

SUBGENUS *PENSTEMON*
Section *Cristati* (*Albidi*; *Aurator*)

CULTIVATION OF EACH SPECIES
Table 8

[subgenus]	<i>PENSTEMON</i>
[section]	<i>Ambigui Baccharifolii Chamaeleon Coerulei Cristati(28) Ericopsis Fasciculus Peltanthera Penstemon</i>

GENERAL DESCRIPTION OF PENSTEMONS IN THIS SECTION

“All are herbaceous with basal rosettes, and have notably hairy flowers and herbage, the flowers borne in loose spikes. The common theme that unites them in a separate section is the eye-catching golden or orange hairs on the staminode [which is found inside the corolla], which are often long and bristly. The staminode is usually prominent in the mouth [opening of the corolla into two lobes], in several species actually protruding beyond it.”¹ A flower of the Great Plains.



Penstemon cobaea

¹ Way, David and James, Peter. 1998. *The Gardener's Guide to Growing Penstemons.* Newton Abbot, Devon, England. David & Charles Publishers, Brunel House.

Location eastern edge of the Great Plains into the arid west

Habitat most are from the arid West with Utah as the center of distribution; dry with low humidity and rainfall, cold winters

Foliage herbaceous; leafy in appearance, large thick leaves in the basal rosette; most are fairly small; small plant leaves which are fairly thin, linear, and green; not thick



Penstemon albidus seedling



Penstemon ophianthus seedling

Plant in bloom

Corolla: (flower), packed into whorls which surround the bloom stalk and are close to the stem, covered with glandular hairs that glisten in the sun; hairy staminodes (produces no pollen, found near base of inner part of the flower, below the anthers) often golden, are typically easily seen;

color blue-purple, also a few white and pink

size moderately large flowers

shape generally tubular

other densely bearded with golden hairs; some have dramatic guidelines



Penstemon breviculus

Inflorescence: (arrangement of flowers along flowering stalk; all the flowers on the stalk):

height most are small

shape spikes

Calyx: (sepals on underside of flower, collectively; outermost part of the flower)

Cultivation needs

Ease of cultivation

Moisture In the wild they depend on ample rainfall in spring, a condition which should be duplicated in the garden to ensure flowers. During the remainder of the year they receive little rain for total yearly rainfall, ranging from 12-25" per year. Thus the gardener can expect very drought tolerant plants (except during their seedling year). There are two exceptions: *P. triflorus* and *P. cobaea* which are only moderately drought tolerant. Interestingly one of the best know Penstemon experts, Neal Holmgren² believes species in Section *Penstemon Cristati* are more tolerant of moisture having perhaps evolved under moister conditions. The gardener may want to experiment with giving any plant in this section extra water even after bloom time.

Sun prefer full sun

Heat tolerance high

Cold tolerance most have tolerance for below freezing temperatures

Shade no

Soil lean and porous

Drainage if growing them in wet climates, use troughs, grow under glass, or in gravelly soils

Climate preference low humidity and rainfall; need spring moisture

Longevity moderately long-lived

Display recommendations smaller species will work well in rock gardens or troughs

² Cronquist, Arthur; Holmgren, Arthur H. et. al. 1984. *Intermountain Flora: Vascular Plants of the Intermountain West, U.S.A.* Bronx, New York. The New York Botanical Gardens.

Pollinated by Most penstemons are visited by several bee species including honeybees and bumblebees. While hummingbirds prefer red penstemons, they commonly are seen at most penstemon species.

