

moving into Western Oregon is very humid (contains a great deal of water vapor), and because the slope of the Coast Range is steep, the air rises, cools and condenses quite violently, resulting in heavy precipitation.

While coastal areas typically receive 60 to 80 inches of rain annually, even greater amounts fall at higher elevations in the Coast

Range, where the full effect of terrain-induced rain (also known as “orographic precipitation”) pours from the sky. In an average year 180 to 200 inches of rain deluge some portions of the Coast Range, typically at elevations of 2,000 to 4,000 feet. Though there are no rain gauges in the wettest areas, the volume of water flowing down streams provides a reliable estimate of rainfall in a drainage basin. These estimates are reflected in the Average Annual Precipitation map shown here.

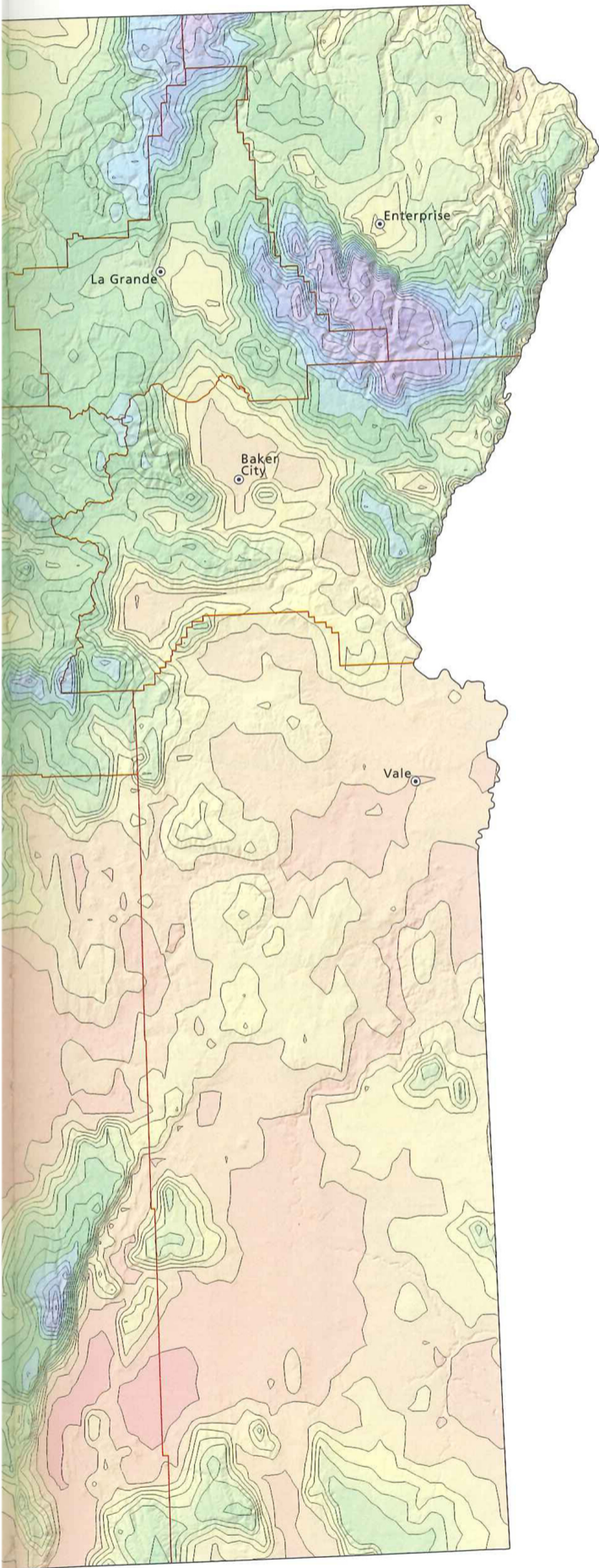
Even after dropping huge volumes of water (or snow, if temperatures are low enough) while passing over the mountains, the storms entering the Willamette Valley remain so moist that a significant amount of precipitation still falls. The lowest elevations in the valley (where most Oregonians live) average 35 to 45 inches of precipitation per year—only 20 percent of what falls in some

parts of the Coast Range.

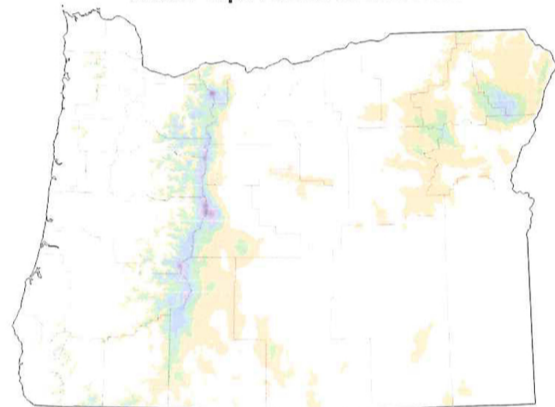
Continuing eastward, the storms approach the Cascade Range and are forced once again to ascend. Because much of the water vapor has condensed and fallen already, the drier air must get much higher to cool enough to reach “saturation,” the point at which condensation begins to occur. In the Cascades this often will not occur until an elevation of 3,000 to 4,000 feet. However, since the Cascades are very high, air passing over the range gets very cool, causing nearly all the water vapor to condense.

