How the Arboretum’s Eco-Geographic Gardens Are Compatible with Olmsted Design Principles

By Andy Mitton  
Photos by Niall Dunne

Washington Park Arboretum is considered by many to be one of the crown jewels of the connected system of parks and boulevards that sweeps east around the city of Seattle. Since development of the site started more than a century ago, the Arboretum has been shaped by passionate individuals with a deep appreciation for this place. Their efforts have created a lasting legacy and woven a complex, yet beautiful, arrangement of spaces adorned with plant collections that we cherish today.

Looking back through the history of the park, we find that a series of time-tested design principles played a role in many of the planning efforts. Developed by Frederick Law Olmsted in the 19th century, these principles were enshrined by the Olmsted Brothers firm in its 1936 general plan for Arboretum. From that point forward, each individual who worked on various aspects of the plan implementation would ultimately follow similar design principles that make up what we know as the Arboretum today. In fact, many of these principles were employed in the development of the New Zealand Forest that opened in the Pacific Connections Garden in 2013.

The eco-geographic gardens at Pacific Connections go against the grain of the taxonomic layout of the original Olmsted plan. Moreover, with the exception of the Cascadia Forest, the gardens in Pacific Connections do not incorporate native plants, a hallmark of many Olmsted designs. This has led some to ask whether eco-geographic gardens work in Olmsted designed parks.
Organization of the 1936 General Plan
To answer the question, we need first to understand how the plant collections were initially configured at Washington Park Arboretum. The 1936 general plan laid out the plants based on a system that was popular in botanic gardens at the time (the Engler and Prantl system), in which families were grouped together according to their evolutionary relationships. This practice typically ignored assembling plants based on their regional associations, so you could have a family with species from Japan adjacent to relatives found in North America or other parts of the world. Similarly, plant families were arrayed next to each other according to their evolutionary sequence, rather than their cultural requirements.

The arrangement becomes problematic when plants with different growing needs are placed in close proximity to each other. From a sustainability perspective, this type of design can lead to a landscape that’s harder to maintain over the long term. In the end, the undulating landscape of the Arboretum would prove challenging for many plant families as they were laid out in the Olmsted design, and alterations to the plan were made based on matching plants with appropriate soil, water, and light exposure needs.

Defining the Eco-Geographic Garden
An eco-geographic garden is a collection of plants that breaks from the museum-style design of organizing plants by family, genus and species. Instead, it assembles plants as they would be found together in their native ecosystem and goes beyond woody plants to include grasses and forbs. Because the plants are found in the same, specific ecosystem, they have similar water, soil and sun exposure requirements, and this makes management of the collection easier.

The eco-geographic garden also creates a more immersive experience for the visitor: Instead of walking through a disjointed landscape arrayed with specimen trees and shrubs, the visitor can experience what it’s like to walk through a naturalistic approximation of an entire
habitat. As with plants in taxonomic gardens, the species in an eco-geographic garden may be propagated from wild seed sources and can be important from a conservation perspective: The garden can act as a genetic repository, banking plant materials that might be threatened or lost in other parts of the world. (This is certainly the case with the New Zealand Forest.)

Applying Olmsted Design Principles to the New Zealand Garden

Over the span of Frederick Law Olmsted’s career as a landscape architect (1857–1903), he developed a working set of design principles that would be tested and implemented across the country by his firm and successors. As noted on the National Association for Olmsted Parks website (olmsted.org) these principles serve as “…a blueprint for the creation of beautiful and enduring works of landscape architecture.”

The design of the New Zealand Forest generally followed Olmsted’s principles and, I would argue, this helps it fit within the overall composition of the Arboretum as it was intended when James Frederick Dawson originally laid out the collections. The main principles—and how they were applied to this unique, eco-geographic garden—are outlined below:

**Genius of Place:** The design should take advantage of unique characteristics of the site, even its disadvantages. The design should be developed and refined with intimate knowledge of the site.

In the case of Washington Park Arboretum, all the plant collections are woven into what is called the “native matrix,” the recovered remnants of the site’s original forest that was logged in the late 19th century. Considered a key component of the plant collections, the matrix includes a mix of Douglas fir, western red cedar, big leaf maple, and other Pacific Northwest natives that helps the site retain some of the wildness that John Charles Olmsted would have experienced there in 1903, when he first visited Seattle. “Genius of place” called for the plant collection spaces to be thoughtfully carved into patches of remnant forest and arranged to take advantage of the park’s unique valleys and topographic features—and to unite it all through a series of main pathways, such as Azalea Way and Arboretum Drive.

For the New Zealand Forest, our goal was to transform three acres of the nascent Pacific...
Connections Garden into a landscape that resembled the montaine environment of the Central Otago region of New Zealand’s South Island. Before the creation of the forest, the original site was a relatively open, steep, grassy, northwest-facing slope with views of the Arboretum valley and the surrounding neighborhood. We took advantage of the natural topography of the site by transforming it into a switchback-like “mountain forest trail.” We also integrated the existing views—including the iconic Olmsted–designed view looking north from the Lookout Gazebo—into the new forest garden, enhancing them where possible.

The wet, heavy clay soil conditions on the site were not good for growing the focus plants from New Zealand, which prefer well-drained soils. So we re-graded the site to accommodate a natural watercourse that would drain water away from the new planting beds. (The beds were also constructed on berms in order to improve drainage.) This allowed opportunities to organize the garden into distinct habitat sub-areas, such as alpine grassland at the top of the trail, and frame views and other features of the garden that today feel natural and not forced. Some of the native matrix Douglas firs on the site were preserved, as were other elements that complemented the forest garden design.

