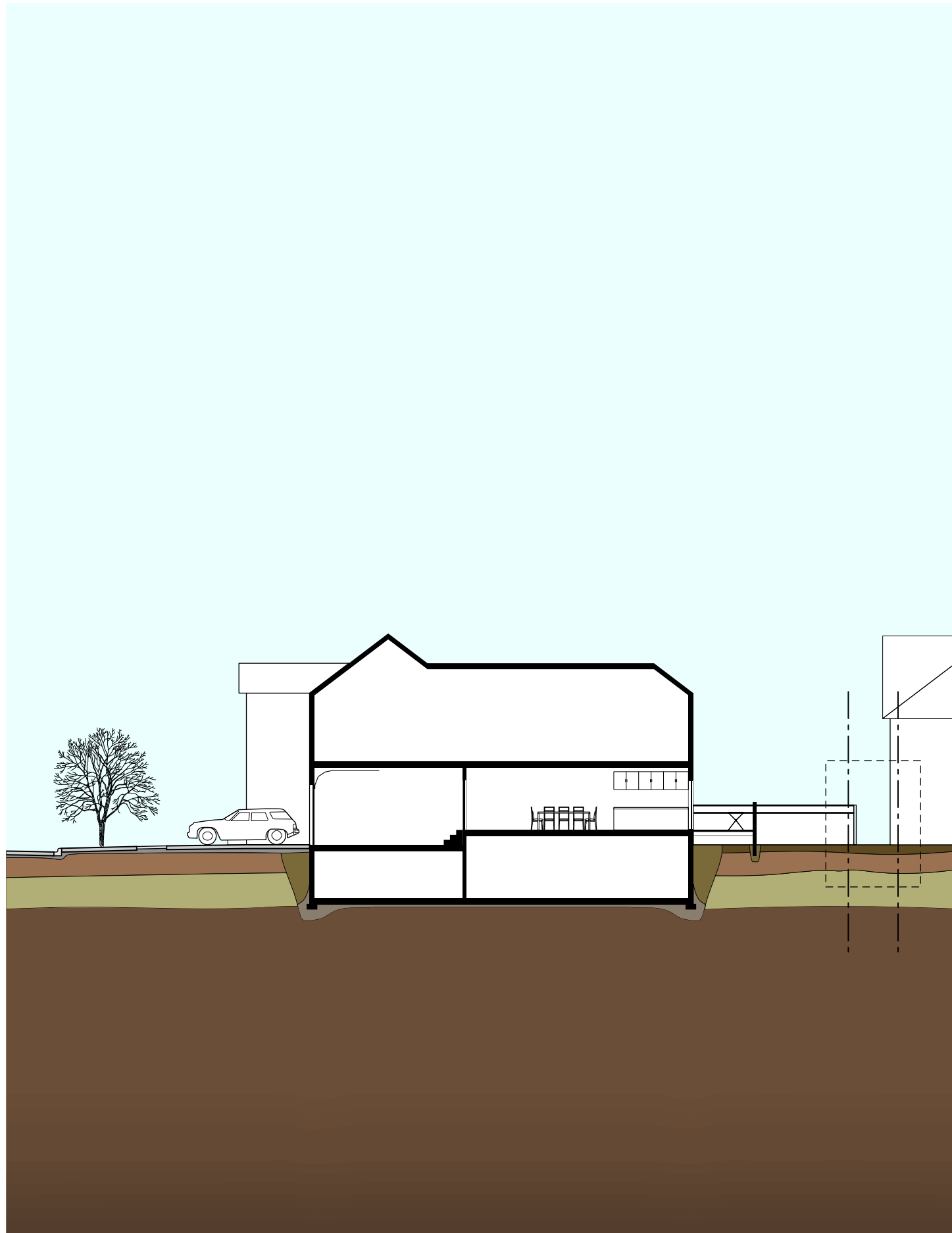


fig.40. Standard Backyard Channel Section

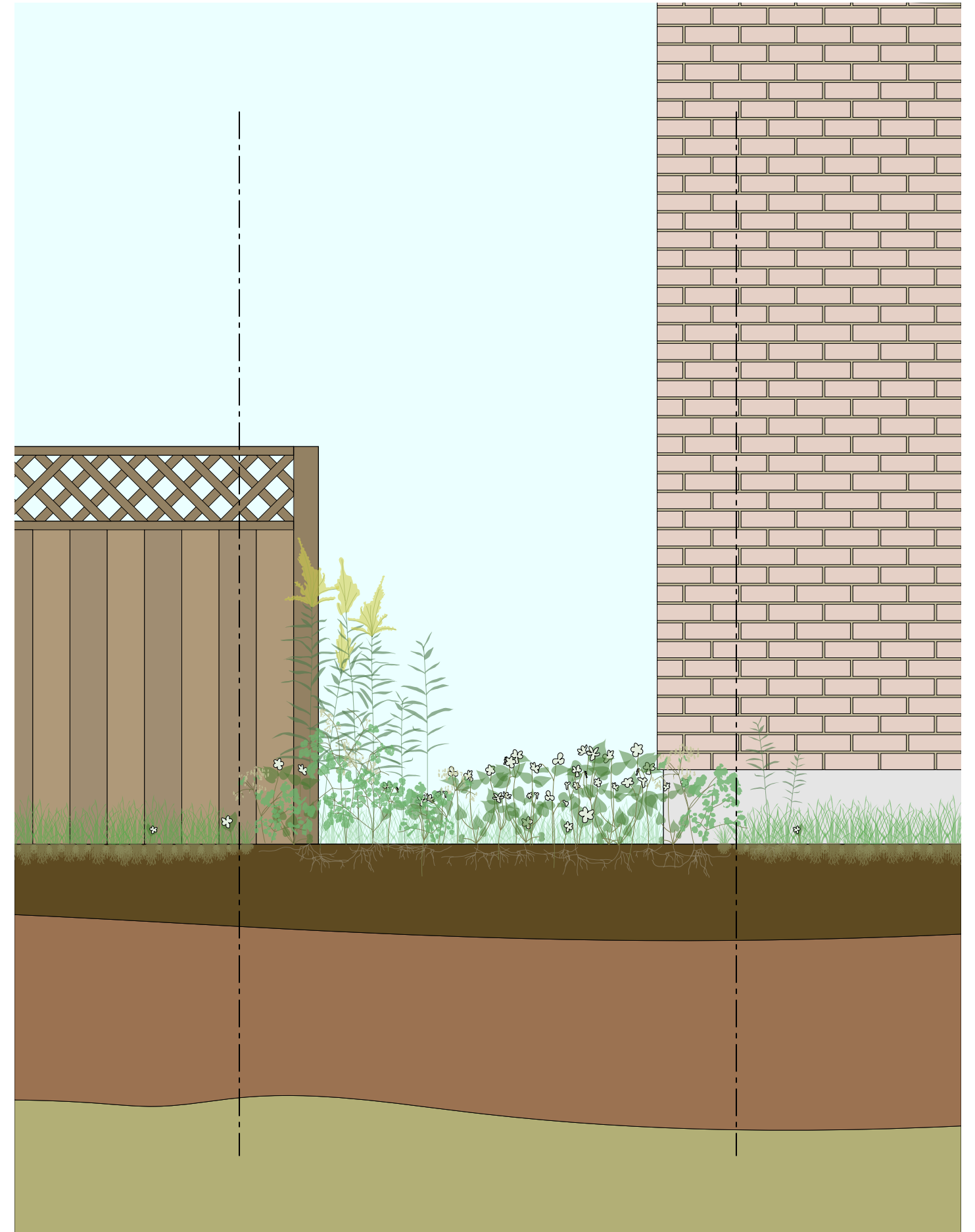


fig.41. Private Plantings in Section

Learning from these precedents, the act of tending, and thus the creation and sharing of practical knowledge through trial and error is an essential component to this thesis' design proposal. However, it reaches beyond a practice of private leisure in its contribution of habitat to a fabric well beyond the gardener's individual property lines. The gardening scheme offers participating residents enough of a framework to initiate action, while still leaving plenty of room for the necessary experimentation to achieve successful ecosystem restoration in rapidly shifting climate conditions.

The Neighborhood Network

Both the garden patches and backyard channels work together to build a continuous network through the existing suburban blocks. These structures can then plug into existing landscape patterns, bridging the trail space protected under the Greenbelt on the southern edge, and the forested corridors of the original wood lots along the north. (fig.27)

The overall strategies and language for this design proposal are heavily drawn from the work of Richard T.T. Forman. In his article *Some General Principles of Landscape and Regional Ecology*, Forman outlines the key factors which are essential to understanding the health and resilience of ecosystems, including access to water, scale and shape of vegetation patches, proximity between vegetation patches, and homo/heterogeneity of species. Here, he writes of the function and value of having vegetation patches at a variety of scales;

Large natural-vegetation patches serve many major ecological roles and provide many benefits in a landscape...Consequently a landscape without large patches is eviscerated, picked to the bone. A landscape with only large patches of natural vegetation misses few values. On the other hand, small natural-vegetation patches serve as stepping-stones for species dispersal or recolonization, protect scattered rare species or small habitats, provide heterogeneity in the matrix, and habitat for an occasional small-patch-restricted species. In effect, small patches provide different benefits than large patches, and should be thought of as a supplement to, but not

a replacement for, large patches.³¹

