

TREES

FROM PAGE 12

temperatures limit biomass production. Occasionally Shasta red fir and mountain hemlock trees will invade during warmer climatic periods. But this ambitious advance can be knocked back, by short but extremely cold weather events. Extensive sheep grazing during the mid-to-late 1800s expanded the extent of this Series. Too many hungry sheep and too little vegetation resulted in extensive soil compaction and reduced inherent productivity. In addition, herders, as they retreated from the winter cold, were fond of burning to stimulate the forbs and

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discourage tree regeneration. Dutchman Peak and Silver Fork Basin reflect both the management history and limited productive potential of this Series.

Western hemlock is listed because it occurs in the Illinois Valley watershed, directly to the west and has been sighted just north and east of the Applegate (according to the Oregon Flora database). There are no known stands within the Applegate, so if you see individual trees or group of trees, record the location. It would be rare, and should be noted.

Oregon white oak thrives on the hottest and driest environments in the Watershed. It is usually associated with thick grasses and drought tolerant shrubs like baldhip rose, buckbrush, and poison oak. Wood ticks are the most common animals. Although it survives on all geologic rock types, soils are always shallow (often less than a foot) rocky and hold little water, regardless of the elevation. There are isolated stands near 4,000 feet, but most stands occur between 1,000 and 2,000 feet. Historically, the Natives repeatedly burned in this Series. It was prime habitat. It provided deer, occasional elk, some root crops, grains, and other produce. Fish were also available nearby. All in all, not a bad place to live.

The Shasta Red Fir Series occurs in a narrow elevational band interfingering with the Mountain Hemlock Series above and the White Fir Series below. Contrary to popular belief, the Series is relatively productive. It is low enough in elevation that the soil warms quickly in the spring and high enough in elevation that orographic precipitation satisfies its thirst. At Wrangle Camp I have sampled stands with a number of trees that measured greater than 60 inches in diameter. But like most true firs, they are susceptible to every insect and disease that wanders by, and the heartwood is typically rotten most of its adult life. Shasta red fir is an efficient invader in recently disturbed sites, but it is only climax (seedlings survive under closed canopies) in its narrow elevational band (about 4,500 to 6,000 feet).

The Ponderosa Series is the elevational opposite of the Shasta Red Fir Series. It occurs on a narrow, but low elevation band. Although the soils are droughty, they can be productive. Large, old Ponderosa pine is not difficult to find in our lowlands near farms and fields. There are quite a number of trees and small stands along Highway 238. The Series is relatively resistant to insects at low stand densities. Historically, fire thinned

these stands allowing Ponderosa pine to thrive. Generally the soils are moderately deep, but there is an interesting special case where Ponderosa grows on muddy, wet soils in the bottom lands where sedges are commonly allied. Unlike most other conifers, Ponderosa pine is tolerant of this condition. While these soils are saturated in early spring they dry quickly, crack on the surface like dry skin, and leave a small, black clayey hexagonal pavement.

The Tanoak Series is our other hardwood Series, but is the productive opposite of the White Oak Series. Tanoak is not only a fast grower, it can sprout after fire or other top-killing disturbance, like frost, drawing upon an extensive root system and carbohydrates stored in its burl. It occurs on the best sites with the deepest soils on the extreme west side of the Watershed. Where you find tanoak, you find high site productivity. This is not a surprise since one of tanoak's closest associates is coast redwood, one of the most productive conifers in the northwest and one of only two conifers that can sprout. Tolerant of dense shade, tanoak is the climax species where it is associated with coast redwood. Redwood, although long-lived will gradually be replaced by tanoak seedlings, if both fire and floods are suppressed, not likely. Our tanoak is at the eastern edge of its range, just hanging on, as rainfall diminishes.

The White Fir Series, like the Mountain Hemlock and Shasta Red Fir Series occurs in a narrow elevational band on both sides of the Siskiyou Crest between 3,500 and 5,500 feet. Seedlings encroach on the Shasta Red Fir series above and the Douglas-fir Series below, as long as fire is suppressed. But, historically fire kept white fir in its place. Like the wayward child, white fir has been difficult

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to accept since it easily sustains infections in the early years. Today, since its shade tolerance allows it to produce high stand biomass, it gets a bit more respect.