**Cuttings
Species**

<i>albidus</i>	<i>cobaea</i>	<i>franklinii</i>	<i>janishiae</i>	<i>ophianthus</i>
<i>atwoodii</i>	<i>concinus</i>	<i>goodrichii</i>	<i>marcusii</i>	<i>parviflorus</i>
<i>auriberbis</i>	<i>distans</i>	<i>gormanii</i>	<i>miser</i>	<i>pinorum</i>
<i>barnebyi</i>	<i>dolius</i>	<i>grahamii</i>	<i>moffatii</i>	<i>pumilus</i>
<i>breviculus</i>	<i>duchesnensis</i>	<i>guadalupensis</i>	<i>monoensis</i>	<i>triflorus</i>
<i>calcareus</i>	<i>eriantherus</i>	<i>jamesii</i>	<i>nanus</i>	



Penstemon jamesii

Table 8. *Penstemon Cristati*

Key
 Column 1 SPECIES: _species name; plant height when in bloom; color(s) of flower; fill in lavender =popular; parenthesis = not reported in cultivation
 Column 3 CULTIVATION SUGGESTIONS:
 Row 1 SIZE OF FLOWER: **very large**=>1 ½ “ **large**=1-1 3/8” **medium**= ½ - 1” **small**= < ½ “
 Row 2 GENERAL DESCRIPTION
 Row 3: DISPLAY SUGGESTIONS
 Row 4: WHERE SPECIES HAS BEEN SUCCESSFULLY CULTIVATED OUT OF NATIVE HABITAT

☀ full sun ☀ partial shade

Species	Bloom Season in Native Habitat	Cultivation Suggestions	Cultivation Needs			Elevation and Habitat	Distribution	Reported cold hardiness in cultivation
			Garden Soil	Moisture	Sun			
<p><i>albidus</i></p> <p>6-16” x 2.7- 4.7” wide</p> <p>white, lavender (more robust)</p>	<p>May-June</p>	<p>large flower</p> <p>may bloom in first year;</p> <p>few stems; long inflorescence form: 3-9 verticillasters that make a crowded ring around the bloom stem; may have dramatic dark red guidelines in the corolla interior</p> <p>foliage is evergreen; oblong, somewhat hairy leaves with small serrate teeth on the edges;</p> <p>may attract moths in the evening;</p> <p>longevity in the garden varies</p> <p>dry rock garden</p> <p>cultivated in: Denver</p>	<p>well drained, sandy-silty or gravelly</p>	<p>tolerates drought in summer; water generously in spring</p>	<p>☀</p>	<p>up to 6650’</p> <p>dry prairies, open high plains</p>	<p>western Great Plains: s. Alberta, Manitoba south to NM, TX</p> 	<p>zone 4</p>

<p><i>(atwoodii)*</i></p> <p>5-16" lavender-blue</p> <p>rare, threatened</p> <p><i>auriberbis</i></p> <p>4-18" x 3.9" lilac, lavender, purple</p> <p>listed as: New Mexico Rare and Sensitive Plant Species</p>	<p>unknown</p> <p>May-June</p>	<p>small flower</p> <p>medium flower</p> <p>slender flower spikes, flowers almost on just one side (secund); deep lavender flowers with flamboyant gold beards inside the corolla</p> <p>herbaceous foliage of tufts of narrow leaves</p> <p>long-lived</p> <p>choice for dry rock garden; plant in a group</p> <p>cultivated in: widespread as seed is offered by a CO seed company and by the Seed Exchange of the American Penstemon Society</p>	<p>NA</p> <p>dry, sandy or sandy-loam; alkaline, best in sand</p> <p>NA</p>	<p>NA</p> <p>dry</p> <p>NA</p>	<p>NA</p> <p>☀</p> <p>☀</p> <p>NA</p> <p>☀</p>	<p>5400-8900'</p> <p>sandy soil, pinyon-juniper</p> <p>5400-9000'</p> <p>roadside, plains, foothills</p>	<p>s. UT</p>  <p>se. CO, ne. NM</p> 	<p>NA</p> <p>zones 5-8</p> <p>NA</p> <p>to -20°F in Denver</p>
<p><i>(barnebyi)</i></p> <p><8"</p> <p>violet</p>	<p>May-June</p>	<p>small flower</p> <p>NA</p> <p>reportedly not attractive in the garden</p>	<p>NA</p>	<p>NA</p> <p>NA</p>	<p>NA</p>	<p>5000-8300'</p> <p>gravelly alluvial soils in pinyon and juniper woodlands</p>	<p>NV, e. CA; White and Inyo Mts.</p> 	<p>NA</p>
<p><i>breviculus</i></p> <p>4-12"</p> <p>lavender, dark blue, purple</p> <p>listed as: New Mexico Rare and Sensitive Plant Species</p>	<p>May-June</p>	<p>medium flower</p> <p>cute, well-liked; plump flowers; one to a few erect or wand-like bloom stalks; prominent guidelines in corolla; densely golden bearded</p> <p>herbaceous, downy foliage that become smooth with age; leaves clasp the flower stalk; thick leafy base above the taproot</p> <p>long lived tolerates poor conditions</p> <p>dry rock garden; dry garden</p> <p>cultivated in: Denver</p>	<p>fast draining,</p>	<p>dry</p>	<p>☀</p>	<p>5300-6700'</p> <p>sandy, gravelly and clay; among open sagebrush hillsides and pinyon-juniper woodlands</p>	<p>Four Corners</p> 	<p>to -20°F in Denver</p>