The garden patches and backyard channels laid out in this design proposal likely could not serve as a viable habitat on their own, even if replicated across every suburban street as the vegetation would be too fine a grain.³² While they are indebted to the adjacent conservation areas, the patch-channel design offers a valuable contribution to the resilience of the broader ecosystem by acting as the material for recolonization of native pollinators which have long struggled against the pressures of pesticides and over-development.³³ Its conceivable given the standardization of housing lots across York Region within the road grid, that this proposal could be re-tailored as a policy set and applied to any number of neighborhood blocks across the municipality, so long as they have some access to larger scale vegetation patches with which to network.

With regards to its implementation in Oak Ridges, the gardening initiative put forth in this thesis is only as viable as its level of participation. This is why, in order to cultivate buy-in from the community, the entrance to the Oak Ridges Trail features a main public garden and wildflower nursery to supply the base materials for residents' home gardens and begin to set up the social context for an emerging restoration culture.

31. Richard T. T. Forman, "Some General Principles of Landscape and Regional Ecology," *Landscape Ecology* 10, no. 3 (1995): 136.

32. *Ibid.*, 137

33. Ministry of Agriculture, Food, and Rural Affairs, *Pollinator Health Action Plan*, Jeff Leal. 2016. Digital PDF, https://www.v Vaughan.ca/cityhall/environmental_sustainability/General%20Documents/Ontario%20Pollinator%20Health%20Action%20Plan.pdf (Accessed August 24, 2021)



fig.42. Main Garden Site (view from trail)



fig.43. Main Garden Site (view from school)

Public Garden and Nursery

Located at the Trish Drive entrance to the Oak Ridges Trail, the Main Garden and Nursery provide the foundation for the larger scheme, both in terms of the raw materials for the gardens and for cultivating the social buy-in. The site has a foot in a few different realms, it is set up as a triangular fork in the road connecting the residential street, the leisure trail, and the back of the Bond Lake Public School yard. (fig.44/45) Acting as a threshold between the neighborhood and the broader ecology, the main garden is a nexus for both wild and domestic growth working together in concert.

Plant Life

The nursery is composed as a quilt of messier patches and dug out rows with eight different native wildflower species. (fig.44) These flowers would be managed by an organization of volunteers and made available to residents to retrieve cuttings or fully transplant into their home gardens. Each set of rows would be marked by small signage, referenced back to a message board with information on proper care. In addition to the wildflowers, some supplemental species are planted in between the rows to provide nesting material for visiting pollinators. (fig.45) There are eight flower species outlined here, but its conceivable that they could be switched out from year to year in response to changes in demand or climate patterns.

