

OUR CHANGING CLIMATE, PART 2:

Adapting *the* Garden to *the* Coming Conditions

BY NIALL DUNNE

In Part 1 of this article (see the “Bulletin,” Fall 2015), I wrote about simple practices you can adopt to shrink the carbon footprint of your garden and play a part in reducing the severity of climate change in our region. The following tips will help you prepare your garden for the changes coming our way and that we’ve been getting a taste of in past few years: hotter, drier summers; warmer, wetter winters; more frequent fall and winter downpours; a longer growing season; and new pest and disease problems. As with the tips in Part 1, the ones listed below primarily come from the sustainable-gardening toolkit, which focuses on creating resilient, low-maintenance, and nature-friendly gardens.

Protect and Enhance Soil Organic Matter

The foundation of a healthy garden is healthy soil, and the cornerstone of healthy soil is a diverse soil food web and an adequate supply of humus, or decayed organic matter (see Part 1). Beneficial soil organisms form humus through the decomposition of organic matter residue (such as dead plant material), recycling valuable plant nutrients back into the soil in the process. They also help suppress soil pathogens. Humus acts like a sponge, storing water and nutrients, while keeping soil porous and well-draining. If your soil is rich with life and humus, then your plants will be better equipped to handle the new extremes of drought and flooding, and less susceptible to soil-borne diseases. Mycorrhizal fungi and other soil microorganisms can also help plants be more resilient to drought and other stress factors.



To preserve and maintain your soil’s store of organic matter—and promote a thriving soil food web—apply compost or coarse organic mulch once or twice a year to replace what has decomposed. Leave plant debris such as leaf mold, and fallen leaves and twigs, in place to nurture a diversity of organisms in your soil. Protect soil organic matter and biota by avoiding practices such as tilling and double digging. Avoid gardening in wet conditions, which can cause soil compaction and damage soil structure. Instead of trenching your irrigation lines underground, install surface drip tubing.

Apply an annual layer of coarse-textured mulch, such as arborist wood chips, on your beds to protect the soil from erosion and compaction by rain fall, and also to capture and store rainwater for use by plants in dry periods. Create a canopy in your garden with shade trees, shrubs, and groundcovers to buffer air and soil temperatures, as well as to protect soil from battering by rain.

Grow a Diversity of Adapted Plants

New research suggests that elevated carbon dioxide levels in the atmosphere may make some plants more tolerant of droughty conditions. (Less demand for CO₂ will mean less need to open leaf pores, and so less water loss from evapotranspiration.) However, it’s uncertain how—or even if—this might apply to plants in our region. A much safer bet is to grow plants that are able to tolerate hotter, drier summers. (See “Trees and Shrubs for a Warmer Seattle,” page 3, and “The Mayten Tree,” page 8, for suggestions.)

This is not to say that you should rip all the plants out of your garden right now and replant it

with cactus. (Though if you have a very exposed site with fast-draining soil, hardy succulents and other xeric plants make great choices—I've seen prickly pears thriving in sunny rock gardens in my neighborhood.) Instead, carefully observe your garden in the coming years to see what's working and what's not, replace most dying plants with drought-tolerant varieties that we know already do well here, and cautiously experiment with unfamiliar plants from historically warmer regions. Keep an eye out, too, for new, more heat-tolerant introductions of your favorite garden plants.

In ecology, it's a general rule that biodiverse plant communities are more resilient—that is, they are better able to recover from a disturbance (such as a drought). This applies to the garden, too: Plant a diverse suite of tough, low-maintenance plants so that if something fails, there's plenty of built-in redundancy in your design to absorb the failure. Large monocultures should be avoided—another good reason (among the many) to cut back on or eliminate lawn.

As we've seen in the last few years, a warming climate can extend the growing season earlier and later into the year. This can create some exciting new opportunities for gardeners, but be mindful of damage to premature buds from late frost. Locate tender plants in warmer microclimates of the garden, rather than, say, north-facing or low-lying spots.

Channel Water to Plant Roots

With hotter, drier summers, plants will need more help meeting their water needs. As mentioned above, make sure that your soil has a good store of organic matter, which holds onto water and gradually releases it to plant roots. Also, a good drip-irrigation system will deliver moisture directly and as needed to the root zone of your plants, while conserving your water supply.

In winter, we'll see less of the beneficial "slow-soak" style rain and more heavy downpours. Though the total rainfall amounts in our region may not change too much, runoff will be more severe, and you may actually see less infiltration of water into your garden soil. Adapt your

garden for this by using methods for slowing and capturing rainfall and reducing erosion—such as green roofs, rain barrels and cisterns on gutter downpouts, rain gardens, and bioswales.

When establishing plants, water them deeply but infrequently to foster deep root systems, which will better enable them to resist drought. Plant in the fall, so that your new additions will receive a good supply of rain, and you can save on your water bill. Always use the "right plant, right place" mantra when selecting plants for the different microclimates of your garden.

Watch for New Pests and Diseases

A longer growing season and warmer winter will create interesting opportunities for growing new plants and crops, but it will also open up doors for pests and diseases. Some bad bugs, for instance, will benefit from higher rates of reproduction and will be able to fit more life cycles/generations into a growing season. Closely observe your garden to see how your plants are faring, and use sustainable, low-toxicity methods for pest and disease control. Become a citizen scientist and work with your local IPM (integrated pest management) and Extension services to identify newly arriving potential threats in your area.

Provide for Wildlife

The plants in our gardens will not be the only organisms needing to adapt to climate change—so will the animals that reside in or visit them each year. Provide year-round resources and habitat for the birds, insects, mammals, and other creatures that call your garden home. Some animals will need our help migrating to cooler climes, and gardens can provide connections for them across fragmented landscapes. ☞

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Sources

"Adapting Old Gardens for New Times," by Christina Pfeiffer (lecture presentation at the 2016 NW Flower & Garden Show).

"Gardening Sustainably with a Changing Climate," by David W. Wolfe, in "The New American Landscape," edited by Thomas Christopher (Portland: Timber Press, 2011).