<p><i>(calcareus)</i></p> <p>3" red</p>	<p>unknown</p>	<p>small flower</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>	<p>3600-6400' desert, limestone cliffs</p>	<p>CA</p> 	<p>NA</p>
<p>rare</p> <p><i>cobaea</i></p> <p>1-2' x 7" wide variety of colors: white, pink, purple</p>	<p>late Apr (TX)-Aug</p>	<p>very large flower</p> <p>stunning; popular, robust; one of the most showy</p> <p>largest flower of penstemons in U.S.; one to several stems; flowers large, broad, puffy, wide-mouthed; prominent, dark blue guidelines at the mouth and down into the interior of the tube</p> <p>herbaceous foliage; large, thick, shiny green leaves sometimes having with small teeth on margins; large rosette in young plant which disappears with age</p> <p>watch for leaf spot</p> <p>hardy, long lived</p> <p>border</p> <p>cultivated in: widely, including NM, CO, MI, VA</p>	<p>sandy-rocky</p>	<p>in areas receiving < 15" annual rainfall, needs supplementary water</p> <p>all gardeners should be aware of its need for some moisture and experiment to determine optimal moisture in their area</p>	<p>☀</p>	<p>little altitude</p> <p>a species of the plains; calcerous, loamy soils</p>	<p>OK, TX, OK, AK, MO, KS, NM s. NE</p> 	<p>zone 5</p> <p>-20°F in Denver</p>
<p><i>(concinus)</i></p> <p><7" purple</p>	<p>May-June</p>	<p>medium flower</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>	<p>6300-7700' gravelly alluvial soil</p>	<p>w. UT, NV</p> 	<p>NA</p>
<p><i>(distans)</i></p> <p>violet</p>	<p>unknown</p>	<p>medium flower</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>	<p>5000'</p>	<p>nw AZ</p> 	<p>NA</p>

<p><i>dolius</i></p> <p><8"</p> <p>pale blue, light violet, white within</p>	<p>May-June</p>	<p>medium flower</p> <p>desirable</p> <p>blooms form is a thyrse (a flower cluster with a central spike that has side branches also clustered with flowers)</p> <p>red-violet guidelines</p> <p>one to several stems which can be erect, prostrate, wand-like, or resting on ground but then erect (decumbent)</p> <p>has a taproot</p> <p>good subject for rock garden or trough</p> <p>cultivated in: offered in APS seed exchange, but specific areas where cultivated not available</p>	<p>dry, gravelly sandy or clay soil, alkaline</p>	<p>dry</p>		<p>5000-7300'</p> <p>dry sandy, gravelly, clay, often alkaline soils of hills and alluvial fans, in shadscale, sagebrush, and pinyon-juniper woodlands</p>	<p>UT, NV</p> 	
<p><i>duchesnensis</i></p> <p>1-3" x 3" wide</p> <p>violet-deep sky blue</p>	<p>mid June</p>	<p>medium flower</p> <p>handsome</p> <p>this was once considered a variety of <i>dolius</i> and looks very much like it; however, the <i>duchesnensis</i> leaves and stems are shorter and always erect, and flower is more heavily bearded</p> <p>herbaceous foliage</p> <p>trough, rock garden</p> <p>cultivated in: seeds sold by a Colorado seed company suggest some active cultivation</p>	<p>dry, gravelly sandy or clay soil</p>	<p>dry</p>		<p>5400'</p>	<p>e. UT Uinta Basin</p> 	<p>zone 4</p>