The formal expression of the neat, evenly spaced rows follows that of a garden centre, more so than the messy bushels from which the flowers would normally emerge in the wild. The choice to delineate them is part of an educational strategy – residents are invited to choose each colour and learn about the care and planting conditions as they curate their private gardens.



fig.44. Public Garden and Nursery Site Plan (Wildflowers)



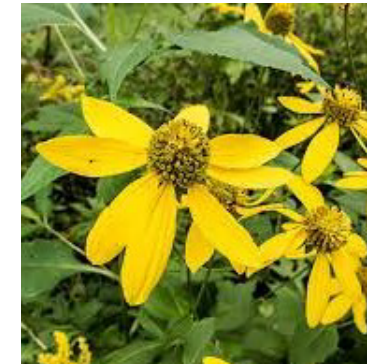
1. Swamp Milkweed



2. Common Boneset



3. New England Aster



4. Cut-leaved Coneflower



5. Blue Vervain



6. Spotted Joe Pye Weed



7. Woodland Sunflower



8. Early Meadow Rue



fig.45. Public Garden and Nursery Site Plan (Supplementary Species)



9. Bebb's Sedge



10. Black Raspberry



11. Peach-leaved Willow

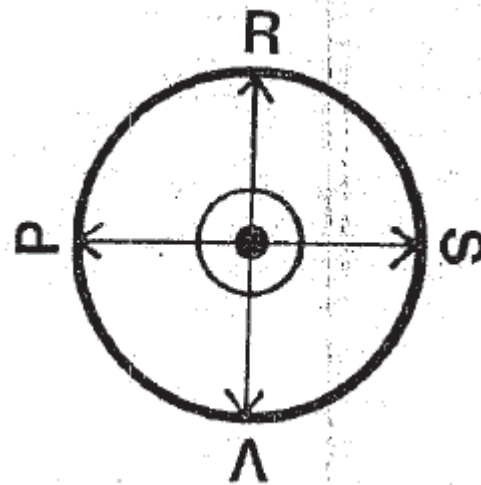


12. Prairie Cordgrass



13. Red-osier Dogwood

Resources which are what you have to work with. These include human and physical resources and their motivation and aims.



Scores which describe the process leading to the performance.

Performance which is the resultant of scores and is the "style" of the process.

Valuaction which analyzes the results of action and possible selectivity and decisions. The term "valuaction" is one coined to suggest the action-oriented as well as the decision-oriented aspects of V in the cycle.

In his book *RSVP Cycles: Creative Processes in the Human Environment*, Lawrence Halprin describes a revolutionary approach to design which positions the architect not as the dictator of the built environment, but as the creator of 'scores' which guide the building process without subverting artistic agency. Within this framework, community is empowered to challenge, reinterpret, and build on their unique contribution to the creation of these milieu. Here, Halprin writes of how scores enable a democratized approach to landscape design.

They allow the activity itself to generate its own results in process. They communicate but do not control. They energize and guide, they encourage, they evoke responses, they do not impose.³⁴

Activism which falls into the trappings of preaching often fails to meaningfully persuade. People are generally averse to being told what to do or how to think, preferring to discover it for themselves. By structuring the gardening initiative in a manner which is both self-directed and flexible to the on-going input of its participants from year to year, the proposal invites a deeper, lasting investment in the health and stewardship of the regional ecosystem.



