

***LESSINGIA GLANDULIFERA* A. GRAY VAR.  
*GLANDULIFERA***

**COMMON NAME: VALLEY LESSINGIA**

**FAMILY: ASTERACEAE**

**GROWTH FORM: ANNUAL HERB**



**PLANTING**

The Tranquillity area is characterized by a semi-arid climate with minimal and unpredictable rainfall. Ideally, seeds of this species would be planted by the beginning of February, to maximize the likelihood that they will receive sufficient precipitation to germinate in the spring. However, we have planted the species as early as November. Seeds were hand-sown onto mounded planting beds, and a thin layer of soil was then raked over them. The seeds germinate readily without any form of pre-treatment.

**PHENOLOGY**

*L. glandulifera* is a warm season annual, and when growing in the San Joaquin Valley, completes its life cycle under the hot, dry conditions of the summer months. We have not been able to observe the timing of germination for the species. However, germination has been reported during May for *L. glandulifera* populations growing in the Mojave Desert (Bogdanoff-Lord, 1999). We have observed the species in flower during July but it may begin flowering earlier than that. The species may begin producing seed as early as August, but peak seed production typically occurs from mid-September through October.

**SEED HARVESTING**

Seeds become dispersed almost immediately after they mature, particularly under windy conditions. Seeds mature continuously over a period of four to six weeks, so seed collection on multiple dates is ideal. We found that it was difficult to develop an efficient method for collecting seed. Shaking seeds off the plants does not really work, because the dislodged seeds will become stuck to the glandular foliage. 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. We have had some success with vacuuming seeds off plants using a shop vacuum and gas-powered generator. Towards the end of the seed collection window, when the

last of the seeds have matured, the entire plant can be collected. We would transport the harvested plant material to a warehouse and spread it out on tarpaulins to air dry, before seed processing.

**SEED PROCESSING METHODS**

When seeds have been collected by hand or with a vacuum, very little seed cleaning is required. When whole plants have been collected, we use a hammer mill to reduce the raw plant material into a coarse but uniform mixture of seeds and associated chaff (e.g., pieces of stems, leaves, floral structures). Unfortunately, the sticky nature of the foliage will cause the ground-up plant material to bind together in little clumps, making it difficult to separate seeds from chaff. Also, the presence of a pappus that is wider in diameter than the attached seed makes it difficult to separate seeds from chaff with the use of a screen or sieve. We have used a reverse winnow<sup>1</sup> process to separate the lightweight seed from the heavier chaff portion. This method works fairly well, but any seeds that are stuck together in clumps will not effectively be separated from the chaff portion. In summary, *L. glandulifera* seeds are somewhat difficult to collect and process.

**CULTIVATION OVERVIEW**

*L. glandulifera* was sown in the nursery for five consecutive years, and we were able to collect seed during two of the years. Due to its sticky, glandular nature, the species is not susceptible to herbivory. Over a period of two growing seasons, we observed some striking differences in *L. glandulifera* germination and growth.

During the 2007 hydrologic year (1 August 2006 to 31 July 2007), total precipitation received, 7.1 cm (2.8 in), was only 32.2% of the 30-year mean<sup>2</sup>. Rainfall received at the nursery was at least 25% below average for every month with the exception of April 2007 when rainfall received, 1.45 cm (0.57 in), was within 25% of the 30-year mean. During the summer of 2007, nursery-grown *L. glandulifera* plants were numerous and robust, with high seed output.

During the 2008 hydrologic year (1 August 2007 to 31 July 2008), total precipitation received, 11.18 cm (4.4 in), was 50.7% of the 30-year mean. Rainfall received at the nursery was at least 25% below average for every month with the exception of January 2008 when rainfall received, 7.19 cm (2.83 in), was 64% above the 30-year mean. During the summer of 2008, less than five *L. glandulifera* individuals grew at the nursery.

These observations indicate that *L. glandulifera* germination is dependent on spring rainfall. Though the 2008 hydrologic year was characterized by a higher amount of total precipitation than the 2007 hydrologic year, it seems that a lack of rainfall during spring 2008 negatively affected *L. glandulifera* germination. When cultivating this species for the purpose of seed production, irrigation during a dry spring may be necessary to facilitate germination.

<sup>1</sup> We used an STS-WM2 Wall Mount Air separator (Seed Tech Systems, LLC.)

<sup>2</sup> 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.

To view precipitation data for the Tranquillity area from 1997-2008, please visit:

<http://esrp.csustan.edu/projects/lrdp/restdata/precip/>

With the exception of one dry growing season, *L. glandulifera* performed well at the nursery; it germinated readily, grew vigorously, and reliably produced seed. However, weed control was an important factor in our success with cultivating *L. glandulifera*. The dominant weed species at the nursery germinate so densely and grow so aggressively that in the absence of weed control, they would have significantly hindered the growth of the planted natives. The use of irrigation in response to seasonally low rainfall was also a contributing factor in our success with cultivating *L. glandulifera*.

**ADDITIONAL INFORMATION ABOUT *LESSINGIA GLANDULIFERA*:**

*Literature*

Bogdanoff-Lord, J. J. 1999. *Lessingia glandulifera* A. Gray (Asteraceae) in the Mojave Desert: habitat selection in a summer-blooming annual. M.S. thesis, California State Polytechnic University, Pomona.

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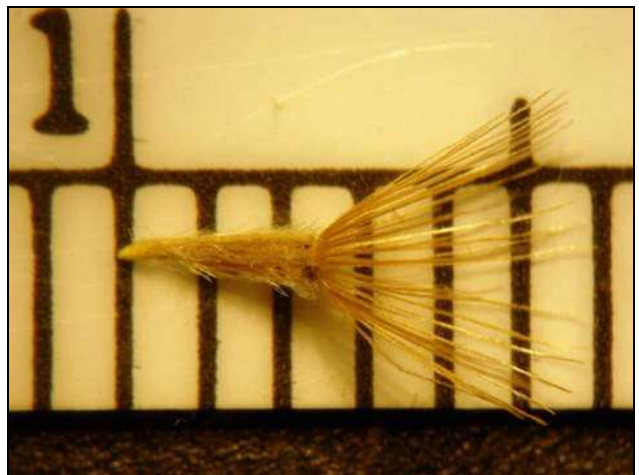
**PHOTOS**



*L. glandulifera* at the native plant nursery during October 2007. *Trichostema ovatum* (San Joaquin bluecurls) is also pictured.



*L. glandulifera* seeds. Scale shown is millimeters.



*L. glandulifera* seed. Scale shown is millimeters.