At the lowest elevations just about the valley floor, and on the harshest sites (usually rocky outwash or skeletal, rocky soils) you will find a shrub dominated Series that is long lived and prosperous. Wedgeleaf ceanothus is usually the dominant species. Wedgeleaf may be accompanied by a few species of manzanita, usually whiteleaf, rarely greenleaf. Whiteleaf manzanita occurs on the most impoverished sites. But the presence of greenleaf indicates the site is much better, but still one of the least productive Series in the Watershed. The distribution is scattered, and relatively rare.

Last but not least is the Douglas-fir Series. It occupies well over half the watershed. But since most of the early classification research was done in the mid-Cascades, it was not originally believed to be a series; seedlings were considered too shade intolerant to reproduce under closed canopies. It was considered part of the "Mixed Conifer" group of southwest Oregon. But as we

LETTERS TO THE EDITOR

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Address Opinion Pieces and Letters to the Editor to:
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Appreciation

Dear Applegaters:

We have recently lost a faithful and loving friend, Ruth Austin, and she will be very much missed by our community, and especially the *Applegater*. I once heard someone on the *Applegater* Board remark that they wouldn't have been able to maintain the newspaper without Ruth's persistent work at finding advertisers who helped keep the *Applegater* afloat for many years. We will all keep Ruth in our hearts.

I want to say how much I appreciate the *Applegater* newspaper and the community spirit that it reflects. The various writers have contributed more than news to Applegate and our

surrounding watershed. The honest stories told by Rauno Perttu as his wife Janice has progressed with Alzheimer's disease, Greeley's reflection on his bout with polio and how it has affected his life, and JD's unforgettable treatments for cancer, the way he dealt with it through humor in his editorial, all prepare us for the unexpected bumps in our road.

The *Applegater* makes me even more appreciative of our community and the beautiful area in which we live. Thanks to all you folks for keeping it going.

Joan Peterson
Applegate, OR

studied the Applegate and southwest Oregon, we found that as we move south from the Temperate Ecosystems in the Cascades, to the Mediterranean Ecosystems of southwest Oregon, its presence increases. Now it is considered part of a "Dry group." As you might expect, since the Series is found in over half the Applegate Watershed, there are many expressions of composition and structure. There are 21 plant associations in this Series, 18 can be found in the Applegate Watershed. Most get less than 60 inches of annual precipitation a year. Yet the Series is relatively productive, only the Tanoak Series is more productive.

PRODUCTIVITY

One of our first looks at productivity in the Pacific Northwest, including southwest Oregon was centered on conifers (Maintaining the Long-term Productivity of Pacific Northwest Forest Ecosystems), a rather limited view. But understanding biomass as other than just the traditional dimensional wood products has been steadily increasing. Although we are still struggling with a consistent national definition, logging waste and agricultural waste are part of the total consideration, but are being tied to our ability to produce renewable energy. Here I am dealing with relative dry matter production among

the Series regardless of the end use.

The Steppe, Mountain Hemlock, Jeffrey Pine, and White Oak Series can be grouped as the least productive. Cold, nutrients and heat are the limiting factors respectively. Tanoak and White Fir conversely are the most productive, the most diverse and the most resilient Series. In order of most to least productive, the Douglas-fir, the Shasta Red Fir and the Ponderosa Pine Series make up the moderate group.

Sustaining resilience and productivity in all Series is predominantly dependent on retaining soil properties (keying on the limiting factors whether temperature, water or nutrient content) and allowing for the process of natural regeneration. Manipulating canopy openings and soil surface conditions can provide for the regeneration needs of any species or combination of species within each Series. Long-term stand and landscape productivity, once regeneration becomes established will, of course, depend on fire, or other means of maintaining stand densities appropriate for short and long-term stand and landscape objectives.

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