fig.47. Permeable Paving Section Detail

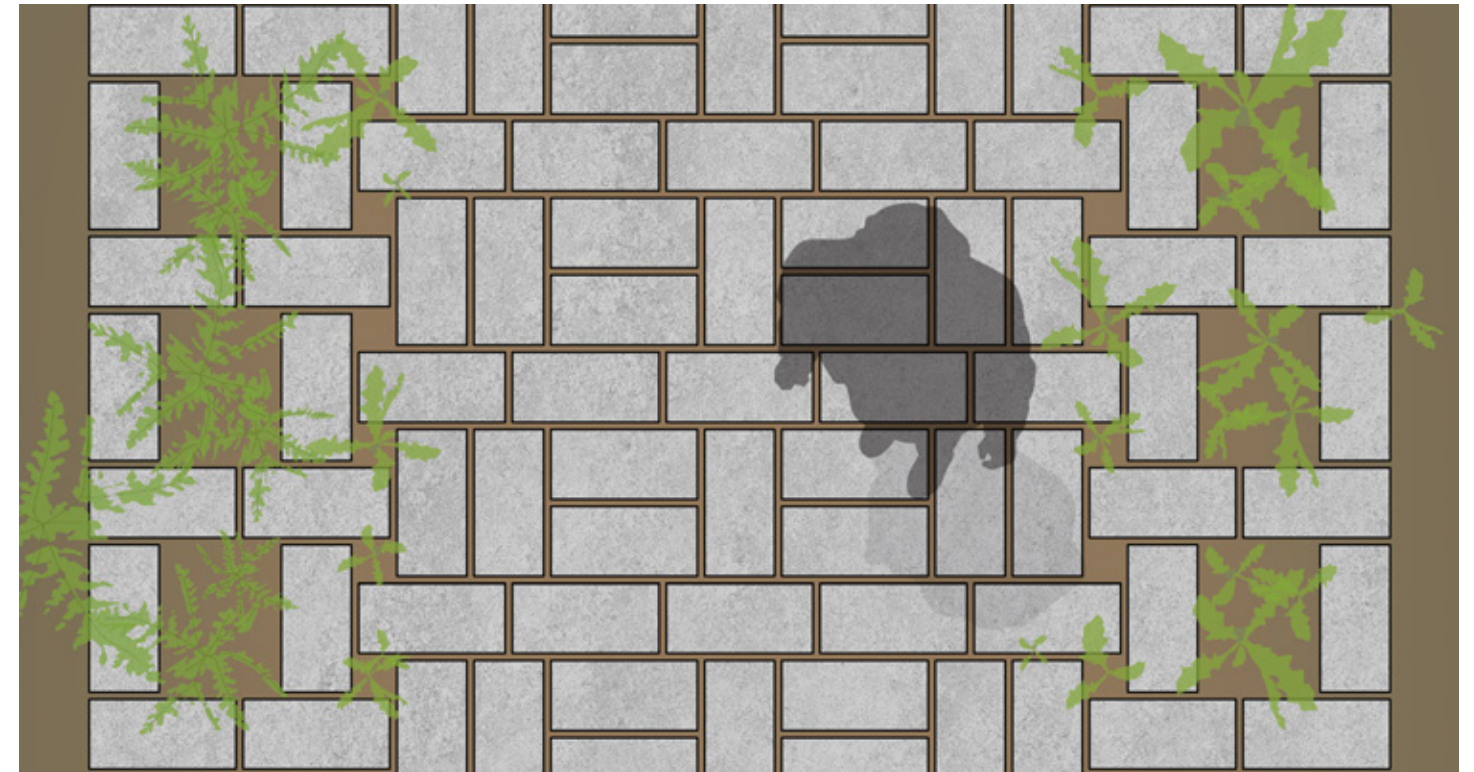


fig.48. Permeable Paving Plan Detail

Public Features

In addition to the plantings, the main garden is made up of a few different components, including a paved pathway (a), a large bee tower (b), a sitting area with benches (c) and a community message board (d). (fig.44/45)

The paved pathway is constructed from simple rectangular modules resting on a bed of stones to allow for easy drainage. (fig.47) The brick tessellation is such that the path would be more opaque down the middle, with increasing openings between the modules closer to the edges. (fig.48). This design is intended to allow grasses and weeds to grow between the cracks, creating a softer edge to the pathway.

In the centre of the plan there is a small sitting area under the shade of the existing trees, across from the main bee tower. Using the same basic materials as the smaller bee hotels, namely standard lumber and bricks with a wire mesh stapled to either side. (Potentially, leftover materials from a construction site could be used). The tower attracts pollinators to the garden and invites participation from the local schoolchildren, as the top two shelves would remain open for kids to populate using recycled cans and bundles of sticks they have gathered themselves (fig.49).

Lastly, using similar design language to existing trail signage, a community message board located near the school entrance ties the scheme together. The sign would offer detailed information about the initiative, care and maintenance for the plants and insects involved, natural history of the region and references.

Together, these elements function as the most important site of social exchange in the project. Much of the existing activism surrounding pollinator habitat rejuvenation approaches the problem at the scale of a single property, which, while making it easier to execute leaves it more vulnerable to homeowner's politics. By offering a functional public space connected to the leisure trail, the wildflower nursery not only provides the framework to get participants started, but sets itself up for success by familiarizing residents who are not directly participating with the initiative's goals.

In his text *The Great Good Place*, Ray Oldenburg diagnoses the biggest problem with the American suburban lifestyle as the absence of informal social life outside of work and family. The 'third place' as he describes is the shared space of a community where spontaneous social life can emerge, and is the most essential ingredient to building heart and soul into an urban fabric. He writes of the value of gathering space free from the power imbalances and pretenses of home visiting.

In order for the city and its neighborhoods to offer the rich and varied association that is their promise and their potential, there must be neutral ground upon which people may gather. There must be places where individuals may come and go as they please, in which none are required to play host, and which

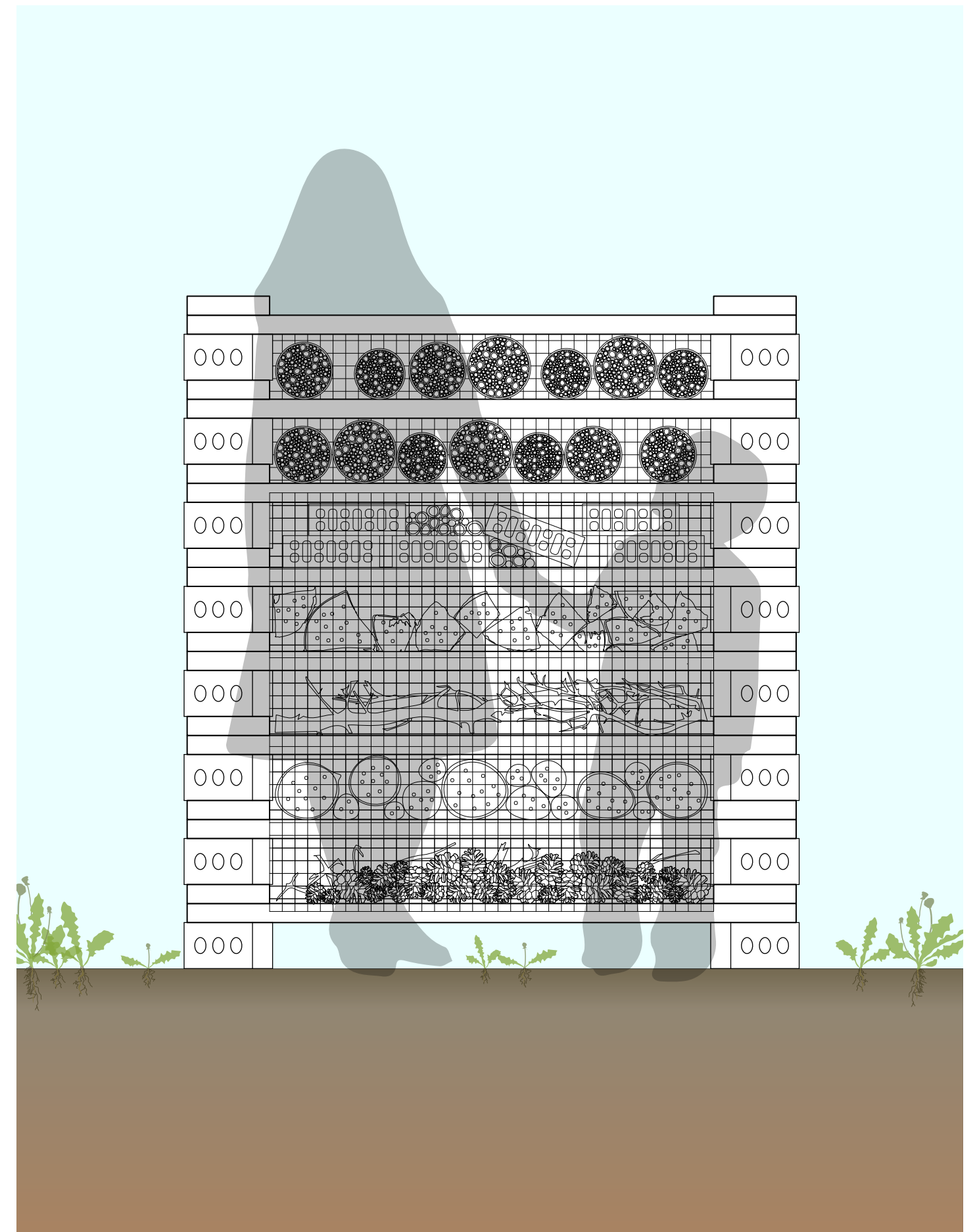


fig.49. Main Bee Tower

all feel at home and comfortable...Where neutral is available it makes possible far more informal, even intimate, relations among people than could be entertained in the home.³⁵