<p><i>eriantherus</i></p> <p>4-14" x 2-6" wide</p> <p>soft lavender, blue, purple</p> <p>dwarf form: 3" x 2" wide</p>	<p>May-June</p>	<p>large flower</p> <p>one to several stems which sometimes curve at the base (decumbent); bloom stalk is fairly narrow or 3-6 well-spaced verticillasters (flower groups) that encircle the stem; flowers have wide open mouths, dark guidelines and inflated tubes, lovely in bloom; variable in size; known for its lovely, long staminode covered with long golden hairs</p> <p>attractive grey-green foliage which is herbaceous</p> <p>can be long-lived;</p> <p>degree of difficulty with cultivation seems to vary</p> <p>several varieties, including a miniaturized form, var. <i>cleburnei</i></p> <p>dry rock garden; dryland garden</p> <p>cultivated in: widely grown</p>	<p>deep sand, sand and gravel; dry open places</p>	<p>dry</p>		<p>3500-8200'</p> <p>dry open terrain; prairies to mountains</p>	<p>e. WA, ND, SD, ne. CO, BC, Alb</p> 	<p>zone 4</p> <p>dwarf: zone 3</p>
---	-----------------	---	--	------------	---	--	---	------------------------------------



Penstemon eriantherus



<p><i>franklinii</i></p> <p>3-8" x 4" wide</p> <p>blue to lavender</p>	<p>May-June</p>	<p>medium flower</p> <p>glandular (hairy) inflorescences (bloom stalks) crowded with blue flowers; yellow bearded staminodes extend themselves outside the opening of the flower (corolla);purple guidelines; has a dwarf form</p> <p>tufts of narrow leaves</p> <p>rock garden</p> <p>cultivated in: offered by a seed company in CO, so probably is being grown in that area</p>	<p>well drained soil</p>	<p>dry</p>	<p>☀</p> <p>☀</p> <p>as might be provided by pine cover</p>	<p>5400-6000'</p> <p>pinyon-juniper communities</p>	<p>UT Iron County only</p> <p>First described in 1993</p> 	<p>zone 5</p>
<p>(<i>goodrichii</i>)</p> <p><1'</p> <p>blue to lavender</p>	<p>June</p>	<p>small flower</p> <p>NA</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>	<p>5500-6000'</p>	<p>Badlands ne. UT only</p> 	
<p>may be endangered</p> <p><i>gormanii</i></p> <p>6-12"</p> <p>white-orchid pink or blue-purple</p>	<p>June</p>	<p>medium flower</p> <p>similar to eriantherus; several stems; herbaceous foliage</p> <p>large rock garden</p> <p>cultivated in :MI, Europe</p>	<p>gravelly</p>	<p>dry</p>	<p>☀</p>	<p>3300-9800'</p> <p>dry, gravelly slopes</p>	<p>n. BC, Yukon, Alaska</p>	<p>undoubtedly very cold tolerant</p>
<p><i>grahamii</i></p> <p>4-8" x 3" wide</p> <p>pink</p> <p>threatened please do not collect; purchase only from dealer who has cultivated his own plants and hand pollinated them</p>	<p>May-June</p>	<p>large flower</p> <p>well liked; mat-like and alpine in appearance</p> <p>bloom form is a dense, compact raceme (an unbranched bloom stalk) that is erect or wand-like; huge, gaping, lavender-pink blossoms with dense gold staminodes (found inside the corolla/flower); dark guidelines in the throat of the corolla; bloom is from bottom upward;</p> <p>herbaceous foliage; fleshy crown; few stalks, basal, olive-green, lusterless leaves</p> <p>said to be short-lived; has a tap root</p> <p>trough, small rock garden</p> <p>cultivated in: Denver; offered by a seed company in CO, so probably is being grown in areas other than just Denver</p>	<p>gravelly</p>	<p>dry</p>	<p>☀</p>	<p>4600-6900'</p> <p>limited dry area of broken shale soil; talus and knolls with a few scattered pinyon and juniper</p>	<p>ne UT, CO</p> 	<p>zone 5</p>