**Unified Composition:** All elements of the landscape design should be made subordinate to an overarching design purpose. The design should avoid decorative treatment of plantings and structures so that the landscape experience will ring organic and true.

The design purpose here was to immerse visitors in the endemic flora of New Zealand. The winding trails and reshaped landscape focuses their attention on their immediate surroundings, so that they notice the unique characteristics of the flora. The en masse plantings create a dramatic effect and help convince the visitor that they are strolling through a naturalistic scene.

The forest is also designed to take advantage of the northwest-facing hillside to display the gardens, and to focus key “peek-a-boo” views that look out west across the valley to Capitol Hill and north to the University of Washington. Visitors can look beyond the immediate foreground and get the impression that the forest garden is much larger than it actually is, as it blends into its surroundings.
**Orchestration of movement:** The composition should subtly direct movement through the landscape. There should be separation of ways, as in parks and parkways, for efficiency and amenity of movement—and to avoid collision, or the apprehension of collision, between different kinds of traffic.

In the case of the New Zealand Forest, the pathways are laid out to fulfill two primary goals: to provide an experience of the plant collection, and to provide an accessible route from the display gardens in the Pacific Connections meadow down the hillside to the historic Lookout Gazebo with views of Azalea Way and the pond. (The previous trail connecting down from Arboretum Drive to the gazebo was relatively short and not easy to use.)

By lengthening the pathway to accommodate an accessible route to the gazebo, we created a new opportunity for visitors to observe seven distinct sub-regions of the New Zealand focal forest, including tussocks (grasslands of high elevations), beech forests, hebe meadows, and Phormium fens (wetlands). The arrangement of the drainage swale—and the rocks placed in the swale—also enhances the immersive experience of moving through a mountainous environment.

**Orchestration of Use:** The composition should artfully insert a variety of uses into logical precincts, ensuring the best possible site for each use and preventing competition between uses.

In this case, the primary use is experiencing the focal forest. However, visitors to the site—as well as the Arboretum at large—come for a variety of purposes. Some come for exercise, others to escape the daily rigors of ordinary life, while some visit for educational or research purposes. The wide, gravel pathways were designed to accommodate a variety of users. Quiet, contemplative spaces are carved out into the garden, and benches are placed along the trail for those who wish to slow down and fully immerse themselves in the garden. Other areas provide the ability to get up close to examine the unusual leaf structure, textures and growing habits of the more than 10,000 New Zealand plants in the garden.

**Sustainable design:** The design should allow for long-term maintenance and ensure the realization and perpetuation of the design intent. Plant materials should thrive, be non-invasive, and require little maintenance. The design should conserve the natural features of the site to the greatest extent possible and provide for the continued ecological health of the area.
The concept of research was integral in many landscapes the Olmsted Brothers firm designed, and they understood how to introduce plant materials from other regions into a landscape. While the plant species in the New Zealand Forest are not native to the Pacific Northwest, they were selected to adapt to our climate with minimal maintenance. An irrigation system was installed as part of the garden to assist with establishment, as well as to provide some supplemental water through our drier summers. While we do have similar rainfall to New Zealand, they do not experience the same drought length in the summer.

All of the plants installed in the forest garden were tested to ensure they are non-invasive and are left to grow as they would in their native environment to the greatest extent feasible. If any plants in the collection are found to have invasive tendencies, they are immediately removed. It is important to remember that the Arboretum is a research institution, and that all the gardens provide an opportunity to learn about which plants can adapt to our current and future climate.

Careful management of stormwater run-off has been achieved through the construction of the new rockwork swales, which daylighted previously piped springs and seepages on the hillside and connected them to Arboretum Creek via an open waterway. With the removal of turf from the area and the planting of a new southern beech forest ecosystem, the site is able to absorb much more rainfall and slow down runoff to areas lower on the hillside.

There is an ironic component to the inclusion of Douglas fir trees as part of the native matrix within this immersive forest. These trees were introduced on the South Island of New Zealand, escaped cultivation, and are now considered invasive in Central Otago. There is an interesting ecological connection here, giving the Arboretum an opportunity to educate visitors about the importance of controlling biological invasions.

**Comprehensive Approach:** The composition should be comprehensive and seek to have a healthful influence beyond its boundaries. In the same way, the design must acknowledge and take into consideration what surrounds it. It should create complimentary effects. When possible, public grounds should be connected by greenways and boulevards so as to extend and maximize park spaces.

For many of the reasons explained above, the New Zealand Forest provides multiple benefits within and beyond its present-day boundaries. Fitting the gardens into the surrounding landscape was of utmost importance since there were existing valuable collections nearby that needed to be preserved. A primary example was the preservation of the Stewartia trees that flank the northern edge of the site and form a break before one enters the Camellia Collection. Buffers like these are important for providing separation between areas and allowing views to be framed through or into either space.

I invite all of you to experience the New Zealand Forest today and stroll the main pathway through a vibrant cultural landscape that is a world away yet rooted in the Pacific Northwest. As you meander the pathways and take in the views, hopefully some of the Olmstedian principles will become evident and bring new meaning to this new but already cherished landscape.

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**Further Reading**

Olmsted Theory and Design Principles
olmsted.org/the-olmsted-legacy/
olmsted-theory-and-design-principles