In York Region, the playgrounds and soccer fields are some of the only public spaces which fulfill this, which may be the reason why families whose children have grown up have steadily migrated out. By laying the foundation for a new kind of gardening culture which is not only tethered to the mastery of one's own property (as with Gertrude Jekyll's Munstead Wood)³⁶, but rooted in a cooperative vision and shared material basis, the wildflower nursery offers a practical path to deeper emplacement and connection to the land.

Design Summary and Findings

Altogether, the design proposal put forth in this thesis tackles both of its goals in a synchronized way. Both the environmental and social agendas support one another – the efficacy of the pollinator gardens planted by residents is improved by the gathering and sharing of knowledge from their individual experiments, and bonds between neighbors are deepened by a shared stewardship of local ecosystems.

35. Ray Oldenburg, *The Great Good Place: Cafés, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community* (New York: Marlowe & Company, 1989), 22.

36. Grace Kehler, "Gertrude Jekyll and the Late-Victorian Garden Book: Representing Nature-Culture Relations," *Victorian Literature and Culture* 35, no. 2 (2007): 622.



Thesis Synthesis and Conclusions

Understanding that we cannot return lost habitat to an imagined past ideal, this thesis seeks to prove how a shift in our relationships and practices with the land we occupy can set the stage for more harmonious realms to emerge. Using this framework, the design plan for the neighborhood gardens accomplishes its vision by both integrating existing biodiversity into highly domesticated suburbs and reconnecting homeowners to a deeper sense of community and environmental stewardship. By using the gardening initiative as a galvanizing force, the plan brings neighbors together and establishes more fruitful exchange with an emerging wilderness.

While the construction of the York Region suburbs had an undoubtedly deleterious effect on the land's ecological and social fabric, the promise that they embodied is one worth honouring. The desire for stability and autonomy does not have to run contrary to necessary sustainability agendas. As architects, our criticisms of suburbia's fraught legacies often overlook the fact that they are the architecture where the majority of Canadian citizens reside, and thus hold the most potential to innovate sustainable lifestyles at scale. Through its engagement with existing conservation and cultural footholds, this thesis demonstrates that something beautiful can be re-grown out of highly polarized landscapes.