<p><i>(guadalupensis)</i> 8-15" white</p>	<p>March-May</p>	<p>medium flower NA</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>	<p>dry, gravelly soil</p>	<p>TX </p>	<p>NA</p>
<p><i>jamesii</i> up to 4-18" lavender</p>	<p>May-June</p>	<p>large flower several erect stems; the many flowers are crowded on one side of the stem (secund); clearly visible yellow-bearded staminode; noticeable purple guidelines inside the throat; "the joy of our plains" [Jean Heflin] herbaceous, delicate and attractive foliage; shiny to dark green to almost grey-green dry rock gardens cultivated in: s. France, Denver; widely grown</p>	<p>well-drained; sand, sandy-loam</p>	<p>drought tolerant</p>	<p>☀</p>	<p>4500-7000' sandy and sandy-loam soils; plains, roadsides, forest edges often in large colonies</p>	<p>Great Plains: TX, se. CO, KS, NM </p>	<p>to -20°F in Denver</p>
<p><i>janishiae</i> 5-8" x 4.7" wide pink to red-violet</p>	<p>May-June</p>	<p>large flower said to be difficult to grow frequently branching bloom stalk, erect or bent at the ground level (decumbent); 2-5 flower groups, flowers held on short little stems; large, gaping, wide-mouthed flower; distinct guidelines; blossoms encircle the stem; one of the best Great Basin natives herbaceous foliage with tufts of linear-spatulate, sparsely-dentate leaves tap root; dry rock garden, trough; cultivated in: Rocky Mt. states</p>	<p>may work in clay based on its native habitat, but provide good drainage</p>	<p>drought tolerant, but appreciates supplemental moisture</p>	<p>☀</p>	<p>7550' clay soils derived from volcanic rock; in sagebrush and pinyon/juniper communities</p>	<p>ne. CA, se. OR, n. and c. NV, sw. ID </p>	<p>zone 5</p>

<i>marcusii</i>	May-June	small flower	<p>rotate flowers that lay close to the bloom stalk, but project horizontally; dark red-violet guidelines</p> <p>dark leaves are narrow, and rounded, lance-like in shape; leaves found mainly clustered on a thick root crown, and few leaves on the bloom stalks (cauline leaves)</p> <p>in small groups in rock garden</p> <p>cultivated in: seed offered in WA, little else is known</p>	<p>may work in clay based on information about it's native habitat; nonetheless, it is advisable to provide good drainage</p>	drought tolerant		<p>desert-like, alkaline clay and gravel soils; east-facing slopes with shadscale in fine, clay soils</p>	<p>5200-6500 c. UT</p> 	probably zone 5
<i>(miser)</i>	May-June	medium flower	<p>NA</p> <p>one garden report did not find this species attractive</p>	NA	NA	NA	<p>2340-4250'</p> <p>sagebrush deserts</p>	<p>ID, NV, OR, n. CA</p> 	NA
<i>moffatii</i>	May-June	medium flower	<p>quite striking in bloom; few to several stems that are erect or wand-like; clustering of bloom can be compressed or loose;</p> <p>wavy sage-green leaves, herbaceous foliage</p> <p>taproot</p> <p>difficult to cultivate</p> <p>well suited to the dry rock garden</p> <p>cultivated in: offered by a seed company in CO suggesting cultivation could be quite widespread</p>	<p>clay, sand and gravel soils</p>	very dry		<p>4200-5900'</p> <p>gravelly, sandy or clay soils in the blackbrush, sagebrush and pinyon-juniper communities</p>	<p>c. UT, w. CO</p> 	zone 4
<i>monoensis</i>	May-July	large flower	<p>shrub; with spikes of rosy-pink flowers over ashy-gray</p> <p>unusual and attractive undulate leaves</p> <p>difficult to germinate and to cultivate</p> <p>large scale rock garden</p> <p>cultivated in: offered by a seed company in CO, so so cultivation could be quite widespread</p>	<p>gravelly-sandy</p>	very dry		<p>3800-6000'</p> <p>dry rocky hills and sandy washes</p>	<p>area surrounding Owens Valley, CA</p> 	zone 6

