

**SUBGENUS *PENSTEMON***

**Section: *Coerulei***  
formerly *Anularius*

**CULTIVATION OF EACH SPECIES**

**Table 7**

[subgenus]

**PENSTEMON**

[section] *Ambigui* *Baccharifolii* *Chamaeleon* ***Coerulei*** (19) *Cristati* *Ericopsis* *Fasciculus* *Peltanthera* *Penstemon*



*Penstemon angustifolius*

## GENERAL DESCRIPTION OF PENSTEMONS IN THIS SECTION

Noted for their blue-green glaucous foliage (a fine waxy powder covering a leaf surface) and stout spikes with flowers of pastel colors; very drought tolerant. Leaves are thick and leathery, glaucous (covered with a fine waxy powder which typically is blue-grey); corollas (flowers) are tubular, the bloom stalk (inflorescence) is congested or interrupted verticillasters/clusters of flowers; the staminode (a stamen, which looks quite different from the anthers, found inside the corolla, and bears no pollen bearded) may have golden hairs

### **Location**

Great Plains, Great Basin and Rocky Mountains to eastern Oregon and Washington, from Minnesota and Saskatchewan south to western Texas and New Mexico

### **Habitat**

dry, alkaline sand, gravel or clay, never in the shade “... in some of the worst soil imaginable.” (Nold, “Penstemons”); and some of the most drought tolerant penstemons



*Penstemon angustifolius*

### **Foliage**

lovely bluish glaucous (fine waxy powder covering a surface, usually blue or grey) leaves which are sometimes thick and leathery; have basal rosettes; herbaceous stems (green colored, non-woody, deciduous) or slightly woody at the base; sturdy

most have taproots which should be taken into account when transplanting seedlings; adults may not transplant well

**Plant in bloom****Corolla***Penstemon angustifolius*

**color** blues primarily – in pastels and with much variation; some have pink or lavender forms

**size** most are medium-sized

**shape** tubular

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

**height** most are over 1'

**shape** sometimes secund (on one side of the stalk); congested or interrupted verticillasters (flower display arising at a node on the bloom stalk, and having 2 cymes or little stalks which in turn hold clusters of blooms)

**Calyx** (sepals on underside of flower, collectively; outermost part of the flower) variable, but tend to be narrow and pointed at tips

**Cultivation needs**

**Ease of cultivation** varies, often depends on area of the country

**Moisture** very drought tolerant; unlikely to tolerate a climate with regular rainfall

**Sun** yes

**Heat tolerance** good

**Cold tolerance** good

**Shade** a few will tolerate light, half day shade

**Soil:** alkaline – sand, gravel or clay

**Drainage** must be perfect

**Climate preference** low rainfall

**Longevity** long-lived in natural habitat

**Display recommendations** dryland garden; smaller ones in dry rock garden

**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.

### Interbreeding

### Species

<i>acuminatus</i>	<i>buckleyi</i>	<i>flowersii</i>	<i>immanifestus</i>	<i>pachyphyllus</i>
<i>angustifolius</i>	<i>carnosus</i>	<i>grandiflorus</i>	<i>lentus</i>	<i>secundiflorus</i>
<i>arenicola</i>	<i>cyathophorus</i>	<i>harringtonii</i>	<i>nitidus</i>	<i>versicolor</i>
<i>bracteatus</i>	<i>fendleri</i>	<i>haydenii</i>	<i>osterhoutii</i>	



*Penstemon carnosus*

**Table 7. *Penstemon Coerulei***

**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	Cultivation Suggestions	Cultivation Needs			Elevation and Habitat	Distribution	Reported cold hardiness in cultivation
			Soil	Moisture	Sun			
<p><i>acuminatus</i></p> <p>5.5-8” x 4.7” wide</p> <p>purple-bright blue</p>	<p>April-May</p>	<p><b>medium flower</b></p> <p>herbaceous; popular, sturdy, good color; early bloomer</p> <p>7-15 verticillasters; cymes are packed and many flowered</p> <p>flowers in compact whorls (a ring around the stem of ≥3 flowers arising from a common node on the stem) ;</p> <p>as wide as tall; occur singly or in clumps with a thick crown; leaves are leathery and glaucous (covered with a blue-grey fine, waxy powder)</p> <p>moderate lifespan; root depth 14”</p> <p><u>varieties</u>  <i>latebracteatus</i> smaller flower and flower parts</p> <p><b>rock garden</b>                      cultivated in: OR, WA, MT, NY</p>	<p>sandy, gravelly</p> <p>must have perfect drainage.</p> <p>pH 6.0-8.0</p> <p>adapted only to coarse-textured soil</p>	<p>xeric</p> <p>12-30” precipitation tolerance</p>	<p>☀</p>	<p>2100-4600’</p> <p>sandy areas; often on sand dunes; ne.OR Columbia Gorge</p>	<p>se. WA, adjacent ID, nw. NV, e. OR</p> 	<p>zone 6</p>

