



## What's in a Name

—by John B. Theberge

A “desert” is variously defined, but in colloquial terms is “land where the water bucket is empty.” Among climate-based definitions are:

- average precipitation less than 250 mm per year.
- precipitation is less than potential evapotranspiration, that is, what comes down is less than what would go up if anything was left to go up.

The Osoyoos region, receiving an average of 317 mm per year, does not qualify under either definition. Nor does it even qualify for “semidesert” under one definition, because it receives more than 178 mm. But it does qualify for “semi-arid,” falling within the range of 250 to 500 mm. Confused? Maybe you notice that the precipitation range for desert and semidesert overlap.

That raises a fact: among scientists there is no universally accepted definition for desert. Using climatology, as above, ignores other factors that lead to dry conditions like soil salinity and permeability, and the amount and type of vegetation. Maybe we can turn to vegetation to find a name. A “desert” defined floristically is, “shrub-covered, with large succulent cacti, much bare ground and no notable perennial grasses.” That doesn’t fit either. But what does fit is “shrubsteppe” (“steppe” means grassland). Shrub-steppe has sufficient moisture to support a cover of perennial grasses. Shrubs are dominant, and perennial grasses fill in the rest. “Grasslands” form the next moistest category, occurring in B.C. farther north where precipitation is greater and evapotranspiration less. The B.C. government classifies the Osoyoos region as intermediate, naming it “grassland/shrubsteppe,” which may acknowledge a greater component of grass than is normally found in shrub-steppe.

Or, B.C.’s classification may reflect the probability that before human disturbance, our region consisted of more grass. Some ecology textbooks even refer to the natural vegetation of much of the Columbia Plateau and Okanagan Valley as “Palouse grasslands.” Grasslands can be converted to a greater proportion of shrubs by either livestock grazing or a reduction in fire. In our region both have occurred. So, the label “shrubsteppe” applied here, ironically, is largely justified as the result of human impacts. But, now the good news for the “Osoyoos Desert Society.” It won’t



have to be renamed the "Osoyoos Shrub-Steppe Society" or the "Osoyoos No Scientifically Acceptable Name Society."

Despite the contradiction with any definition of desert, some ecology textbooks refer to the "shrub-steppe" as "cold desert." Doing so is certainly strange. Arctic tundra is more commonly and accurately called "cold desert" because much of it receives less than 250 mm per year. Nonetheless, a precedent exists, however illogical, for calling what we have around Osoyoos, "cold desert." How about "Osoyoos Cold Desert Society?" Or how about "Osoyoos Great Basin Cold Desert Society." That is marginally possible due to a thin, 50 kilometre wide neck of land squeezed between the western end of the chain of east-west running mountains in northern Oregon and the eastern slopes of the Cascade Mountains. This neck makes continuous the shrub-steppe that dominates the Great Basin of southern Oregon, northern California and Nevada with central Washington's Columbia Plateau. Closer to us, however, is the Columbia Plateau—that great outpouring of Miocene lava some 15 to 20 million years ago. It, too, once had more Palouse grassland, converted to a greater predominance of shrub-steppe (cold desert), converted in turn to a lot of wheatfields today. The Okanagan Valley is a continuation of its remnant shrub-steppe vegetation.

But what about "Sonoran?" The Sonoran desert is one of North America's three hot deserts. No similarities exist between their vegetation communities and those in the South Okanagan. However, the word "Sonoran," unfortunately, was used rather loosely by a biogeographer named C. Hart Merriam who in 1889 published a "life zone" concept for different altitudinal bands on mountains in the southwestern United States. He invented the term "lower Sonoran zone" for true, hot desert between and on the lower slopes of mountains. The next one up, characterized by shrublands, he called the "upper Sonoran zone." Higher up, around 1,500 metres, he described a "pinon-juniper zone," and above that a "pine-oak zone."

Enter innocent antelope brush (*Purshia tridentata*), which has caused the confusion. It grows in the Okanagan – valley floor, to 900 metres in the ponderosa–Douglas fir zone. It also grows abundantly on open forested, lower slopes of the Cascade, Sierra Nevada and Rocky mountains. Farther south above all the hot deserts including the Sonoran it is a common inhabitant of the pinon-juniper zone and even the pine-oak zone, growing occasionally to 3,000 metres. But living high above the Sonoran desert does not make it a Sonoran plant species, nor make the Okanagan "Sonoran."

Just as well call the Okanagan "arctic tundra" because Junegrass grows in both places! All this, with one confusing caveat. In some plant guides, the floor of the Great Basin is called "upper Sonoran," because with almost no floral justification, Merriam gave it this name. Some – not much – antelope brush grows there, but mainly at higher elevations on surrounding mountains. Merriam developed his life zone concept primarily in Arizona and only extrapolated to the rest of North America. Because of inconsistencies such as this one on the Great Basin, his classification is rarely used today. So, "Sonoran" for south Okanagan, is out. Good marketing; lousy biology. But what, after all this, should we call what we have here? My vote is for "shrub-steppe semidesert." That name steps gingerly amidst all the confusion as most defensible.