

Plants for Low Impact Development *Selection Tips & Maintenance Tricks*

LID is coming to Washington

The Washington State Department of Ecology is implementing new stormwater regulations that will go into effect, depending on the location, anytime from June 2015 through June 2018 (see *High Expectations for Low Impact Development - Washington State's Changing Landscape* in the April issue of B&B/ NWLP). These regulations require developers in Western Washington to manage stormwater using Low Impact Development (LID) techniques, and Eastern Washington cities and counties will allow LID. At a minimum, new Western Washington regulations require developers to make concerted efforts to protect existing vegetation and soils on each project site.

According to Peggy Gaynor, Landscape Architect with Gaynor Inc., "All planting has an LID component because it is about putting biology back into the landscape. Moving towards using more drought tolerant and native plants and cutting back on fussy ornamental plantings is the way we should be moving."

Plants are a critical part of LID

Plants are central to LID strategies like rain gardens, bioretention facilities, green roofs, and permeable pavers. Taking care to select and grow the right plants can enhance ecosystem functions like rainwater infiltration, evapotranspiration, rainwater interception, pollutant filtration, erosion control, and by creating habitat for beneficial wildlife.

Landscape professionals working on LID sites will select plants that meet a number of requirements including the cultural conditions of the site which can vary greatly on a site using LID, the size and density of planting, the ability to restore ecosystem function, the need for low maintenance, as well as meeting aesthetic expectations, and safety, visibility and access. Here are some tips when considering plants for LID:

1. Consider "moisture zones" in the landscape

Plants our experts would like to see more of:

Asarum caudatum – wild ginger

Allium cernuum – nodding onion

Blechnum spicant – deer fern

Carex vulpinoidea – fox sedge

Ceanothus velutinus – snowbrush ceanothus

Dodecatheon hendersonii – Henderson's shooting star

Gymnocarpium dryopteris – oak fern

Iris douglasiana – Douglas Iris

Iris tenax – tough leaved iris

Kalmia microphylla – Western swamp laurel

Linnaea borealis – twin flower

Mimulus lewisii – purple monkey flower

Pachystima myrsinites – Oregon box

Penstemon cardwelli – Cardwell's penstemon

Penstemon davidsonii – Davidson's

penstemon

Schoenoplectus acutus – hardstem bulrush

Scirpus microcarpus – small fruited bulrush

Sidalcea hendersonii – Hendersons checker mallow

Smilacina racemosa – false Solomon's seal

Smilacina stellata – star flowered false

Solomon's seal

Horticulturist and educator Sue Nicol says: “One of the most important considerations in LID planting is to select plants suitable to each specific cultural condition, or zone. Plants for the wet zone of a rain garden will differ greatly from those suitable for the drier zones of a rain garden.”

The range of soil saturation in LID can vary significantly throughout the year, requiring plants adapted to extremely different conditions.

2. Consider maintenance requirements

The right plants require little tending and tolerate the conditions of the site without additional watering, fertilizer or pest treatment. It is possible to significantly reduce maintenance by assessing the conditions of the site and creating a plan to minimize upkeep in the design phase of the project. Consider, for example:

- Avoiding fungicides and fertilizers – these can negatively impact the microbial process in the soil that filters pollutants from stormwater runoff.
- Avoiding frequent maintenance as it can actually have an adverse effect. Increased traffic results in soil compaction and reduces the site’s ability to effectively absorb water.
- Using native plants that are well-adapted to the soils and climate conditions of their region and require less maintenance, water, and fertilizer than many ornamental non-native plants. Native plants also help provide important habitat and restore ecosystems that have degraded over time by urbanization.
- Native plants do best when propagated from seed sources in the same geographic zone as where they are planted. Improperly sourced plants may be more vulnerable to pests and disease in their new environment. When purchasing plant material or seed, it is important to ask the nursery about the geographical source of seed or cuttings. If you work for a nursery, consider propagating and selling a wider variety of native plants for the growing LID market.

Native vs. Non-native

There is ongoing discussion among designers and landscape architects about native versus non-native plants in LID landscapes. Some use a mix of both native and non native plants that are adapted to the site conditions. This allows a wider range of options and can provide a greater visual palette to the landscape. Some professionals are concerned that including non-native plants can lead to the introduction of invasive plants. Peggy Gaynor broadens the plant palette by sourcing lesser known native plants like bog laurel, nodding onion, star flowered false solomon’s seal and pacific iris, and includes a greater range of size by using cultivars of native plants like Kelsey dogwood, a dwarf of the native red osier dogwood. She spends a lot of time educating clients about the ornamental possibilities of native plant designs. Plant choices will also depend on nurseries providing a greater range of native plants.

To keep weeds down while plants become established, Gaynor uses techniques like sheet mulching with cardboard and arborist chips on the top, dryer zone of a rain garden on sites with heavy weeds and grass, and a thick layer of arborist chips around plants, or inter-seeding between plants with a variety of herbaceous natives such as lupine. Lupine also fix nitrogen - providing more nutrients to the soil each season. Gaynor says, “Diversity is a foundation principle of ecology so I always like to include a range of species in all applications.

Appropriate lupine species to try are mixes of *Lupinus albicaulis*, *Lupinus polyphyllus*, *Lupinus latifolius* and *Lupinus rivularis* depending on the cultural conditions on site.”

3. Think about type and quality of plant stock

The type of plant stock, whether containerized, bare root, cuttings, or plugs may impact plant quality and required maintenance. Bare root stock get less circling roots, can cost less, and may transition better to new soils and environment. However, bare rooted plants must be installed in the dormant winter season. Another good alternative is plants that are grown in grow bags or deep containers similar to those provided by Stuewe and Sons (<http://www.stuewe.com/>). These containers are designed to allow for root pruning which helps to prevent circling roots. Reputable nurseries will provide well cared for, high-quality stock free of serious weed, pest, or disease problems.

4. Learn more and get prepared!

Landscape and nursery professionals can begin to prepare for the regulatory changes by enrolling in trainings, determining new tool and supply needs, creating relationships with others in the industry, and developing marketing strategies for attracting new LID customers. The aesthetics and environmental benefits of plants are key selling points of LID.

Resources:

- Look for additional links and resources at: www.wsnla.org and www.walp.org
- Details of trainings offered by the Department of Ecology: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/EcyWorkshops.html>
- 2012 LID Technical Guidance Manual for Puget Sound, http://www.psp.wa.gov/LID_manual.php
- Rain Garden Handbook for Western Washington Homeowners, <http://raingarden.wsu.edu/>
- Washington Native Plant Society, <http://www.wnps.org/>
- “Seeds of Woody Plants in North America” by James A. and Cheryl G. Young

Growing Natives at Nurseries

Growing native plants is very different than growing non-native plants. Native plants require much less fertilizer and water. Growing mediums must be modified to match the needs of the plants. Many drought tolerant plants, for example, are prone to root diseases if grown in media with poor drainage.

There are also special considerations for growing plants from seed. Kathy Hutton, with Plants of the Wild nursery, says: “One of the main differences and challenges of growing native plants is the genetic diversity that causes plants and seeds of the same species to act differently. This can cause germination times and growth rates to vary greatly in one seed lot.”

Nurseries may propagate plants from cuttings, seed, or division. Seed has the fewest problems with disease and pests. However, seeds can have complex pre-treatments like cold stratification and scarification that require significant experimentation before germinating. Nurseries should expect to spend up to a year to produce a sellable seedling, and an additional 4 months to grow a one gallon plant. It may be advisable to either supply native plants or augment supply of native plants by purchasing seedlings from established growers while developing propagation practices.