

Why Sage-Grouse Need Sagebrush

By Larry Hyslop



The three-lobed leaves of the sagebrush

Sage-Grouse is an appropriate name for a bird that cannot live without sagebrush. They are limited to only two types of food, sagebrush and soft, green forbs (flowering plants). Forbs are an option, but sagebrush is vital since Sage-grouse eat nothing else all fall and winter. It is such a good food source that Sage-grouse gain weight over winter.

Sagebrush is important winter feed for several types of wildlife, since it carries leaves year around. Each spring, larger leaves develop to help conduct more photosynthesis during a time of abundant water. During the hot summer, these larger leaves drop off and smaller leaves replace them, leaves that do not lose as much water through evaporation. These smaller leaves remain on the plant until the next spring.

Not that sagebrush wants to be eaten by Sage-Grouse or any other animal. It produces volatile oils in its leaves, called terpenoids that deter animals from browsing it. Most browsers, including cattle, will not eat much sagebrush, since the terpenoids upset their digestive system and the leaves are difficult to digest.

A Sage-grouse eats sagebrush during fall and winter when the terpenoids levels are at their lowest. When a Sage-Grouse eats sagebrush, it very daintily nips off half a sagebrush leaf, not an entire leaf, only half. When swallowed, the half leaf is held in its gizzard, a simple pouch where mucous softens the leaf in preparation for digestion. Digestive juices enter the leaf through the cut and dissolve most of the soft, inner parts. The hollow leaf shell is later expelled.

Other game birds possess a muscular gizzard and swallow grit so the grit and muscles can grind up their food to prepare it for digestion. Sage-Grouse, however, do not have a muscular gizzard and do not swallow grit. If Sage-Grouse gizzards ground up sagebrush leaves, this would release the terpenoids that are mostly contained in the outer leaf cells. Since the half-leaf shells are expelled, most of the terpenoids are expelled with the empty shell. Therefore, Sage-grouse avoid most of the terpenoids.

This adaptation allows them to eat sagebrush but comes at a heavy price. Other game birds can eat berries, stems and buds but Sage-Grouse have only two choices, sagebrush and soft forbs. Only these soft plants can be digested without the need to grind the food in the gizzard.

During spring and summer, Sage-Grouse eat mostly soft forbs and therefore, must stay in areas offering them. In spring, soft forbs are everywhere, but during summer many of these forbs dry up. The birds must then move to stream edges, wet meadows and irrigated fields to find soft forbs. As fall approaches, even these forbs dry up and the birds turn to sagebrush.

The lives of Sage-Grouse and sagebrush are so closely intertwined that the only way to maintain a healthy Sage-Grouse population is to maintain a healthy sagebrush community.

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