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Appendix



fig.50. Wetland Evaluation Boundaries of Study



fig.51. MacKenzie Wetlands in Newmarket

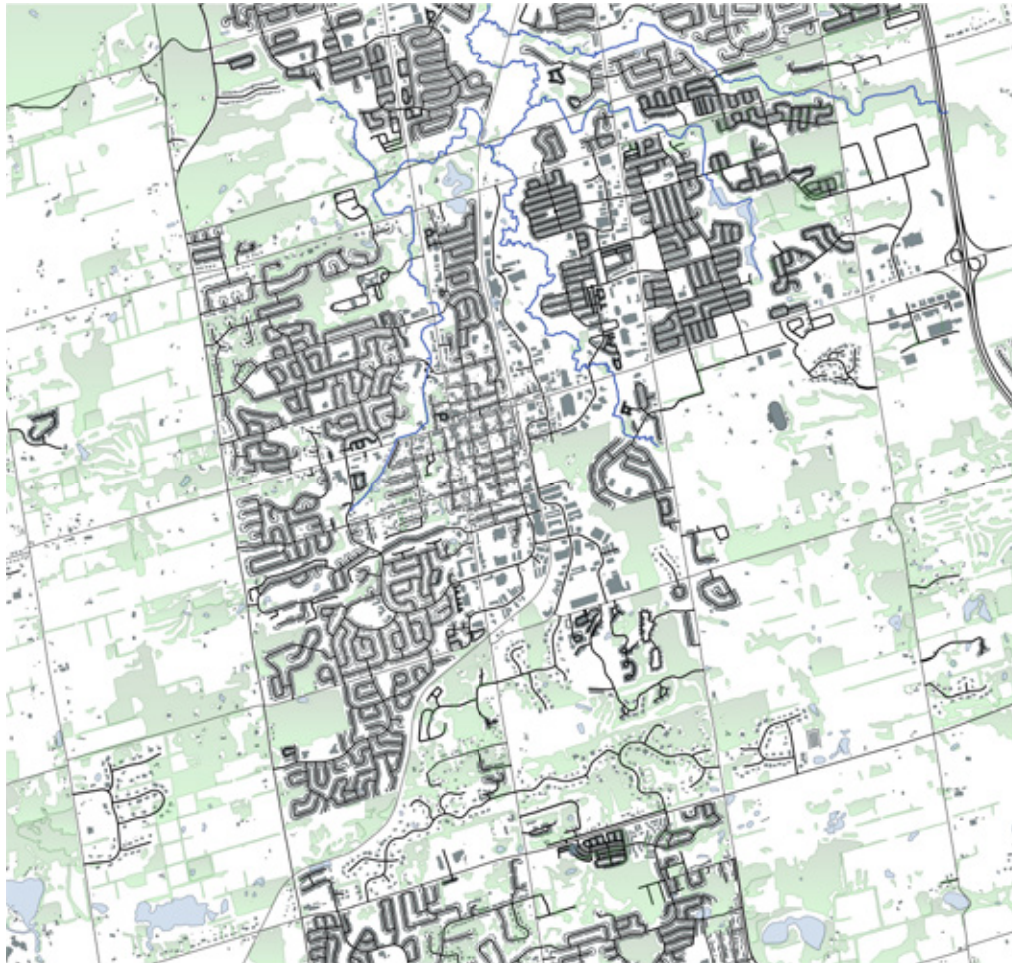


fig.52. Road Development in Aurora

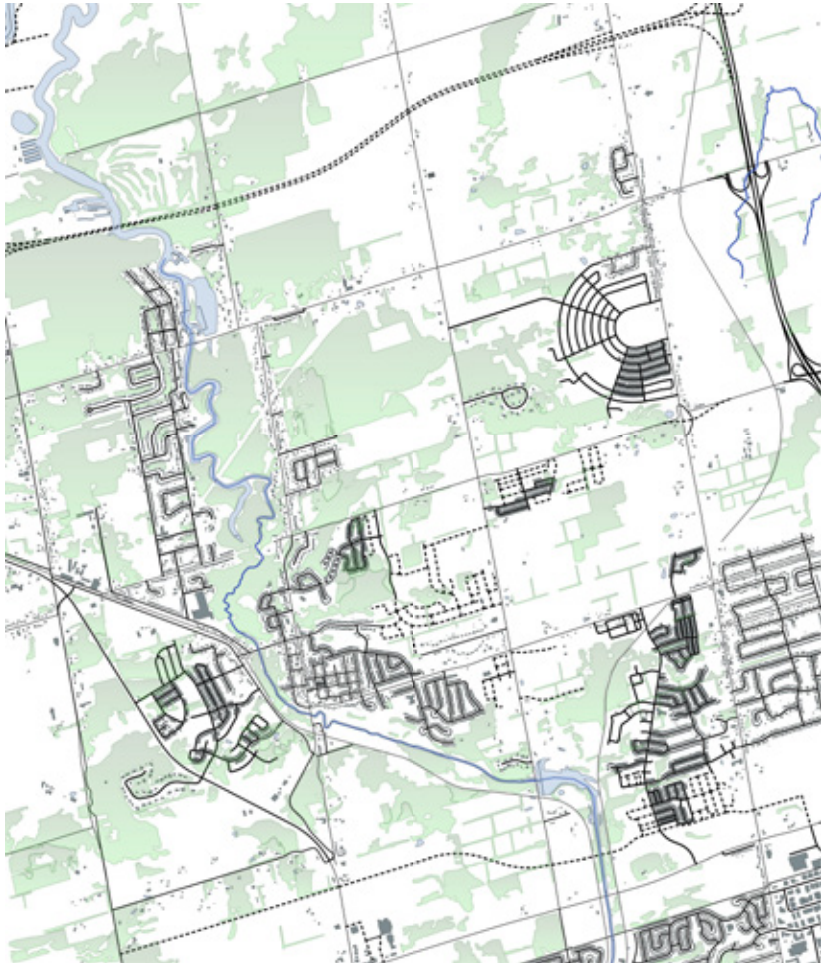


fig.53. Road Development in Holland Landing and Mount Albert





fig.54. Road Development in King County (Schomberg, Nobleton, King City)

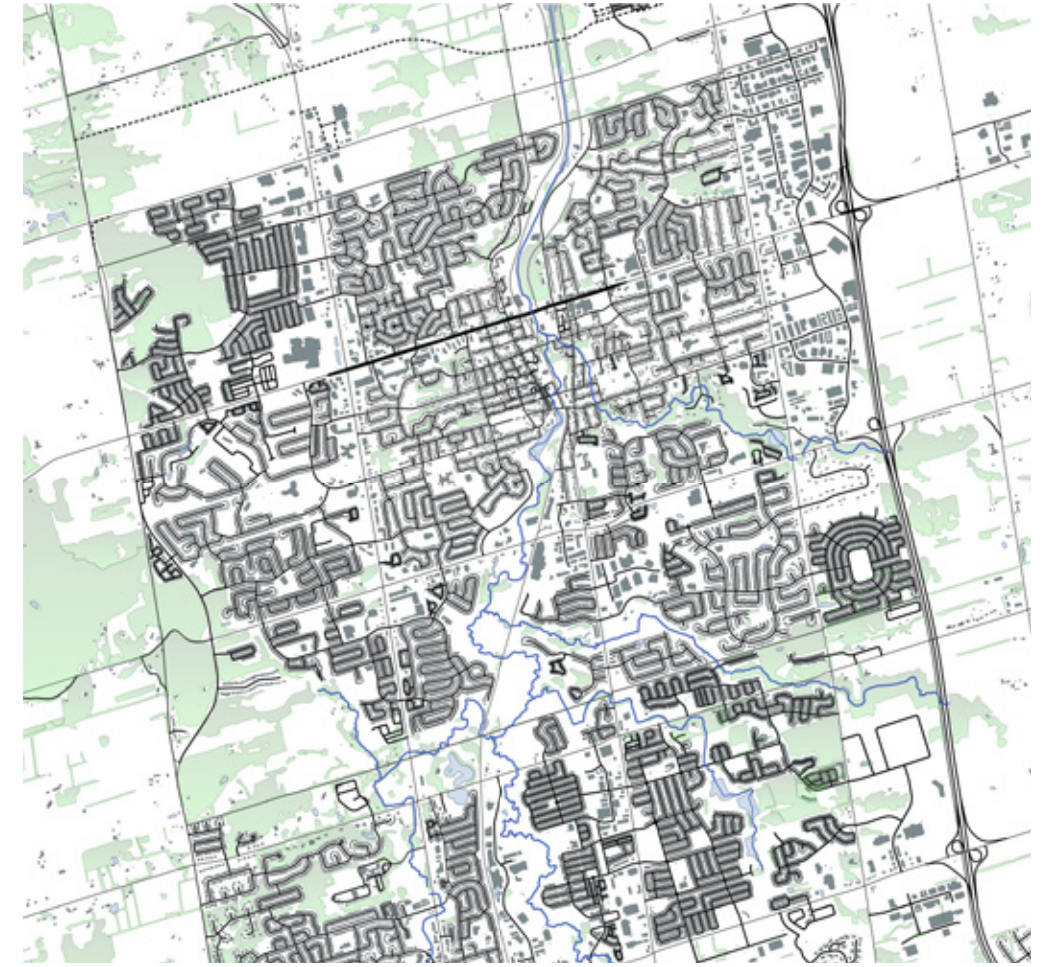


fig.55. Road Development in Newmarket



fig.56. Road Development in Richmond Hill



fig.57. Road Development in Whitchurch (Stouffville, Ballantrae)

