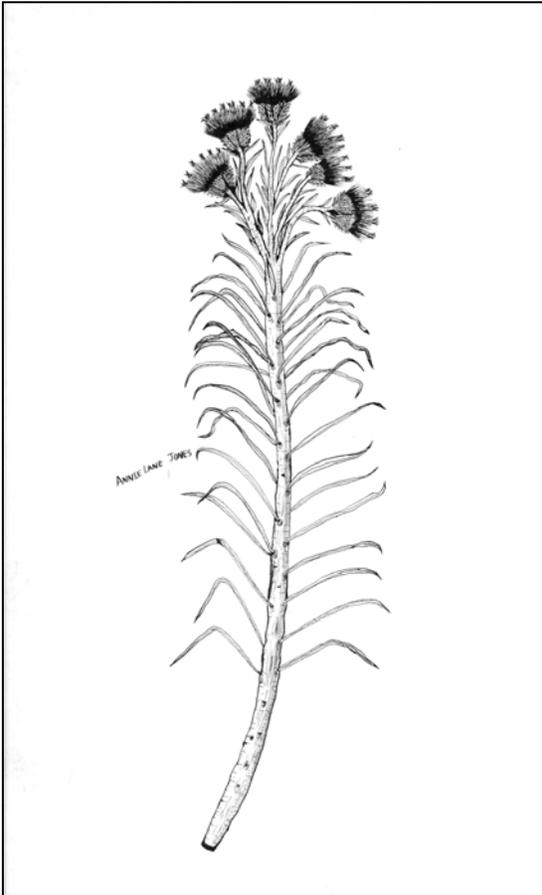


***Chrysothamnus nauseosus* (Pallas ex Pursh) Britton**
ASTERACEAE

rubber rabbitbrush

Synonyms: *Bigelovia nauseosa* Gray
Chrysocoma nauseosa Pallas ex Pursh
Ericameria nauseosa (Pallas ex Pursh) Nesom & Baird



General Description.—Rubber rabbitbrush also known as common rabbitbrush is a shrub typically 0.3 to 2.0 m in height. Some types, however, are smaller while others exceed heights of 3.0 m. Usually several erect stems arise from the base and branch to create a rounded form. Branches are covered with a felt-like tomentum, permeated by a resinous gum, which can vary in color from green, yellow-green, gray-green, to white. Leaf shape can vary from filiform to broadly linear, and leaf length can range from 18 to 63 mm. Like branches, leaves are typically covered with tomentum. The flower heads are generally arranged into a cymose inflorescence. Involucral bracts in each head may vary from glabrous to highly tomentose and number between 20 and 25.

Chrysothamnus nauseosus is uniformly diploid, $x = 9$, $2n = 18$ (Anderson 1966).

Taxonomy.—The International Plant Names Index (IPNI) recognizes 30 subspecies of *C. nauseosus* (IPNI, 2002). Some systematists promote the transfer of rubber rabbitbrush to the genus *Ericameria* (Anderson 1995). Subspecies may vary by morphology, color, and secondary metabolic compounds. Each subspecies is likely the result of reproductive isolation inbreeding, although subspecific sympatry has been observed. Some of the more common subspecies include ssp. *albicaulis*, *hololeucus*, *consimilis*, *graveolens*, and *salicifolius* (McArthur and others 1979). White stem rubber rabbitbrush (*C. n.* ssp. *albicaulis* and *hololeucus*) vary from other subspecies by their dense white to grayish tomentum, the size and arrangement of involucral bracts (five distinct vertical ranks, 8 to 10 mm in length), and the corolla lobe length (1 to 2 mm in ssp. *albicaulis*, 0.5 to 1 mm in ssp. *hololeucus*). These two subspecies are segregated by elevation. Threadleaf rubber rabbitbrush (*C. n. consimilis*) is a tall form, up to 3.0 m, with green to yellow-green tomentum and thread-like leaves. Ecologically, ssp. *consimilis* is more likely to be found in alkaline valley bottoms. Green rubber rabbitbrush (*C. n. ssp. graveolens*) has yellow-green to green stems and is less pubescent than other subspecies. Mountain rubber rabbitbrush (*C. n. ssp. salicifolius*) has larger leaves (4 to 8 cm long and 3 to 10 mm wide), less uniform involucral bracts, and is one of the more palatable subspecies to livestock and big game.