As storms cross the Cascades and descend into the plains and valleys to the east, little moisture remains in the air mass. Even if a significant mountain barrier were encountered (and there are many in Eastern Oregon), little precipitation would occur because of this moisture deficit. This effect, known as a “rain shadow,” explains the relative dryness of lower elevation sites downwind of large terrain obstacles. Much of the state east of the Cascades is classified as “high desert,” with relatively high elevations, but generally dry conditions. The driest part of the state, the Alvord Desert in southeast Oregon, gets only about five inches of rain in an average year. Widespread areas get less than 12 inches. A few mountainous areas in Eastern Oregon are wetter because of orographic precipitation, but their totals of 50 to 80 inches per year are well below their Western Oregon counterparts.

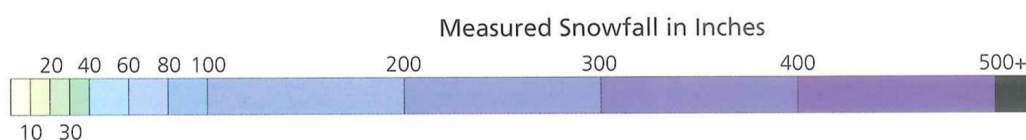
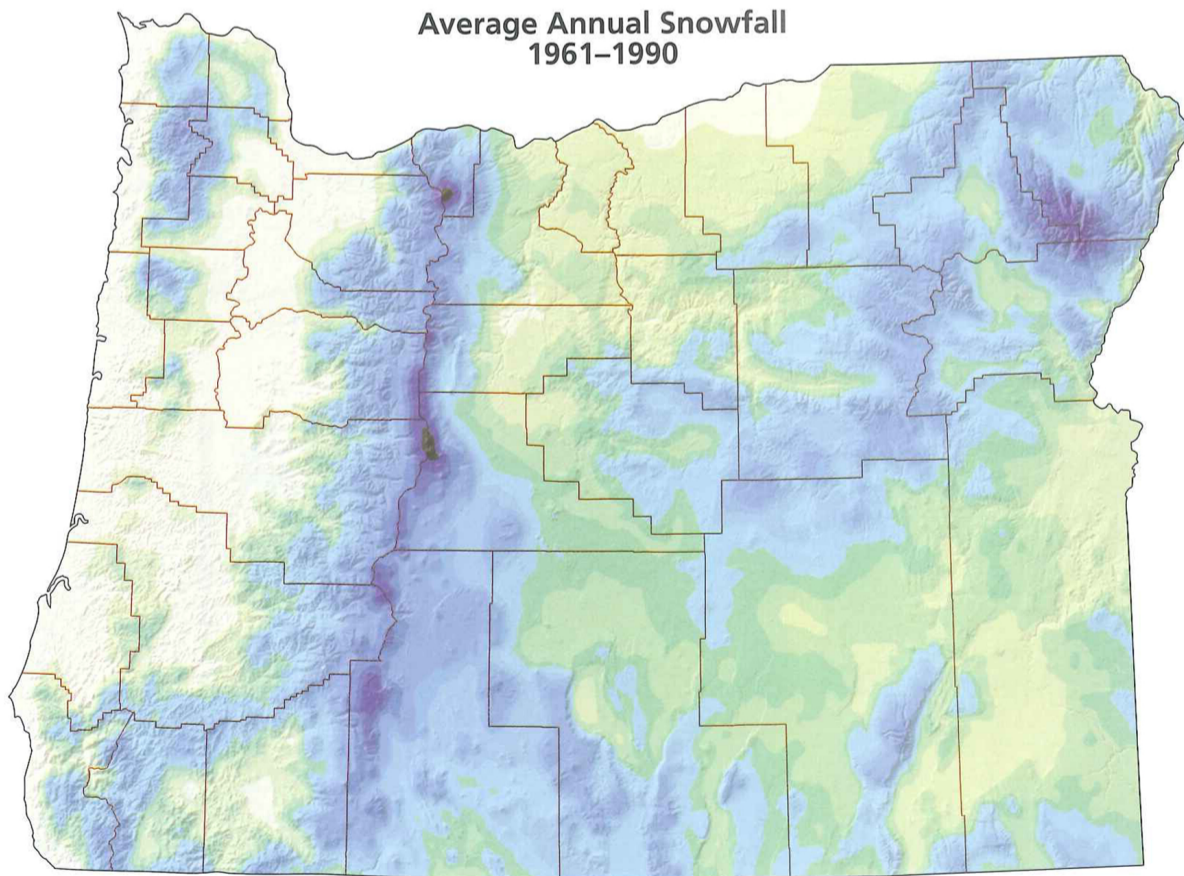
Interestingly, despite Oregon’s reputation as a place where it “rains all the time,” most of the state is classified as “semi-arid.” The western third of Oregon is quite wet, the eastern two-thirds mostly dry. In terms of precipitation distribution, Oregon is two very distinct regions inside one political boundary.



Water Equivalent of Snowfall



Average Annual Snowfall 1961-1990



160 180+