Tough growing in Oregon's high desert

Care must be taken to choose plants that can adapt to frosty mornings, scorching afternoons and sterile soils

By Amy Jo Detweiler

There was at least a decade of fast and furious population growth in the desert communities of Central Oregon, beginning in the late 1990s.

Then the recession hit and almost everything came to a halt.

Now it's happening again. Home construction and other manifestations of growth have resumed, particularly in Bend and Redmond. New construction means new landscape installations. This is good news for nursery owners, landscape designers and landscape contractors.

During the growth spurt of the 1990s, it often seemed like the same 10 or so plants were being used in all new residential and commercial developments. This wasn't really the case, but it did point out the need to increase the plant palette and incorporate more variety.

The resumption of growth and construction now brings a fresh opportunity to grow and use plant material that is more adaptable and diverse. Whether you're operating a nursery, starting a new nursery, or you install plants in Central Oregon, these opportunities are worth consideration.

Plants native to Central Oregon, such as globemallow orange flower, oceanspray and sagebrush, are some of the easiest plants to grow in a high desert garden. PHOTO BY AMY JO DETWEILER

A challenging climate

Many people are attracted to semi-arid Central Oregon because of the significant number of sunny days. Interestingly enough, these sunny days and clear nights can be partially responsible for the occurrence of nighttime radiative cooling (the cooling of the Earth's surface and adjacent air). This can lead to having frost almost any day of the year, even during the growing season.

Central Oregon's climate has a wide range of temperature extremes between day and night. These temperature fluctuations often cause perennial plants to bud out prematurely, only to get nipped by frost.

During the growing season, it is not unusual for the daily minimum temperature to drop below 40 F at night. Periodically, this can even happen during the hotter months of July and ▶

Many new housing developments in Central Oregon are being landscaped with a more sustainable, diverse mix of plant material, including drought-tolerant perennials, trees and shrubs. PHOTO BY AMY JO DETWEILER

August. The higher elevations are especially susceptible and can have frost during the summer months.

The lack of frost-free days can impact garden plants. Established trees and shrubs in the landscape can suffer frost damage at temperatures of 24 F or below if not in their dormant stage. Additionally, these significant diurnal fluctuations affect incremental growth.

The optimum temperature range for growth for most plant species is 50–90 F. Most plants either slow down or cease to grow at temperatures below 50 F. Plants will start to grow, then stop at night, then start — you get the picture.

With this in mind, nursery owners should plan for this variability when growing their nursery stock. Incremental growth on plants is less here as compared to growth on the same plants in more temperate climates.

Get in the zone

The USDA Hardiness Zone for Central Oregon is designated as Zone 6. If you live in Warm Springs or Madras, you can semi-confidently grow plants for Zone 6. For most of the region, it is more realistic to grow plants for zones 3–4.

It is interesting that Madras is zoned for 6 and so is La Pine. Madras, with an elevation of 2,230 feet, has about a 100 to 120-day growing season; La Pine, elevation 4,200 feet, has a 90-day growing season and is a much more difficult region for growing. I consider plants zoned for 5 to be marginal here in Central Oregon and they should be planted in sites protected from wind and harsh sun.

Most Central Oregon soils are coarse, have a sandy texture and tend to be very sterile, with minimal organic matter (generally less than 1 percent). This type of soil does not hold high quantities of water or nutrients without some modification.

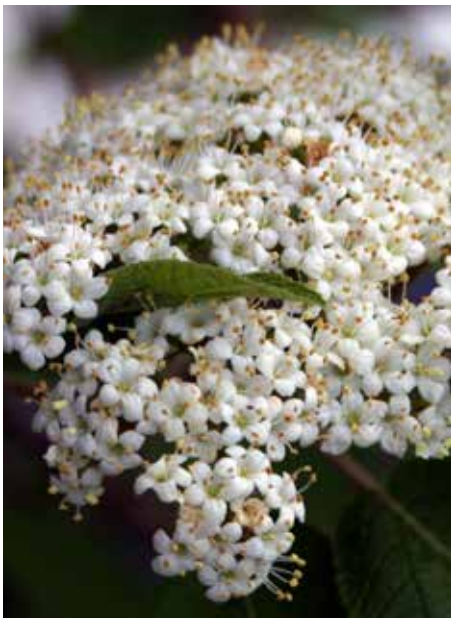
Native soils in Central Oregon generally need to be amended with organic material, such as compost or aged manure (free from weed seeds, disease pathogens and herbicide residue). This will improve water-holding capacity, increase soil microorganism activity levels, and improve the overall fertility of the soil. Ideally, sandy soils should have 2–3 percent organic matter.

