

THICKLEAF PENSTEMON

Penstemon pachyphyllus A. Gray
ex Rydb.

Plant Symbol = PEPA6

Contributed by: USDA NRCS Idaho State Office and
National Plant Data Center



Thicketleaf penstemon. W.D. Bransford, Ladybird Johnson
Wildflower Center.

Alternate Names

Common Alternate Names: thicketleaf beardtongue,
elephant ear penstemon

Scientific Alternate Names: *Penstemon pachyphyllus* var.
pachyphyllus, *Penstemon pachyphyllus* var. *congestus*

Uses

Grazing/rangeland: Thicketleaf penstemon is eaten by
wildlife and livestock (Monsen et. al., 2004). There is no
published information on palatability and it is considered
of incidental value as forage. It does provide diversity in
the plant communities where it is found.

Erosion control/reclamation: Thicketleaf penstemon
provides excellent soil protection (Monsen et. al., 2004).

Pollinators: The large, purple colored flowers of thicketleaf
penstemon generally attract large bumblebees (*Bombus*
sp.) (Kramer et. al., 2011).

Ethnobotany

The Havasupai Tribe of north central Arizona folded the
leaves of thicketleaf penstemon lengthwise and placed them
in their mouth to create a sound similar to a baby deer
while hunting (Native American Ethnobotany Database).

Status

Please consult the PLANTS Web site and your State
Department of Natural Resources for this plant's current
status (e.g., threatened or endangered species, state
noxious status, and wetland indicator values).

Description

General: Thicketleaf penstemon, a member of the Figwort
Family (Schrophulariaceae), is a short-lived perennial,
native, herb growing 30-65 cm tall with well-developed
basal leaves and a few, erect, simple stems arising from a
thick crown. The leaves are fleshy, bluish-green in color
and covered with wax. Leaves are opposite, and basal
leaves are 5-10 cm long and 12-35 mm wide, oblanceolate
to spatulate. Upper leaves are 2-5 cm long and 7-20 mm
wide. Flower clusters are 2-5 flowered, tubular and blue
to violet in color. The fruit is a capsule 9-13 mm long and
seeds are 2-3 mm long. Cronquist et. al., (1984)
recognizes two botanical varieties and provides a key to
distinguish them based on floral characteristics as well as
geographic distribution.

Distribution: Thicketleaf penstemon is found in the
western states of Wyoming, Colorado, New Mexico,
Arizona, Nevada and Utah. For current distribution,
please consult the Plant Profile page for this species on
the PLANTS Web site.

Habitat: Thicketleaf penstemon is found in salt desert
shrub, sagebrush-grass, pinyon-juniper, mountain brush,
and conifer plant communities (Monsen et. al., 2004).

Adaptation

Thicketleaf penstemon specific information is limited.
Penstemon species in general, prefer well-drained,
infertile, disturbed soils. Thicketleaf penstemon occurs on
dry gravelly soils at elevations of 5,250-8,200 feet
(Cronquist et. al., 1984). Annual precipitation
requirements are estimated to be 10-16 inches for
thicketleaf penstemon to establish and persist.

Establishment

Monsen et. al., (2004) state that the planting process for thicketleaf penstemon is similar to other penstemon species. The general recommendation is to plant seed in the fall from 1/8 to no more than 1/4 inch depth into a firm, weed-free seedbed. Good seed to soil contact is important for germination and establishment. There are approximately 335,000 seeds per pound (Monsen et. al., 2004). To achieve a target seeding rate of 25 seeds per square foot, 3.25 pounds PLS (Pure Live Seed) /ac should be planted to achieve a full stand. When used as a component of a seed mix adjust the seeding rate to the percent of mix desired. Thicketleaf penstemon should be drilled through a legume box or with a seed diluent such as rice hulls because the seeds are small and may separate from other seeds in the mix.

Mulching, irrigation and weed control benefit stand establishment. Some seed may not germinate until the second growing season. Plants begin growth early in the spring and flower blossoms appear in the late spring and early summer. Flowering should not be expected until the second growing season.

Weed control will be required during establishment. Because penstemon is a broadleaf plant, the use of broadleaf type herbicides is not recommended. Mowing weeds when they are beginning to bloom will help reduce weed seed development.

Management

Thicketleaf penstemon should be used as a minor component of seed mixtures. Management strategies should be based on the key species in the established plant community. Grazing should be deferred on seeded lands for at least two growing seasons after seeding to allow for full stand establishment. It is a short-lived plant, but with proper management, natural regeneration should maintain plants in the vegetative community.

Pests and Potential Problems

Information on pests and diseases of thicketleaf penstemon is not well known. In general, penstemon is susceptible to soil-borne fusarium and rhizoctonia root rot which can be severe in poorly drained loam and clay textured soils. Grasshoppers and other insects may also damage plants.

Environmental Concerns

Thicketleaf penstemon is a native plant species found in western North America and has no known negative impacts on wild or domestic animals. It is not considered a weedy or invasive species but can spread to adjoining vegetative communities under ideal conditions. It co-exists with other native species and adds biodiversity to plant communities.

Seed and Plant Production

There can be considerable variability in seed dormancy among collections of the same species of penstemon. A few methods can be used to overcome dormancy

including the use of aged seed where after-ripening causes seed to lose dormancy, moist pre-chilling (stratification), and the use of plant hormones referred to as gibberellins (GAs). Kitchen and Meyer (1991) found germination of thicketleaf penstemon to be negatively affected by chilling. There were also significant differences in germination between different lengths of stratification periods. Treatment of thicketleaf penstemon seed with GA₃ at a minimum concentration of 50 ppm resulted in complete germination. Abella (2009) evaluated emergence of 61 plant species where seed was subjected to liquid smoke treatments and found significant difference between non-treated seed and seed exposed to a 10 % (vol/vol) aqueous smoke. Non-treated seed of thicketleaf penstemon had 3% emergence vs. treated seed which had 30% emergence.

A standard method for propagating penstemon for transplants is to stratify the seed for 8-12 weeks in cold and moist conditions. Seed should be surface sown into plant containers, pressed into the soil surface with containers then stored under cool (36° F), dark conditions for 8-12 weeks. After the stratification period, bring plants into greenhouse conditions and allow plants to grow for 8-12 weeks before transplanting in the field. Propagation of new plants from division of older plants is also possible.

Fields for seed production can be established from direct seeding or from transplanting greenhouse grown containerized stock. Direct seeding should occur in late fall to allow for natural stratification of the seed. Thicketleaf penstemon should be seeded in 30-36 inch rows at a rate of 1.0 pounds PLS/ac (target 30 pure live seeds per linear foot of drill row) to allow for mechanical weed control (Cornforth et. al., 2001). The use of weed barrier fabric is an alternative to allow closer spacing, reduce weeds and conserve soil moisture. Plant spacing of 18 inches provides for maximum growth and seed yield when using weed barrier fabric.

Seed normally ripens from mid-August to mid-September and is mature when seed capsules dry and become hard and dark in color. Seed will shatter once capsules have opened. Seed can be harvested by hand-stripping or with a combine. Seed is separated from the capsule with use of a hammermill or barley debearder followed by fan cleaning. Seed yields average 100 pounds per acre and seeds can be stored for up to 14 years without appreciable loss of viability (Stevens and Jorgensen, 1994).

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

There are no cultivars, improved, or selected materials of thicketleaf penstemon. Common wildland collected seed is available from commercial sources (Native Seed Network).

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