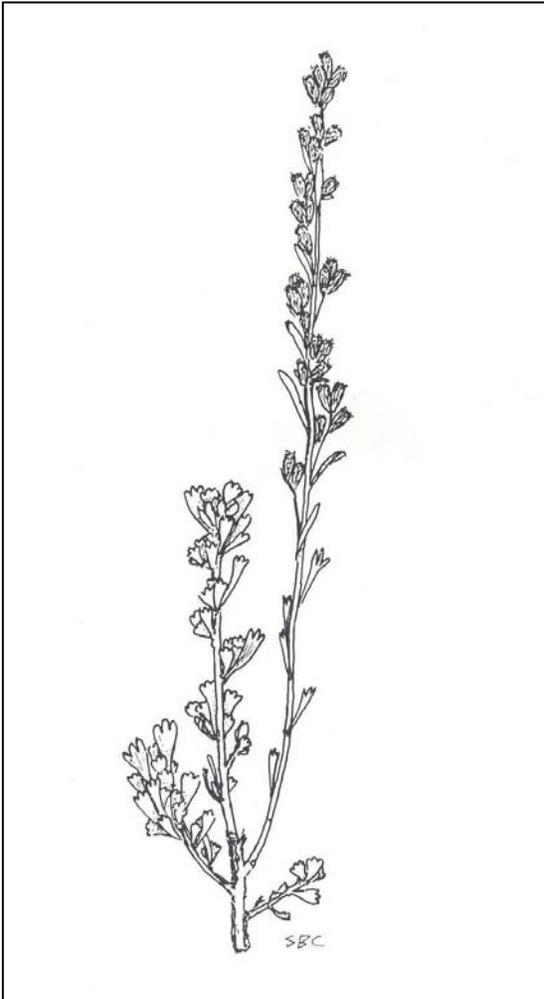


***Artemisia arbuscula* Nutt.**
ASTERACEAE

low sagebrush

Synonyms: *Artemisia tridentata* var. *arbuscula* (Nutt.) McMinn
Serphidium arbusculum (Nutt.) W.A. Weber



General Description.—Low sagebrush is a short, spreading, irregularly-branched shrub up to 50 cm high. Twigs are slender and densely canescent (silvery white pubescence) but may become nearly glabrous, and thus darker green, in late summer. Leaves are broadly cuneate, 0.5 to 1.5 cm long, and 0.3 cm wide. The leaf apex is usually three-toothed or cleft, although leaves on the upper part of the flowering stalks may be entire. Flower heads are arranged in elongate, narrow racemous panicles. Each head usually contains five to 11 disc flowers and is subtended by 10 to 15 canescent involucre bracts.

Taxonomy.—Three subspecies of *Artemisia arbuscula* are currently recognized by the International Plant Names Index (2003). These are *arbuscula*, *longicaulis* Winward & McArthur, and *thermopola* Beetle. Subspecies *longicaulis*, also known as Lahonton low sagebrush, is endemic to western Nevada (Winward and McArthur 1995). It is probably a hybrid between Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis* Beetle and Young) and low sagebrush (Winward and McArthur 1995). Subspecies *thermopola*, also known as hot springs sagebrush, is a dwarf form endemic to the Stanley Basin area of Idaho, Jackson Hole area of Wyoming and east-central Oregon. Beetle (1960) speculated that it is a hybrid derived from low sagebrush and threetip sagebrush (*Artemisia tripartite* Rydberg). Low sagebrush has a base chromosome number of $x = 9$ and can be diploid, tetraploid, or hexaploid depending on population and subspecies (McArthur and Sanderson 1999, Winward and McArthur 1995).

Range.—The range of low sagebrush extends throughout Utah, Idaho, northern California, Nevada, Oregon, Washington, southern Colorado, and western Montana. It is usually found at elevations ranging from 700 to 3,500 m. Low sagebrush can grow well in mountains above 3,000 m, particularly in arid regions such as southwestern Utah and Nevada.

Ecology.—Low sagebrush is adapted to dry, sterile, often rocky and alkaline clay soils. Mean annual precipitation throughout its range can vary between 250 and 700 mm. Seedlings develop roots quickly to reduce the effects of soil surface drought stress. Typical low sagebrush habitat is generally drier and rockier than that of big sagebrush. It can, however, grow in mosaics with big sagebrush where each species is confined to a particular soil type. Low sagebrush rarely grows in mixed stands with black sagebrush (McArthur and others 1979), and when it does, they don't share the same chromosome number (McArthur and Sanderson 1999). In areas where the distributions of these two overlap, low sagebrush usually inhabits sites that have more moisture or are at

higher elevations than black sagebrush (*A. nova* Nelson) (Tisdale and Hironaka 1981, Ward 1953, Zamora and Tueller 1973). Low sagebrush is usually associated with pinyon-juniper, mountain brush, and mountain big sagebrush communities.

Reproduction.—Flowering occurs from August to September, depending upon strain and elevation. Seeds ripen in October and November (McArthur and others 1979). Seeds are usually wind dispersed during late fall or winter, and seedlings emerge during the following spring. Seedlings emerge rapidly and grow quickly, although root growth generally outpaces stem growth during early development. Plants can be established on adapted sites by direct seeding, broadcasting, and drilling. Seeding should be conducted in the fall on a firm seedbed and seeds should remain within 2 mm of the soil surface. There are approximately 1,800 cleaned seeds per gram (Meyer 2003)

Management.—Low sagebrush is a source of browse for livestock and big game during winter months (Kufeld and others 1973, McArthur and others 1979). Some forms are browsed more heavily than others. A gray-green form in Nevada, for example, may be heavily browsed, while the green form is only lightly browsed (Brunner 1972). Stand maintenance is often crucial because shrubs provide forage and cover under conditions that are intolerable for most shrubs.

Attempts to seed low sagebrush out of its ecological range have been unsuccessful. Seedlings planted “offsite” usually establish but fail to reproduce. Stands recover quickly after burning or other disturbance. Low sagebrush spreads vigorously and can invade perennial seeded grass stands. Perennial herb and grass understory production usually decreases as stands mature. Low sagebrush is not a good candidate for mechanical control because habitat terrain is often extreme.

Benefits.—Low sagebrush is a native shrub that adds structural and biological richness to arid communities throughout the Intermountain West. Low sagebrush communities provide important habitat for a variety of domestic and wild animals (Dealy and others 1981). Its ability to grow on exposed sites is important for wintering animals and shrub cover helps reduce on-site soil erosion.

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