

***GUTIERREZIA CALIFORNICA* (DC.) TORR. & A. GRAY**

COMMON NAME: SAN JOAQUIN VALLEY SNAKEWEED
FAMILY: ASTERACEAE
GROWTH FORM: PERENNIAL HERB



PLANTING

During November 2003, seeds were hand-sown onto mounded planting beds, and a thin layer of soil was then raked over them. The seeds germinated readily without any form of pre-treatment. The first seed harvest from the plants was made during October 2004. The Tranquillity area has a semi-arid climate with low mean annual precipitation.

Total precipitation received during the 2003-04 hydrologic year (1 August 2003 through 31 July 2004), 14.5 cm, was only 66.0% of the 30-year mean¹, but precipitation received during December 2003 and January 2004 was at least 25% above average (California Irrigation Management Information System, Station #105). The precipitation received during those two months likely facilitated the establishment of *G. californica*.

PHENOLOGY

Since *G. californica* plants have been established at the nursery for over 5 years, we have had few opportunities to observe the timing of germination. However, seedlings have been observed during March. Peak flowering time for the species is during August and September, though flowers have been observed on plants as early as June. Peak seed harvesting time is late October through early December. During winter, the plants go dormant and the leaves drop. Plants typically begin to display new growth during March.

SEED HARVESTING

Seeds are mature and ready for collection when they are gray or brown in color, hairy, and can be easily separated from the receptacle. Some, if not all, of the seeds will be

¹ The annual and monthly means were calculated using 30 years of precipitation data (1976-2006) from four weather stations (Cooperative Station ID #'s 43083, 45118, 45119, 45120) located in the western San Joaquin Valley.

attached to a white, finely toothed pappus. The seeds mature indeterminately and therefore seed collection on multiple dates is ideal. We found that it was difficult to develop an efficient method for collecting seed. Shaking seeds off plants into a collecting bag or envelope is not very effective; this approach will yield more chaff and insects than seeds. Clipping stems off plants is also not very effective because each stem has multiple inflorescences and will likely bear open flowers, immature seeds, and mature seeds all at the same time. Seeds can be individually removed from plants by hand, but this method is not very efficient and would be inadvisable if a large seed collection needs to be made. Harvested plant material is transported to a warehouse and allowed to air dry, before seed processing.

SEED PROCESSING METHODS

Due to the presence of a pappus that is wider in diameter than the attached seed, this species is difficult to process with a screen or sieve. An air separator (also known as a winnower) can potentially be used to separate seeds from lightweight chaff. Alternatively, if the seeds are lighter in weight than the chaff, the seed lot can be "reverse winnowed". Reverse winnowing works well for wind-dispersed seeds of the family Asteraceae.

CULTIVATION OVERVIEW

Several *G. californica* individuals derived from three wild source populations have been established in the nursery since 2004. *G. californica* establishment would not likely have been successful without substantial manual weed control efforts (hand pulling) during the plants' first few years of growth. The species attracts a variety of pollinators. The species does not seem susceptible to herbivory. The species has spread a short distance from its original planted area through seed dispersal.

A horticultural entry included in The Jepson Manual recommends that *G. californica* requires excellent drainage, is intolerant of frequent summer water, and does best in full or nearly full sun (Hickman, 1993). The soils at the nursery are Tranquillity clay with poor drainage, but the established *G. californica* plants have persisted and they appear healthy.

REFERENCES

Hickman, J. C. (editor). 1993. The Jepson manual: higher plants of California. University of California Press, Berkeley.

ADDITIONAL INFORMATION ABOUT *GUTIERREZIA CALIFORNICA*:

Seed photos from the Rancho Santa Ana Botanic Garden: <http://www.hazmac.biz/081222/081222GutierreziaCalifornica.html>

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PHOTOS



G. californica seeds are each attached to a white, finely toothed pappus (visible in the center of the photo).



G. californica seeds. Scale shown is millimeters.



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