

## BIG SAGEBRUSH

(*Artemisia tridentata*)



Drawing from: California Range Brushlands and Browse Plants, by Arthur W. Sampson and Beryl S. Jespersen. Calif. Agric. Expt. Sta. Ext. Ser. Manual 33.

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The genus *Artemisia* (a member of the Sunflower Family or Compositae) contains about 250 species, most of which occur in the arid regions of the northern hemisphere. There are both shrubby and herbaceous species. Most of them are aromatic.

About 96 million acres of the 683,389,000 acres of pasture and rangeland in the eleven Western states are in sagebrush, with big sagebrush (*A. tridentata*) the most abundant. Associates of this species are silver sagebrush, threetip sagebrush, low sagebrush, and black sagebrush. Coast sagebrush is common in coastal California and sand sagebrush in the southern Great Plains. Another common associate is rabbitbrush (*Chrysothamnus*) which is a poor browse species for both domestic animals and deer. On the other hand, bitterbrush (*Purshia tridentata*), also a common associate, is a favored browse species.

Big sagebrush is a much-branched, evergreen shrub from 1½ to 15 feet tall, usually with a distinct trunk and shreddy bark. The leaves are gray, wedge-shaped, typically with a 3-toothed apex,

from ¾ to 1½ inches long, 1/16 to 3/16 inches wide, and without definite petioles. The flower heads are small, consisting of 4 to 6 disc flowers and occur in dense, leafy panicles up to 4 inches wide. The seeds (fruits) are resinous-granuliferous achenes.

Several different methods have been used to control big sagebrush. The use of fire is one of the oldest and least expensive. Since fire, however, is not effective on sprouting herbaceous or woody plants, these may increase and become a problem. Rabbitbrush may take over and become a more serious problem than the sagebrush. Plowing and disking may be employed, but these operations destroy nearly all vegetation so the areas must be reseeded. After reseeding, however, sagebrush and rabbitbrush must be controlled to prevent invasion of the seeded areas. Spraying with herbicides can be employed to great advantage to maintain the grassland vegetation. Herbicides are also used advantageously on sagebrush lands to control old stands of sagebrush.

When big sagebrush is the dominant shrub, it can be controlled with an aerial application of 2 pounds of an ester form of 2,4-D per acre, applied in a few gallons of water plus a little diesel oil. Plants should be sprayed when they are growing vigorously and after the first new leaves have become fully enlarged.

When rabbitbrush occurs in sufficient amounts to be a problem, spraying should be delayed until the rabbitbrush has attained 3 inches of new twig growth and the quantity of 2,4-D should be increased to 3 pounds per acre. Such a spray should control most of the sagebrush and rabbitbrush if timing is proper and soil moisture conditions adequate for vigorous shoot growth. Once a stand of grass has been obtained, good grazing practices and occasional spraying with 2,4-D to control sagebrush and rabbitbrush seedlings will help maintain it.

Perennial grasses compete against big sagebrush, rabbitbrush and other woody species more effectively than annual grasses. However, on overgrazed sagebrush lands, perennials are eliminated to a large degree and annual grasses remain. A good practice on such lands is to seed perennial grasses after the woody species have been killed. However, the perennial grasses, when seedlings, often fail because they cannot compete well against annual grasses. A promising method of handling this problem is to spray directly behind a seeder with paraquat, which kills the annuals, often allowing the perennials to survive and take over in a couple of years. These areas, again, will slowly revert to sagebrush, etc. if not sprayed with 2,4-D periodically.