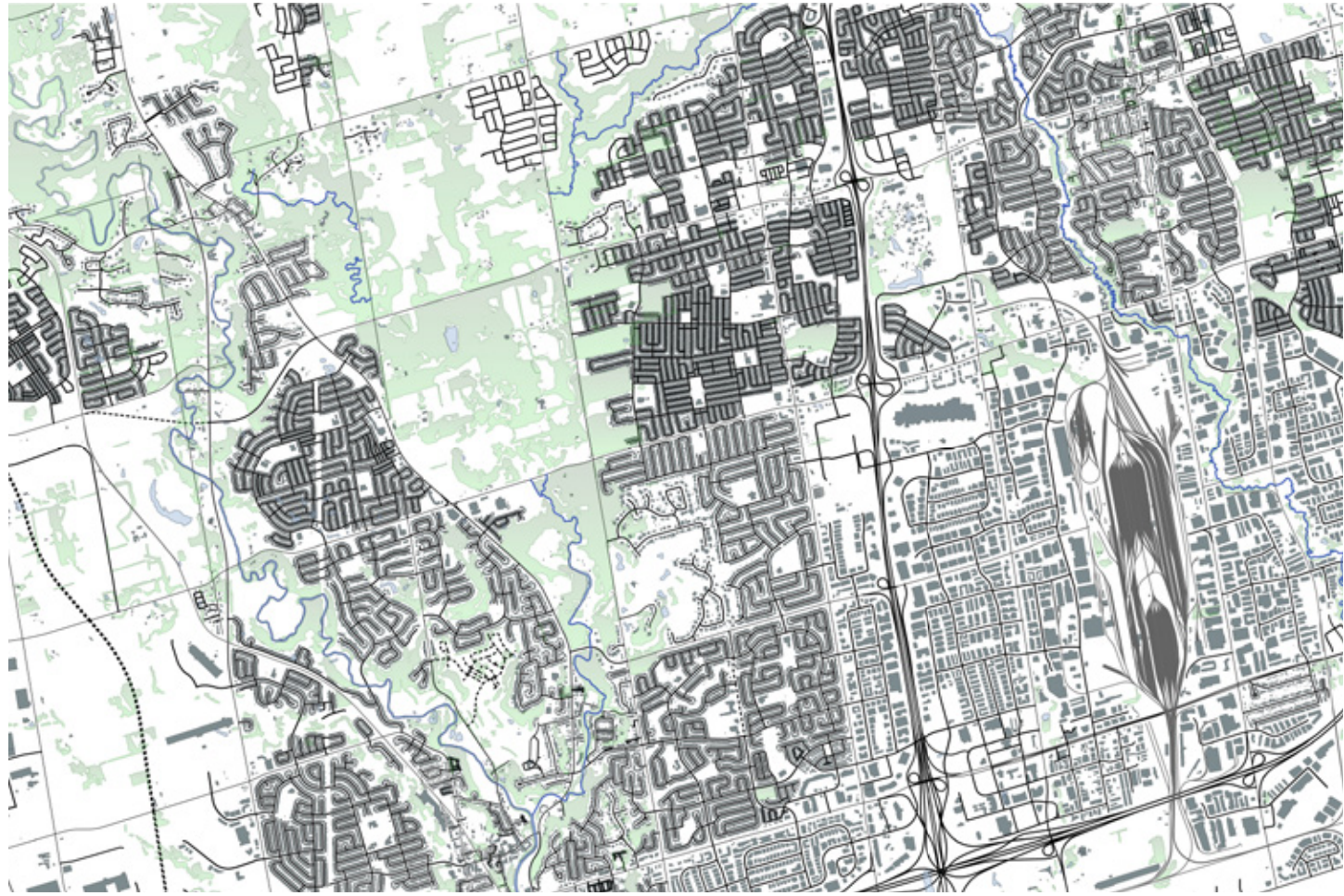


fig.58. Road Development in Vaughan



fig.59. Road Development in Markham