<p><i>nanus</i></p> <p>8-2" x 1.6" wide</p> <p>red-violet to blue-violet</p> <p>rare</p>	<p>May-June</p>	<p>small flower</p> <p>a miniature with small gray leaves; forms tufts; few flowering stems herbaceous foliage</p> <p>dry trough</p> <p>cultivated in: offered by a seed company in CO, so cultivation could be quite widespread</p>	<p>well-drained, limey might help</p>	<p>very dry</p>		<p>5200-7020'</p> <p>limestone alluvial soils in sparsely vegetated shadscale to pinyon-juniper communities</p>	<p>w. UT</p> 	<p>zone 5</p>
<p><i>ophianthus</i></p> <p>3-12" x 3.1" wide</p> <p>pale to medium lavender-pink</p> <p>rare</p>	<p>May-June</p>	<p>medium flower</p> <p>herbaceous foliage with grey-green tufts; flowers are densely bearded; worth growing; relatively easy to grow</p> <p>dry, large rock garden; wall</p> <p>cultivated in: Denver</p>	<p>well-drained soil; gravelly, sandy, possibly clay; slightly alkaline</p>	<p>very dry</p>		<p>4900-7900'</p> <p>sandy, gravelly or clay soils among sagebrush, pinyon-juniper and ponderosa pine</p>	<p>Four Corners, c. UT</p> 	<p>zone 5</p> <p>to - 20°F in Denver</p>

parviflorus New status as species as of 2007. No further information available.

<p><i>(pinorum)</i></p> <p>3-8" blue-violet</p> <p>threatened</p>	<p>May-June</p>	<p>small flower</p> <p>NA</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>	<p>5600-5800'</p> <p>pinyon/juniper</p>	<p>Pine Valley Mts sw. UT</p> 	<p>zone 5</p>
--	-----------------	--------------------------------------	-----------	-----------	-----------	---	---	---------------

<p><i>pumilus</i></p> <p>2-5" x 4.7" wide</p> <p>blue-violet; deep blue</p>	<p>May-June</p>	<p>medium flower</p> <p>stems curved upward at the base (decumbent); attractive plant with several flower stems, few-flowered, pairs of flowers are short and crowded to make an attractive, compact display; yellow-bearded staminode; interestingly the outside of the anthers is purple</p> <p>neat, basal rosettes; herbaceous foliage with tufts of gray-green to ashy-colored, lance-shaped leaves; leaves mainly in the rosettes</p> <p>reports of degree of difficulty in cultivation vary</p> <p>small dry rock garden, trough</p> <p>cultivated in: seed offered by a Colorado seed company suggesting cultivation could be fairly widespread</p>	<p>well-drained, dry gravelly</p>	<p>dry</p>		<p>4600-6800'</p> <p>dry, gravelly places in valleys and plains;</p>	<p>sc ID,</p> 	<p>to -20°F in Denver</p>
<p><i>triflorus</i></p> <p>15-24" x 5.5" wide</p> <p>white, pink or rosy red</p>	<p>April-May</p>	<p>large flower</p> <p>popular where cultivated; striking guidelines in differing patterns; much variation of flowering habits within the species; related to <i>cobaea</i></p> <p>herbaceous foliage with shiny green leaves; extremely variable species</p> <p>will reseed; scatter a few seeds</p> <p>open garden; dryland garden</p> <p>cultivated in: widely grown TX to CA and VA; sold by a CO seed company and a wholesale nursery suggests widespread cultivation</p>	<p>tolerates various soil types, but must have good drainage</p>	<p>dry</p> <p>avoid wet winter and spring conditions; over watering can cause rot and kill the plant</p>	 	<p>dry limestone cliffs; limestone roadcuts; limestone embankments</p>	<p>Trans-Pecos of TX</p> 	<p>zone 7</p>



Penstemon eriantherus