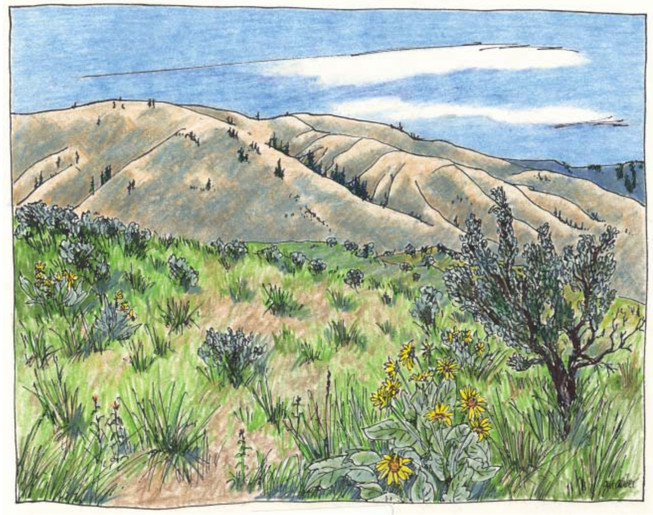
Big Sagebrush…A Sturdy Ship Afloat in the Sagebrush Sea



Sweep your eyes up and across the sagebrush grasslands that roll along the slopes of the Jacobson Preserve. Biologists call this community of plants shrub-steppe, but poets have christened it The Sagebrush Sea. In this vast open landscape, scattered fleets of long-lived woody shrubs sail above waves of perennial bunchgrasses, wildflowers, and a living mat of intertwined fungi, bacteria, algae, and lichens.

Imagine life here if you were a plant. Bitterly cold winters turn water into snow, while long dry summers bring searing heat. The thirsty wind-blown ground quickly captures the short-lived snowmelt and the growing season's scarce rain. Nutrient-poor soils thinly cover volcanic bedrock. There is no escape from these harsh conditions. But the plants of the shrub-steppe are adapted to survive and thrive here, each with its own strategy.

Like a watertight ship, big sagebrush is built to sail in the Sagebrush Sea. It is the most wide-ranging and abundant shrub in western North America, growing from Mexico to Canada, from sea level to timberline. Big sagebrush excels at water conservation.

Big sagebrush has two different types of leaves. Large slender leaves grow in the spring and help the plant maximize food production when water is available. In summer, these leaves quickly shrivel and die. The smaller leaves that remain have less surface area to minimize water loss.

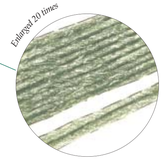
Artemisia tridentata
Big sagebrush

Balsamorhiza sagittata
Balsamroot

Collomia grandiflora
Large-flowered collomia

Pseudoroegneria spicata
Bluebunch wheatgrass

Dense, short hairs cover each leaf, trapping a layer of moist air that slows down evaporation. These hairs also work as a sunscreen, reflecting damaging ultraviolet light away from leaves.



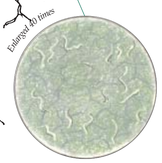
Long green leaves conserve water by curling inward, minimizing surfaces exposed to hot drying sun. The leaves die during the peak of summer heat.

The stem's living tissue is buried beneath a watertight layer of cork that protects the stem from drying out.

A radiating network of shallow roots encircles the shrub, ready to soak up rainfall when it comes.

A deep taproot penetrates up to twelve feet or more, reaching life-sustaining groundwater.

While leaves above ground wither and die each summer, the large food-storing taproot remains alive year-round.



A waxy or leathery coating on leaves effectively seals water inside the tissue, keeping the plant from drying out.

Fast-growing but short-lived annuals complete their life cycle quickly during the moist season, surviving the drier seasons as a seed in the soil.

A mass of fibrous roots is over six times the size of the above-ground plant. Roots collect vital water, sustaining the plant year round.