



BIGBRACKT VERBENA

Verbena bracteata Cav. Ex Lag. & Rodr.

Plant Symbol = VEBR

Alternative Names

Scientific Names: *V. bracteosa* Michx.; *V. imbricata* Wooton & Standl.

Common Names: Prostrate vervain; carpet vervain

Description

General: Bigbract verbena is a native forb in the verbena family (Verbenaceae). It can be an annual, biennial or perennial (USDA NRCS, 2024; Whitson et al., 1996). Leaves are oblong, 0.4 to 1.6 inch (1-4 cm) long and are pinnately 3-parted with each lobe having irregularly toothed margins. Leaves and stems are hairy throughout. Flowers are sessile and arranged in terminal spikes. The corolla is pale blue to purple with a 0.1 to 0.2 inch (3-5 mm) long tube. Each flower is subtended by a conspicuous bract (Welsh, et al., 2003). Prostrate to decumbent growth habit forms large sprawling mats up to 3 feet (1 m) in diameter (Cronquist et al., 1986). The fruit is a 4-lobed schizocarp which readily splits into 4 dry nutlets. There are approximately 985,000 seeds per lb (2.1 million seeds/kg) based on unpublished counts done by Aberdeen Plant Materials Center (IDPMC). Small flowers suggest primarily self-pollinating (Cruden et al., 1990). Perkins et al. (1975) reported substantial differences in the seed set of open-pollinated and caged flowers of *V. stricta* (87.6 vs. 7.5%) and *V. bracteata* (66.5 vs. 21.9%). The pollen-ovule ratio of *V. bracteata* is characteristic of a facultatively autogamous species (Cruden, 1977). Plants flower from April through October (LBJW, 2024).

Distribution: PLANTS Database indicates bigbract verbena is found throughout North America in all states but New Hampshire (USDA NRCS, 2024), but observations from iNaturalist indicate its presence in that state (iNaturalist Community, 2024). The species is considered to be adventive to the New England states (LBJWC, 2024). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Bigbract verbena is found in ruderal plant communities and disturbed sites in a wide range of ecoregions across North America from near sea level to 8,800 feet (2,700 m) (Cronquist et al., 1986).

Adaptation

This species is adapted to dry, well drained soils in open disturbed sites with exposure to sun (LBJW, 2024; Welsh et al., 2003).

Uses

Bigbract verbena may be valuable for reclamation practices where early seral, ruderal species are desired to colonize a site and suppress invasive weeds (Tilley et al., 2022).

This species is largely self-pollinating but visits by butterflies have been documented suggesting some pollinator habitat value. Butterflies observed visiting bigbract verbena in Colorado include: *Pholisora mejicanus*, *Pyrgus scriptura*, *Pyrgus*



Figure 1. Bigbract verbena plants (above) are prostrate to decumbent and form large mats. Small tubular flowers are arranged in dense spikes (below). Photos by IDPMC.

communis, *Pieris rapae*, and *Argynnis (Speyeria) edwardsii* (Scott, 2014). Several native generalist bees have been documented visiting this species. These include *Anthophora flexipes*, *A. urbana*, *Colletes lutzi*, and *Halictus confusus* (Discoverlife, 2024).

Status

Please consult the PLANTS website (<http://plants.usda.gov/>) and your state's Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Planting Guidelines

This species germinates readily in greenhouse conditions without pre-treatment or stratification. Seed should be sown on the soil surface or lightly covered. IDPMC has also germinated seed using an oxygenated water treatment following Tilley and Pickett (2021) and observed high rates of germination after 4 days. For field planting and restoration, a seeding rate of 2 lb/ac (2.2 kg/ha) equates to approximately 50 seeds per square foot (540 seeds per square meter). This rate should be reduced to reflect the percentage of the species desired (Ogle et al., 2023).

Management

Bigbract verbena is an early seral colonizer. It can be locally abundant on disturbed sites for the first few years following disturbance and then reduce in density making way for later seral, longer-lived species. Occasionally these species can form persistent stands, especially under management where succession is interrupted such as roadsides and field borders.

Pests and Potential Problems

None known.

Environmental Concerns

Bigbract verbena is a native species commonly found in ruderal disturbed sites. While being associated with disturbance and poor grazing management, it can be considered weedy or invasive (Whitson et al., 1996). Soil cores taken from fallow farm ground in southeast Idaho yielded an average of 3,300 bigbract verbena seeds per square foot (36,000 seeds per square meter) where no plants were observed on the surface (unpublished IDPMC). This may indicate the ability for seed to remain viable for long periods of time in the seed bank, but this has not been confirmed.

Seed and Plant Production

Due to the prostrate growth form, seed collection is best done by manually lifting and shearing the seed-bearing stems off the plant or by pulling the entire plant out by the taproot. Plants should be dried for several days to weeks. Seed is removed from the plant by vigorous shaking or with the aid of a hammer mill. Seed is easily processed with screens and light air to remove inert material. IDPMC used a 1.55 mm top screen and 6x38 bottom screen. Ten plants averaging 2 to 3 feet (0.6 to 1.0 m) inch diameter yielded 0.3 lb (145 g) of clean seed.



Figure 2. Bigbract verbena seedlings growing in a greenhouse. Photo by IDPMC.

Cultivars, Improved, and Selected Materials (and area of origin)

Bigbract verbena seed is currently difficult to obtain on the commercial market and wildland collection is often the only means of obtaining seed. Seed should be selected based on the local climate, resistance to local pests, and intended use. Consult with your local land grant university, local extension, or local USDA NRCS office for recommendations on adapted cultivars for use in your area.

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Citation

Tilley, D. and M. Wolf. 2025. Plant Guide for bigbract verbena (*Verbena bracteata*). USDA-Natural Resources Conservation Service, Aberdeen Plant Materials Center. Aberdeen, ID 83210.
Published January 2025

Edited:

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