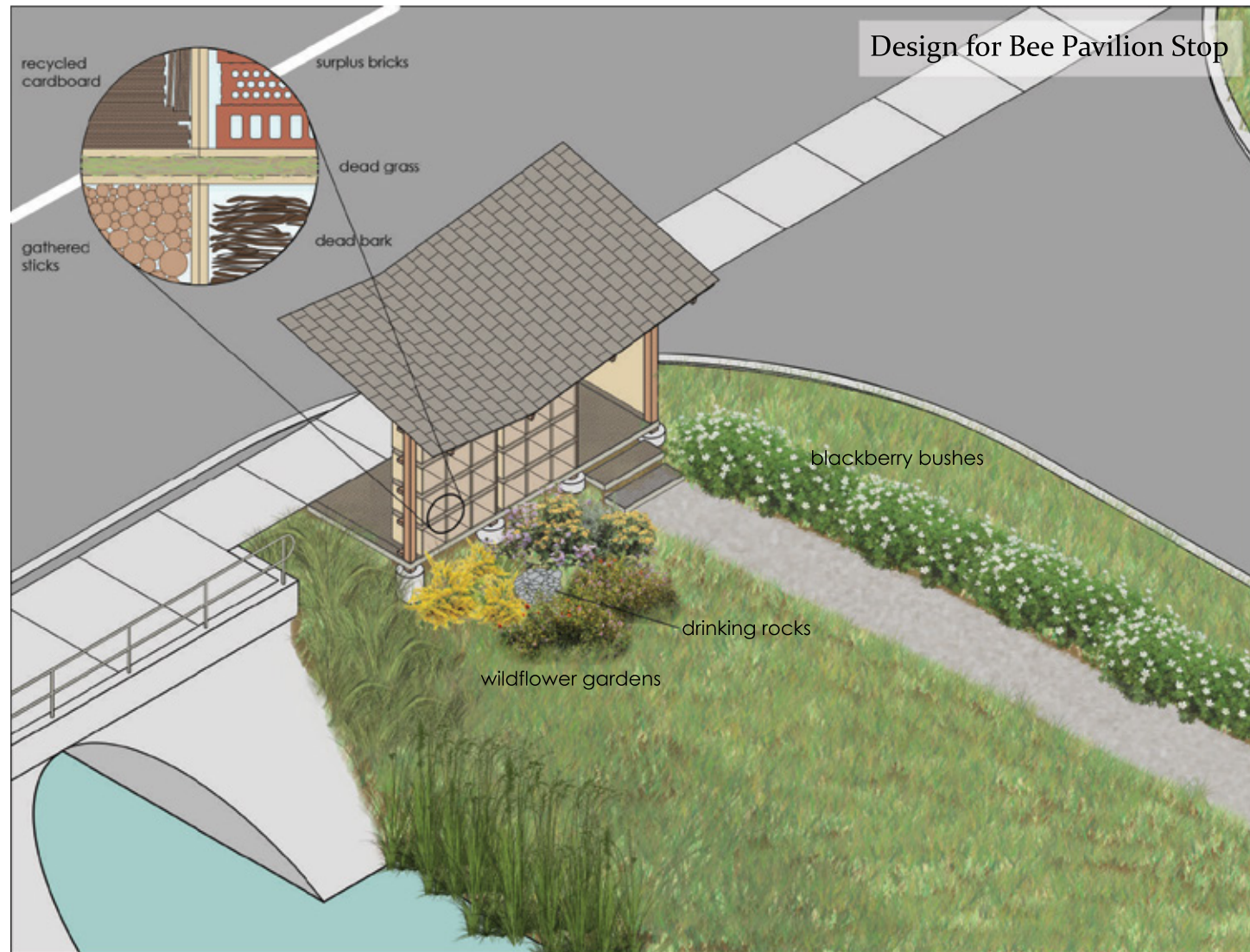


fig.60. Design for Bee Pavilion Stop

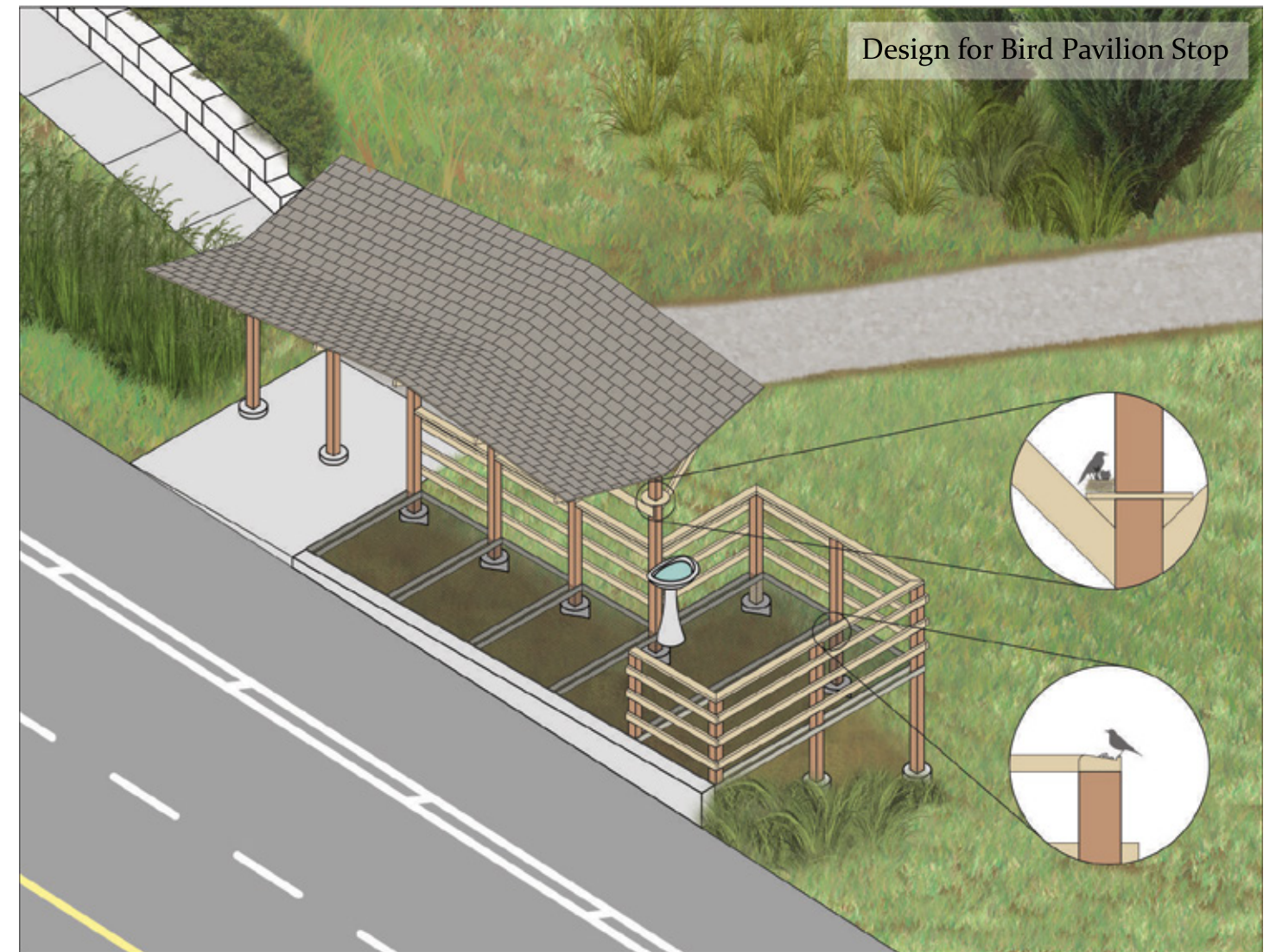


fig.61. Design for Bird Pavilion Stop