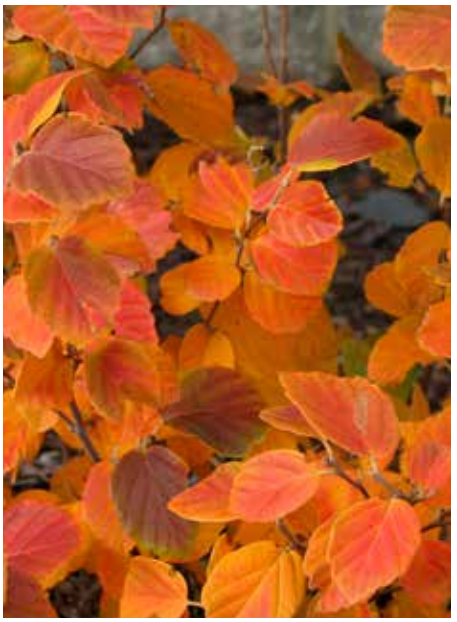
Soil testing can be useful to determine pH and nutrient levels, as well as allow time for adjustments prior to planting. Soil pH in Central Oregon is generally between 6.5 and 7.8. In many areas, the soil may require amendments to reduce the pH. Soil pH affects the ability of plants to take up nutrients, so it is important to achieve an ideal pH.

If your soil is too alkaline, add elemental sulfur at a rate of 4–6 pounds per 1,000 square feet in the spring. Sulfur needs time to break down and gradually lower the soil pH, so the sooner (6 months to a year ahead of time) you can apply it to soil before planting the better. This will need to be maintained if you are growing a crop that prefers a lower pH.

Irrigating your crops

In Central Oregon, the natural precipitation ranges from 8–14 inches, most of which falls during the winter season as snow. During the growing season, the average is 4–6 inches. That's why it's important to have supplemental irrigation in place. ▶





***Viburnum lantana* 'Mohican' in bloom (left) and Mount Airy Fothergilla (right) are two examples of underused shrubs in Central Oregon. Both perform well, with no significant pests.** PHOTO BY AMY JO DETWEILER

If you are producing field-grown stock, the sandy native soil must be taken into account when deciding on what type of irrigation to use. Microsprays will provide more even coverage to the root zone than drip emitters.

One of the advantages to growing in a cold-climate, semi-arid environment is the decreased prevalence of insects and plant diseases. In particular, there are far fewer fungal and bacterial pathogens than in other parts of the state. Many insects do not overwinter here.

The majority of plant damage is due first and foremost to environmental factors, including diurnal fluctuations, drought and winter injury.

Plants native to areas with higher humidity or near riparian areas are less adaptable here. The lack of humidity predisposes them to environmental stress, which can lead to more insect and disease damage. Scotch pine, white-barked birch, many broadleaf evergreens, cedar and cypress tend not to thrive as they would in higher humidity areas.

Another advantage: several plants that are highly invasive in other parts of the state simply are not invasive here. Central Oregon's climate makes it difficult for invasives that spread by seed to become established. Killed by the first frost, these invasives never get the chance to spread.

Adaptable plants

In deciding on plants that are adaptable to the area, choose those that are non-invasive and ornamentals, or natives that perform well in the intermountain west or Rocky Mountain states. Some of the more adaptable trees include crabapples, red oaks, red maple, ponderosa pine, blue spruce and serviceberry.

However, two of the most commonly requested and landscaped trees in this area include aspen and birch. Although beautiful, both of these trees come with their own set of problems.

White-barked birch may be substituted for river birch. It is much more adaptable to the high desert and not susceptible to the bronze birch borer, which has wiped out a high population of white-barked birch in the area.

Aspen, a magnificent tree in nature, becomes prone to damage once introduced into an urban environment. Its popularity is due in part to its fast growth habit, and with all the new developments, people are looking for instant tree canopies.

Unfortunately, aspen are being planted in very small lots and in parking strips, eventually becoming a nuisance as they come up in unintended places — including the neighbor's lawn! They are also prone to several diseases and insects, including aphids, oystershell scale and cytospora.

Aspen should only be used in spaces large enough to accommodate their growth — they will create groves. Alternatives to aspen should be considered for smaller areas, such as serviceberry and upright maples. There is a wide variety of shrubs and perennials that do well here, including ninebark, wayfaring tree viburnum, hydrangea arborescens or paniculata, and penstemons, just to mention a few.

If you are considering starting a nursery, there are several resources available on our website that may be of assistance to you in selecting plant material and learning more about our climate. For more information, log on to http://extension.oregonstate.edu/deschutes/garden-publications.

Amy Jo Detweiler is an associate professor in horticulture at Oregon State University Extension Service serving Crook, Deschutes and Jefferson counties. She can be reached at amyjo.detweiler@oregonstate.edu.