



SPRING INTO GARDENING ACTION: A PRIMER ON COMPANION PLANTING



The winter chill is still in the air and snow persists across most of the country but here on the west coast the gardening season is just around the corner. The signs of spring abound: the cottonwoods are beginning to bud; over wintered leaks are going to soup; and the spring bulbs are starting to flower. Whether you garden for food, flowers, medicinals, or naturescapes, it is a time of new beginnings. To get you ready for the upcoming planting season, this article presents ideas on companion planting for your backyard vegetable garden.

Companion planting is the practice of growing plants in combinations resulting in benefits to plants in proximity. The basis for this type of associative planting include observations that some plants attract beneficial insects that feed on harmful pests, certain plants directly repel harmful insects, while other plants actually enhance the growth of adjacent plants. In this way, companion planting is vital to integrated pest management practices and incorporates organic gardening techniques through a decreased reliance on synthetic inputs, such as chemically based insecticides and fertilizers.

The key idea behind companion planting is working with natural systems instead of fighting them. Many North American/European style gardens are organized in ways where efficiency and flow are sacrificed to a lingering Victorian tidiness. The neat rows and segregated plants in many vegetable gardens attest to this. This tidiness can be practical in large-scale agriculture where the standardized cultivation of one crop is prized above the accumulated yield of diverse plants and their sustainability as a system. However, in the context of the backyard garden it is useful to think of diversity and interdependence as fundamental design elements. Because plants that constitute ‘good companions’ often have contrasting properties: shade-tolerant with sun-loving plants; aromatics with non-aromatics (basil and tomatoes); nitrogen-fixers adjacent to nitrogen-feeders (beans and corn), a diversity of plant species is a likely outcome.

Many household gardens of Central America typify companion planting principles. Most of these compact gardens are less than 20 m<sup>2</sup> but supply a substantial portion of household foods. This is done by mimicking natural systems such that fruit trees shelter shade-loving plants, while heavy nitrogen feeders are planted next to nitrogen fixing plants. Other ideas include maximizing the available space by growing beans and squash vertically and using the shaded space below to grow shade-tolerant plants. You will find many birds are attracted to the shelter these dense gardens provide. Some of the mechanisms that lead to beneficial plant associations include the following:

**Reducing root competition:** Plants feed and root in different ways making some better combinations than others do. For example, fruit trees thrive in herbal ground covers not grasses.

**Providing physical shelter:** Taller, denser plants can protect plants that are more vulnerable to the effects of sun or wind. A patio shaded by grape or other trellised climbers makes a pleasant area for people in the summer heat and a shade pen for sensitive plants.

**Nutrient balance:** Legumes, such as beans, replace nitrogen that is lost to heavy feeders, such as corn. This can reduce your need for external inputs into the soil and the labour of applying them.



**Pest control:** Some plants act as chemical deterrents to pests (such as onions, nasturtiums, and basil) while others attract insect predators (a berry plant can attract birds that will feed on insects and weed seeds). Other plants act as sacrificial victims by luring harmful insects, such as nasturtiums that act as magnets for aphids.

The possible plant combinations are many –experiment yourself with some plant companion suggestions provided on page 3. **Reference:** Mollison, Bill. 1991. Introduction to Permaculture. Tagari Pub., Tyalgum, Australia.

**Additional resources:** (1) Riotte, Louise. 1998. Carrots Love Tomatoes: Secrets of Companion Planting for Successful Gardening. Storey Communications, Pownal, VT. (2) Cunningham, Sally Jean. 1998. Great Garden Companions: A Companion-Planting System for a Beautiful, Chemical-Free Vegetable Garden. Rodale Press, Emmaus, PA. —*ben donoghue*

# URBAN STORMWATER MANAGEMENT

Water is essential to all living things. However, in many ways our civilization has had little regard for the health of the water that sustains it. Post-industrial human development has meant a rapid degradation in water quality worldwide and the Canadian Pacific coast is no exception. Urbanization has played a decisive role in this process related in part to an increase in impervious surfaces and poor water management practices. Yet an increased understanding of the impact of urban regions on water health has heralded changes and led to innovative approaches specifically in the context of stormwater management.

Stormwater management systems are deeply tied to the structure of the contemporary city. In natural systems rain infiltrates the ground, is soaked up by plants, follows natural drainages, and then evaporates from standing pools. In the urban environment these natural processes are radically curtailed as areas are covered by impervious surfaces (concrete, pavement, buildings), waterways are buried or filled, standing water is eliminated, and vegetation is eliminated. To replace the effects of natural systems requires a system of downspouts, gutters, and drainpipes that move water through underground sewers to local waterways. By doing this, the natural drainage pattern is altered resulting in erosion, pollution of waterways, and increased depletion of local aquifers.

However, new stormwater management strategies are modelled after systems found in nature. This reduces infrastructure requirements, minimizes disruption of natural patterns, ensures aquifer recharge, and minimizes damage to local waterways. This set of strategies is referred to as Low Impact Development (LID) and is playing a part in a growing number of development projects.

