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Sustainable Gardening
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When we look across an open field, or walk in the forest, we're seeing a landscape that sustains itself without the intervention of a gardener. How does this happen? Don't plants need regular watering schedules? Don't they deplete the soil of nitrogen and need seasonal fertilization? Don't they need occasional eradication of pests? Hmm. Evidently not. It seems that in nature, there's a system that allows enormous trees, robust shrubs, and beautiful delicate flowers to thrive year-in and year-out without a single human intervention. This observation piques the curiosity of any observant gardener, and leads one to wonder how we might emulate this sustainable system in our own backyard.

Let's look at it from the ground up. In nature, the ground you see is the roof of a complex factory, thriving with microorganisms that work in symbiosis to extract nutrients from the soil and pass these to the plant via a broad web of roots. In return, the plant provides these below-ground laborers with a supply of carbohydrates it has produced through photosynthesis. Nothing is added, except the leaves dropped by the plants and the carcasses of tiny critters as they go through their lifecycles. Bacteria feeds fungi, fungi feed protozoa, protozoa feed arthropods, and on up the underground food chain. These microbiome factories are intimately joined to the location, the mineral soil, and the plants themselves, in ways scientists are just beginning to understand. It's miraculous, to say the least.

But what does it mean in your garden? It means that first, you have to think of your garden plants as having ancestors in the wild, and consider the soil in which those ancestors would have thrived. Is it a forest plant, that would have access to rich layers of acid-giving pine needles? Is it a desert or chaparral plant that might want fast-draining granite or limestone soils? In some cases, you'll want to spread compost at the base of your plants, to emulate the rich leaf-molds you see in nature, and mulches to cool the soil, as would heavier detritus dropped in forests. But

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in other cases, you'll mulch with decomposed granite and small rocks. Because of this, it's always best to choose plants that either grow natively in your area, or are cultivated ancestors of those plants, because having the right soil drives plant health.

The Master Gardener slogan for this is "Right plant, right place." If you buy local native plant varieties or those suited to our Mediterranean climate--which has historically been defined by mild, wet winters and completely dry summers--they will require less water than a plant whose ancestors came, for example, from a sub-tropical or tropical region. If you group your plants according to their natural soil habitat, you can water with greater precision, and allow the drying-out periods that most native and Mediterranean plants receive.

Beyond soil health and watering techniques, gardeners are great observers of the insects that are drawn to their plants. These can be beneficial, or what some people call pests, meaning that to that gardener, the insect has no purpose or damages plants. But let's look more closely at insects in the sustainable garden. Is it possible that they, too, have a purpose? Bees, obviously, play an important role in pollination, but so do moths, ants, wasps, and other creatures. Insects generally eat roots or leaves, but do they eat enough to kill a plant? Generally not, in a stable natural environment. University of California Cooperative Extension (UCCE) provides a vast catalog of information on insect-plant interaction, called Integrated Pest Management (IPM). Using the IPM website (<http://ipm.ucanr.edu/>), a home gardener can investigate the insects that might commonly be found on a specific plant, and determine if that insect really is a pest, or if they are simply part of your garden ecosystem. Insects are the primary food source for birds, especially baby birds, and when you understand this, you may decide that maintaining a healthy insect population has advantages in bringing life and poetry to your yard.

By maintaining soil integrity, planting the right plant in the right place, watering carefully to emulate nature, inspecting plants for pests and knowing least-invasive remedies, you can quickly develop a garden that has a good chance of sustaining itself with fewer resource inputs, thus minimizing resource waste. A few seasons of these practices will return your garden to a place where birds, bees, and butterflies thrive.

To learn more, please join Master Gardener Deborah Nicolls for a free Public Education class on Sustainable Gardening on Saturday, March 25 from 9:00 a.m. to noon at the Government Center Hearing Room, Building C, 2850 Fairlane Drive, Placerville. You can also refer to the California Garden Web site (<http://cagardenweb.ucanr.edu/>) and search on sustainable gardening.

UCCE Master Gardeners of El Dorado County are available to answer home gardening questions Tuesday through Friday, 9:00 a.m. to noon, by calling [\(530\)621-5512](tel:5306215512). Walk-ins are welcome at our office, located at 311 Fair Lane in Placerville. For more information about our public education classes and activities, go to our UCCE Master Gardeners of El Dorado County website at <http://mgeldorado.ucanr.edu>. Sign up to receive our online notices and e-newsletter at http://ucanr.edu/master_gardener_e-news. You can also find us on Facebook.