<p><i>angustifolius</i></p> <p>12" x 5.5" wide</p> <p>variants of blue, lavender, orchid, pink</p> <p>EASY</p>	<p>April-June</p>	<p><b>medium flower</b> a rewarding flower for the gardener;</p> <p>generous bloom; flowers in numerous whorls (a ring of <math>\geq 3</math> flowers arising from a common node on the stem); one to several stems, erect or wand-like</p> <p>subshrub; stout stems with fleshy, glaucous leaves (covered with a blue-grey fine, waxy powder); thick crown</p> <p>transplant early; root depth 6"</p> <p>although not necessary, responds well to fertilization.; after establishment, it does not appear to be damaged by the use of pre-emergent herbicides.</p> <p>provides a food source to small birds and mammals; heavily used by hummingbirds and various insects during flowering</p> <p>short-lived</p> <p><u>variety</u> <i>angustifolius</i> of northern Great Plains <i>caudatus</i> southern Great Plains <i>venosus</i> 30x14" wide blue or lavender flowers <i>vernalensis</i> wider thicker looking leaves that have prominent veins</p> <p>long-lived;</p> <p><b>dryland garden</b> cultivated in: GB, NY, MI, WI, MN, Rocky Mt. region</p>	<p>sandy, gravelly; neutral to alkaline; good drainage;</p> <p>adapted to coarse, medium and fine textured soils;</p> <p>pH Minimum 7.0- Maximum 8.5;</p> <p>does poorly and short-lived in heavy soils</p>	<p>xeric</p> <p>9-35" precipitation tolerance</p> <p>extremely sensitive to root rot fungi and if over-watered the entire stand will be destroyed.</p>	<p></p> <p>shade intolerance</p>	<p>3900-7500'</p> <p>Great Plains, other sandy , dry plains, deserts; sandy clay in San Juan County, NM</p>	<p>NM, CO, AZ, MT, ND, UT, ND, SD</p> 	<p>Zone 4</p> <p>tolerated -20°F in Denver</p>
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<p><i>arenicola</i></p> <p>4" x .3" wide</p> <p>intense, bright blue</p>	<p>April-June</p>	<p><b>small flower</b> well liked; showy compact, densely crowded verticillasters (arise from the stem's node, composed of 2 cymes or little flower stalks) ; several stems; early bloom</p> <p>smooth, waxy (glaucous) blue leaves</p> <p><b>dryland garden, rock garden, troughs</b> cultivated in: does well in Rocky Mt. region, NM, e. WA; east coast in sand and gravel beds</p>	<p>in east, sand and gravel beds</p> <p>best in almost pure sand</p>	<p>xeric needs a dry location</p>	<p>☀</p>	<p>5900-7400'</p> <p>dry, sandy hills, plains and white shale bluffs in sagebrush communities; almost pure sand in Sublette County, UT</p>	<p>sw. WY (Red Desert), UT, CO, sw. MT</p> 	<p>Zone 4</p> <p>tolerated - 20°F in Denver</p>
<p><i>bracteatus</i></p> <p>1-3" occasionally taller</p> <p>blue to blue-violet</p> <p><b>threatened</b></p>	<p>June</p>	<p><b>medium flower</b> desirable rock garden plant</p> <p>blooms 3<sup>rd</sup> year; congested inflorescence (bloom stalk); stems erect or wand-like (decumbent) at the base; 3-5 verticillasters with cymes that are few-flowered</p> <p>glabrous/smooth, thick, smooth, fleshy grey-green leaves covered with waxy powder (glaucous)</p> <p>difficult to grow</p> <p><b>rock gardens</b> cultivated in: se. WA</p>	<p>gravelly</p>	<p>xeric</p>	<p>☀  ☀ filtered shade</p>	<p>6900 and 8300'</p> <p>found only in a small area of sc UT between dry gravelly slopes and talus in ponderosa woodland</p>	<p>sc. UT</p> 	<p>to 0 ° F</p>