The main strategies LID uses to accomplish this include:



**Preserving greenspace:** Greenspace doesn't require stormwater management as rain percolates through the soil and drains through natural systems. Forests are especially good at soaking up water and help maintain soil stability in sloping areas.

**Reduction of impervious surfaces:** These are surfaces, like pavement and asphalt, which water does not penetrate but flows over, generating runoff. As the amount of impervious surface is minimized so is the runoff from a site. Narrower and greener streetscapes reduce the paved area dedicated to cars and provide soil for drainage. Other strategies can include swales to slow water flow, disconnecting paved areas with vegetative strips, and use of porous paving materials.

**Bio-retention cells/rain gardens:** These allow storm water to be retained in shallow surface depressions, which then soaks into the ground slowly.

**Clustering buildings:** Building in dense clusters creates opportunities for open space while reducing the infrastructure costs in pipes and roads.

Through the diffusion of these ideas, LID can help to preserve water quality while increasing greenspace and reducing public infrastructure. In the hope of increasing the discussion of LID we have made it the focus for the annual IUE symposium, which will be held March 18th at Douglas College. For more information see the Low Impact Development centre web site — <http://www.lid-stormwater.net/> — *ben donoghue*

## THE GREEN LINK

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**THE GREEN LINK** is a quarterly publication of the Douglas College Institute of Urban Ecology. The IUE is a non-profit organization working to connect people with nature in the Lower Mainland. For more information about the Institute, to subscribe to the IUE's newsletter **THE GREEN LINK**, or to comment on the newsletter, please contact us at:

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## IUE UPDATES

### ▪ The Green Gateway

The IUE is working on partnership to plant a green gateway in Delta, BC. The project is being completed in conjunction with The GVRD and The Corporation of Delta. The site is a ½ km greenspace located between HWY 99 and Ladner Trunk Road. The IUE has spent most of the month of February planting close to 1000 mature Lilac shrubs, donated by Van's Nurseries. The GVRD has contributed many truck loads of its Nutrifor soil product, which is developed to form bio-solids. The IUE will conduct research of the Lilac's growth rate to evaluate the effectiveness of the Nutrifor.

### ▪ Mainland Sand and Gravel Quarry in Abbotsford

The IUE has recently completed a riparian planting for the Mainland Sand and Gravel Quarry in Abbotsford. The planting consisted of transplanting Alder saplings and Cottonwood whips on exposed stream banks to help prevent erosion.

### COMPANION PLANT COMBINATIONS AND ASSOCIATED BENEFITS

Plants	Good companions	Benefits
Mint, chamomile, lavender, rosemary, sage, thyme	Cabbage family (includes broccoli, brussel sprouts, cauliflower)	Deter cabbage worms and moths
Onions and garlic	Adjacent to all vegetables and rose plants	Deter many insects, such as aphids
Bush beans, pole beans, squash	Corn	Beans are nitrogen-fixers that provide nitrogen to nitrogen hungry corn
Lettuce, peas, spinach	Pumpkins, squash, tomatoes	These early crops (lettuce etc) are good matches for the later crops (pumpkins etc). They can maximize the use of garden space and double your yield per unit area.
Basil	Tomatoes	Improves growth and flavor of tomatoes; repels flies and mosquitoes
Onion	Lettuce, tomatoes, beans	Protects against slugs (lettuce) and ants (beans)
Radish	Peas, nasturtium, lettuce, cucumbers	A general aid in repelling insects
Tomatoes	Asparagus	Repel asparagus beetle
Nasturtiums	Most vegetables, especially tomatoes, radish, cabbage and cucurbits	Attract and traps aphids and flea beetles, but they also repel many harmful insects especially pests of cucurbits
Wildflowers, such as black-eyed Susan and purple coneflower	Plant throughout the garden	Attract beneficial insects and spiders into your garden, such as ladybugs, Pirate Bugs ( <i>Orius</i> species), and predatory mites

# HEY KIDS!



New to the Green Link is 'ECO-ADVENTURES', a special article just for you filled with fun ideas of things that you can do to help protect the Earth and the creatures that live on it.

Spring has sprung and the birds are busy getting ready to make their nests and lay their eggs. In our cities, many birds have trouble finding a good spot for their nest because we've cut down so many trees to make way for our houses, schools, and shopping malls. You can help though! Build a bird house and put it in your yard in February or March. It will be a cozy, safe spot for a bird to lay her eggs and raise her babies. You might find chickadees, swallows, wrens or nuthatches living in your yard!

You can also help your feathery friends find warm materials to make their nests. Get a piece of burlap, about 20cm x 20cm, and lay it flat on a table or floor. Fill the middle of the burlap with small bits of wool and moss and then gather all four corners together. Tie a string around the top of the burlap so it makes a little bag. Hang your nesting bag outside on a tree in a spot where the birds will find it, and then watch as they pull pieces out to make their nests. Try to count how many different kinds of birds use your nesting bag! Draw a picture of your favourite bird that you see and send it to us. We'll post some of the pictures on our website! Each issue of the Green Link will have new activities, so check back next time for more ways to protect the planet! —Tracy Vleeming



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