

Sagebrush leaves



Sagebrush leaves persist throughout winter, NPS photo

Our local wildlife benefit by living in a region dominated by sagebrush. This shrub retains its leaves over winter and that makes all the difference to wildlife. Sagebrush is a good winter food source. Mule deer, pronghorn antelope and jackrabbits eat sagebrush during winter, when leaves hold high crude protein values of 11% - 13%. Even cattle will nibble some winter sagebrush. Sage-grouse eat nothing else during winter and they are one of the few birds that actually gain weight over winter.

Sagebrush is a uniquely adapted plant and one adaptation is the two types of leaves produced during a year. One leaf type, called persistent leaves, sprout on stems during late spring and summer and these remain green over winter. Technically, this makes sagebrush an evergreen, but it is termed semi-deciduous since these leaves last only one year. The advantage of these persistent leaves is to stretch the length of time the

plant can perform photosynthesis. Sagebrush can create sugars well into fall, then again in early spring and even on warm winter days. Other plants drop their leaves in fall and then need to use stored energy to grow new leaves in the spring before they can begin photosynthesis.

The other leaf type, called transient leaves, are added to the stems in early spring. These leaves are larger and wider than persistent leaves. Their benefit is increased photosynthesis rates at a time when water is abundant. Especially during wet springs, these larger leaves, along with the persistent leaves, mean much more leaf area to capture sunlight. This increased photosynthesis allows for rapid plant growth.

During summer, temperatures climb and soil moisture drops. In response, most of the transient leaves, along with last year's persistent leaves, wither and drop off. This leaves sagebrush with only the smaller persistent leaves, which minimizes water loss through transpiration. Sagebrush conserves water but also performs less photosynthesis during summer.

Sagebrush's persistent leaves conduct photosynthesis during summer, fall and spring, which is a benefit to sagebrush and coincidentally, to the wildlife that will eat those leaves.

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