<p><i>buckleyi</i></p> <p>18-36" x 9.4" wide</p> <p>pink, pale blue, lavender with dark guidelines</p>	<p>April-May</p>	<p><b>medium flower</b> pleasing; can be striking if displayed well</p> <p>flowers in a narrow thyrse, (densely compact inflorescence/bloom stalk) on strong stems; flowers arranged in whorls (a ring of <math>\geq 3</math> flowers arising from a common node on the stem)</p> <p>thick, leathery, ovate/lanceolate leaves; stout erect stems</p> <p>long-lived</p> <p><b>dryland garden</b> cultivated in: many places from NE to CA</p>	<p>sandy</p>	<p>xeric</p>		<p>3500-6000'</p> <p>sandy soils</p>	<p>Great Plains KS to TX</p> 	<p>zone 6</p>
<p><i>carinosus</i></p> <p>4.7 -6" x 3.1" wide</p> <p>lavender-pink to blue-violet</p>	<p>May-July</p>	<p><b>medium flower</b> few to several stems, erect or wand-like, arise from a thick crown which is atop a taproot</p> <p>5-10 verticillasters (groupings of flowers along the stem, sometimes interrupted (spaces between the groupings) sometimes combined into a continuous distribution up the stem (thyrse); each cyme has 2-5 flowers</p> <p>thick, glaucous (waxy, grey green) leaves arranged in rosettes;</p> <p>short-lived, generally, though reports to be long-lived in some sites</p> <p><b>in small groups; large arid rock garden with yucca and cactus</b> cultivated in: Denver</p>	<p>sandy-gravelly</p>	<p>xeric</p>		<p>4900-8500'</p> <p>dry, pinyon-juniper woodlands, often in sandy soil</p>	<p>c. and ne. UT</p> 	<p>zone 4</p> <p>tolerated - 20°F in Denver</p>

<p><i>cyathophorus</i></p> <p>4.7-12" x 3.1" wide</p> <p>pale lavender-pink to bluish-pink</p>	<p>early</p>	<p><b>medium flower</b>                      profuse bloomer; tightly packed whorls (a ring of <math>\geq 3</math> flowers arising from a common node on the stem)</p> <p>fleshy blue-grey leaves, stout stem</p> <p>stems arise from a basal rosettes of thick leaves</p> <p><b>should be well-suited to a rock garden</b></p>	<p>sandy, rocky; clay-loam</p>	<p>xeric</p>		<p>8500'</p> <p>dry, rocky sagebrush; clay loam soils</p>	<p>nc. CO, WY</p> 	<p>zone 4</p>
<p><i>fendleri</i></p> <p>2'</p> <p>blue-violet with red-violet guidelines</p>	<p>early</p>	<p><b>medium flower</b>                      a handsome plant; narrow spike, 4-10 few-flowered, widely spaced whorls (a circle of radiating flowers); one to few erect stems</p> <p>leaves are lance shaped, gray-green, glaucous and glabrous with pointed tips; leaves clasp the stem which enhances the display</p> <p>reseeds readily</p> <p><b>need several plants for show</b></p>	<p>sandy or gravelly; good drainage</p>	<p>xeric</p>	 	<p>sandy gravelly soils in open land</p>	<p>TX, NM, OK, KS</p> 	