Range.—Rubber rabbitbrush is common throughout the Intermountain West extending from British Columbia to Saskatchewan and south to western Texas, Sonora, Baja California, and eastern California (Anderson 1986). It inhabits plains, valley bottoms, and foothills and is often associated with sagebrush, pinyon-juniper, and ponderosa pine communities.

Ecology.—Rubber rabbitbrush establishes readily on disturbed areas and can often become the dominant vegetation on lands that have been disturbed by fire, insects, vehicles, or heavy grazing. The species spans a broad elevation gradient, extending from 150 to 2,700 m. with annual precipitation generally in the 250 to 350 mm range. This shrub grows well in sandy, gravelly, or clay-alkaline soils, depending on the subspecies or ecotype. Some subspecies have broader ecological amplitudes than others, allowing them to establish in a variety of habitats (McArthur and others 1979). Although it grows vigorously, it does not exclude or inhibit herbaceous species. On the contrary, production of herbaceous cover was greater where rubber rabbitbrush was present than when it was not present (Frischknecht 1963).

Reproduction.—Rubber rabbitbrush blooms from August to October. Seeds mature beginning in mid-October until late fall. In most conditions, rubber rabbitbrush is a heavy seed producer. Seed germination in rubber rabbitbrush is quite high, and seed viability remains relatively high (65 percent) for up to 3 year's storage under ordinary warehouse storage conditions (Stevens and others 1981). When exposed to cool night (4.7 °C) and warm day temperatures, seed germinates in about 2 days (Weber and others 1985). Under standardized single cool temperature conditions, however, seeds from lower elevations and latitudes germinate more quickly (2 weeks as compared to 4) than those from higher elevations and latitudes (McArthur and others 1987, Meyer and others 1989). Seed (achene) size in rubber rabbitbrush appears to be correlated to habitat; subspecies adapted to sandy sites have larger achenes (Meyer 1997). There are about 1,530 cleaned seeds per gram (McArthur and others 1979).

Growth and Management.—Once established, wind-disseminated achenes allow rubber rabbitbrush to spread easily and quickly (Meyer 1997, Young and others 1984). It is fast growing, reaching maturity in 2 to 4 years but relatively short-lived shrub, usually 5 to 20 years (personal observation). It can be aerially seeded. Rubber rabbitbrush can be troublesome on rangelands when it invades and occupies areas at high densities. It is difficult to control because it is resistant to herbicides and has the ability to resprout from the crown (Cook and others 1965).

Benefits.—Rubber rabbitbrush can be an important structural and ecological component in

stable and disturbed plant communities. Its ability to stabilize soil and reduce wind and water erosion preserves habitat for other shrubs, forbs, and grasses. This shrub is an excellent plant for erosion control because it has deep roots, produces heavy litter, and is able to establish on severe sites (Aldon and Pase 1981, McArthur and others 1995, USDA 1937). Rubber rabbitbrush is browsed by deer, pronghorn, and by domestic animals, but palatability varies greatly between subspecies and ecotypes. The white to grayish subspecies (*albicaulis*, *hololoecus*, and *salicifolius*) are more palatable than the green subspecies (*gravelens* and *consimilis*) (Goodrich and others 1999 Hanks and others 1975). Unlike some forage shrubs, however, rubber rabbitbrush is quite resilient to browsing. In addition to food, *C. nauseosus* also provides cover for small mammals, birds, and newly born pronghorn (Yoakum 1986). In addition to its ecological importance, people have also recognized the chemical properties of *C. nauseosus*. Rubber rabbitbrush has been investigated as a possible source of rubber and other chemicals (Hall and Goodspeed 1919; Hegerhorst and others 1987). Some accessions, for example, produce up to 6 percent stem rubber and 20 percent resin. Finally, some forms have ornamental shrub potential (McArthur and others 1979, Weber and others 1985).

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