<p><i>flowersii</i></p> <p>3-10" x 3.2" wide</p> <p>pink</p> <p><b>rare &amp; endangered</b></p>	<p>unknown</p>	<p><b>medium flower</b></p> <p>charming eye-ful; clumps of many stems are filled with flowers</p> <p>relatively wide blue-grey glaucous (covered with a waxy powder) leaves, oblanceolate in shape; extend quite far up the bloom stalk and create a lovely setting for the pink blossoms</p> <p><b>in small groups; arid rock garden, will mix well with yucca and cactus</b></p> <p>cultivated in: please share your experience growing this species; seeds sold in CO</p>	<p>not reported</p>	<p>xeric</p>		<p>5200' clay badlands</p>	<p>UT</p> 	<p>zone 5</p>
<p><i>grandiflorus</i></p> <p>27-36" x 7" wide</p> <p>light pink-lavender</p> <p>EASY</p>	<p>April-May</p>	<p><b>very large flower</b></p> <p>spectacular ; robust single stalks of smooth, clasping leaves; showy; one of the biggest and the most easterly members of the Coerulei section</p> <p>attractive foliage of fleshy, waxy grey-green leaves (glaucous)</p> <p>sometimes monocarpic,(like an annual) but often produces sidesets or reseeds; typically lives about 5 years out of its native habitat</p> <p><b>dryland garden</b></p> <p>cultivated in: widely cultivated</p>	<p>gravelly, sandy, dry location.; acid, neutral or alkaline soils; requires well-drained soils; grows well when planted in open dry situations,.</p>	<p>xeric</p> <p>subject to leaf spot disease if over watered</p>	 <p>tolerates semi-shade</p>	<p>Great Plains</p>	<p>e. MT, WY, M to TX</p> 	<p>zone 4</p> <p>tolerated -20°F in Denver</p>
<p><i>harringtonii</i></p> <p>12-28"</p> <p>pink-lavender to bright blue</p>	<p>June</p>	<p><b>medium flower</b></p> <p>flowers surround the stem; not congested (flowers are not all clustered toward the top of the stalk)</p> <p>glaucous (covered with powdery wax, blue-grey in color) leaves are quite narrow and sharply pointed</p> <p><b>border, open garden, possibly a large rock garden</b></p> <p>cultivated in: CO</p>	<p>rocky-sandy, porous</p>	<p>dry, but keep in mind it receives frequent afternoon showers in its native habitat</p>		<p>7200-8000' mountains</p>	<p>only in CO (Vail area)</p> 	

<p><i>haydenii</i></p> <p>20" lavender</p> <p><b>rare &amp; endangered</b></p>	<p>May-June</p>	<p><b>very large flower</b></p> <p>Because of its protected status, plants and seed for this species are no longer being offered.</p> <p>NA NA</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>	<p>sandy hills</p>	<p>NE, WY</p> 	<p>very hardy</p>
<p><i>immanifestus</i></p> <p>2 ½ ' lavender-pink</p>	<p>May-June</p>	<p><b>medium flower</b></p> <p>robust, stocky; not widely cultivated</p> <p>single or a few erect or wand-like stems, each bearing 4-11 somewhat congested (flowers toward the top) verticillasters; the cymes are many flowered</p> <p>fleshy, smooth, grey-green leaves (glaucous)</p> <p>short-lived</p> <p><b>dryland garden</b></p> <p>cultivated in: NV, WA, MI, NM, CO</p>	<p>sandy-gravelly</p>	<p>xeric</p>		<p>4900-6500'</p> <p>dry, sandy or sandy loam in sagebrush communities; common along roadsides in valleys and foothills</p>	<p>Great Basin desert, w. UT, e. NV</p> 	

<p><i>lentus</i></p> <p>8-16"</p> <p>deep rose to red-violet</p>	<p>May-June</p>	<p><b>medium flower</b> popular and pleasing</p> <p>single or few stems, erect or wand-like with 4-8 few flowered verticillasters (pairs of flower clusters); flowers held by rather elongated little stems that attach to the bloom stalk; flowers arranged primarily along one side of the bloom stalk (secund)</p> <p>fleshy leaves are glaucous and glabrous; thick crown of leaves at the base</p> <p>long lived</p> <p><u>varieties</u> <i>albiflorus</i> white flower <i>lentus</i> bluish violet flower</p> <p><b>dryland garden</b> cultivated in: please share your experience</p>	<p>sandy, gravelly</p>	<p>xeric</p>		<p>4900-8500'</p> <p>dry sage brush, pinyon-juniper, Gambel oak and ponderosa pine communities; sandy, gravelly</p>	<p>Four Corners</p> 	
<p><i>nitidus</i></p> <p>6-12" x 3.9" wide</p> <p>aquamarine</p> <p>EASY</p>	<p>April-May</p>	<p><b>medium flower</b> a rewarding early bloomer; 6 to 8 inch densely packed spikes of an unbelievably beautiful aquamarine blue color</p> <p>a small, roundish-leaf, almost succulent, ever-blue rosettes; paired leaves are joined at the base and encircle the short, stiff stems</p> <p>one of the best; self-seeds but not in excess</p> <p>v. <i>longifolius</i> 40" x 22" wide, bright blue flowers</p> <p><b>large rock garden, raised quarry sand bed in nw. OR; dryland garden</b> cultivated in: many areas of U.S.</p>	<p>fine granite sand; sand mixed with loose soil and squeegee (varying sized pebbles); needs perfect drainage; may add extra lime</p>	<p>adequate moisture during bloom; then dry</p>		<p>3500-6300'</p> <p>clay and gravelly soil; plains, prairies; fine granite soil in Jefferson County, MT</p>	<p>se. BC, s. Alb, w. Man, MT, ND, SC, n. WY</p> 	<p>zone 4</p> <p>tolerated -20°F in Denver</p>

<p><i>osterhoutii</i></p> <p>14-28" x 4.7" wide</p> <p>blue to lavender</p>	<p>June</p>	<p><b>medium flower</b></p> <p>usually a single stem; well separated verticillasters which look like a whorl</p> <p>very thick, glaucous (waxy, grey green) broad leaves</p> <p><b>trough with winter cover in nw.OR</b></p> <p>cultivated in: OR</p>	<p>quick draining</p>	<p>xeric</p>		<p>5500-7200'</p> <p>sagebrush slopes</p>	<p>nw. CO, UT</p> 	<p>zone 5</p>
<p><i>pachyphyllus</i></p> <p>1-2' x 5.9" wide</p> <p>lavender, blue, purple</p> <p>EASY</p>	<p>May-June</p>	<p><b>medium flower</b></p> <p>showy; tall spires of lavender flowers; 5-10 close to widely spaced cylindrical verticills; few to several stems; inflorescence has 5-10 verticillasters/flower clusters</p> <p>flowering should not be expected until at least the second growing season;</p> <p>succulent, waxy grey-green leaves (glaucous); prominent basal mat which is showy in its own right.</p> <p>under irrigation, fusarium wilt can be a problem; .</p> <p>lives 3-4 years;</p> <p><u>varieties</u></p> <p><i>mucronatus</i> &lt; 1' tall, blue flowers have a prominent guideline; nearly round leaves</p> <p><i>congestus</i> darker blue to purple flower, narrower leaves</p> <p><b>dryland garden</b></p> <p>cultivated in: widely</p>	<p>dry gravelly or sandy-gravelly</p>	<p>xeric</p>		<p>4500-10,500'</p> <p>dryland, gravelly or sandy soil</p>	<p>Grand Canyon, UT, CO, NV, WY</p> 	<p>zone 4</p> <p>tolerated -20°F in Denver</p>

<p><i>secundiflorus</i></p> <p>14-20" x 4" wide</p> <p>orchid pink</p> <p>EASY</p>	<p>May-June</p>	<p><b>large flower</b></p> <p>flared tubular flowers on one side of erect stalks (secund); inflorescence may have 3-10 closely spaced but not crowded verticillasters (flower clusters)</p> <p>broad blue-gray leaves (glaucous) that are pointed</p> <p>long lived</p> <p><b>dryland garden; displays well as a small group; could mix with yucca</b></p> <p>cultivated in: native range, also in MN, MI, ME</p>	<p>sand beds if out of range</p>	<p>xeric</p>	<p>☀️ or ☀️</p>	<p>5000-9000' eastern plains, foothills; gravelly, sandy soil; in a good year Chatfield State Park near Denver is covered with these beauties</p>	<p>WY, CO, NM</p>  <p>PLANTS Database</p>	<p>zone 4</p> <p>tolerated -20°F in Denver</p>
<p><i>versicolor</i></p> <p>10-14" x 6" wide</p> <p>sky blue to blue-lavender</p> <p>EASY</p>	<p>May-June</p>	<p>popular, beautiful; one to a few stems</p> <p>waxy blue (glaucous) leaves; much like <i>P. secundiflorus</i></p> <p>long lived</p> <p><b>dryland garden</b></p> <p>cultivated in: Denver</p>	<p>fast draining</p>	<p>xeric</p>	<p>☀️</p>	<p>5000-8000' river valley</p>	<p>sc. CO (Ark River Valley)</p>  <p>PLANTS Database</p>	<p>zone 5</p> <p>tolerated -20°F in Denver</p>



*Penstemon arenicola*



*Penstemon pachyphyllus mucronatus*



*Penstemon secundiflorus*

more photos; tab "LIBRARY" on this website; <http://plants.usda.gov/gallery.html>

*Penstemon Coerulei*