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Acknowledgements

The information compiled here is from the References and Resources listed at the end of the booklet, representing years of work by many dedicated people. In particular, range of a species is from Strickler (1997) and germination requirements for the most part from Lindgren (2003). I've also drawn upon my relatively limited personal experience.

Photo Credits

Thanks to Ben Legler of Washington and Christopher Christie of Baker City, Oregon for the use of their excellent photos.

Ben Legler: *P. davidsonii*, *P. speciosus*, *P. rydbergii*, *P. eriantherus*, *P. confertus*, *P. procerus*, *P. acuminatus*, *P. humilis* (closeup)

Christopher Christie: *P. attenuatus, P. richardsonii (pink), P. wilcoxii, P. duestus, P. cusickii*

Other photos by Susan Geer

Cover photo: *Penstemon gairdneri* on Owsley Ridge. June 2008. S. Geer.

The American Penstemon Society is dedicated to the advancement of knowledge about penstemons, their introduction into cultivation, and the development of new and improved cultivars. APS website

The Genus *Penstemon*

Penstemon is the largest genus of flowering plants in North America, with about 271 species. This number varies with the source consulted because botanists do not always agree on what constitutes a species vs. a variety. Penstemons are found from Alaska to Guatemala. Every state in the union except Hawaii has at least one native species of penstemon, but the greatest numbers grow in the arid west. All are perennial, some short-lived and others long-lived. The tallest species in Mexico may reach 10 feet, while alpines in our western states might be 2 inches tall. Some have woody bases and some are herbaceous.

Traditionally, the genus *Penstemon* has been placed in the Scrophulariaceae, or snapdragon family, but recent biochemical data gathered by Wolfe et. al. 2006 has lead to its placement in Plantaginaceae. Keys to species can be found in <u>Northwest Penstemons</u> by Dee Strickler or on the American Penstemon Society's website.

Why grow Penstemons?

In the book <u>The Gardener's Guide to Growing Penstemons</u>, David Way and Peter James correctly point to "abundance, color, and charm". In most species, there is a profusion of blooms which can in some cases last all season. They exhibit a wide variety of colors, especially in shading and contrasting throat colors and markings. There is also a tremendous variety in floral shape and in the stature of the plants, and a charm in their carefree attitude. While other flowers in the garden languish in the heat or struggle in difficult soils, Penstemons thrive.

Penstemons are very attractive to bees. Not only honeybees (European origin) and native bumblebees visit penstemons; what many people do not realize is there are thousands of other native bee species, each distinctive, fascinating and beautiful to observe. I have noticed a great increase in number and variety of native bees since planting penstemons in my yard.

To find out more about native

Hummingbirds also visit penstemons. The red species such as *P. barbatus* and *P. eatonii*, native to the southwest, are probably the most attractive to hummingbirds, but they will visit species native to northeast Oregon as well. I have noticed them feeding from purple *P. speciosus* and *P. fruiticosus*, and bright pink *P. richardsonii* in my yard.

bees, the Xerces Society is a good place to start.



Propagation

Starting from Seed

Starting from seed is a great way to grow any penstemon you want, and may be the only choice for some species. The most obvious way to get seed for our local natives is to collect it yourself on public lands or from friends. If seed is abundant, Andy Huber of the local non-profit GROWISER may allow volunteers to collect seeds for their home gardens at the wildflower preserve at Pumpkin Ridge. When collecting from wild plants it is best to find a large population and take only a small percentage of seed. Friends with penstemons in their gardens will probably be glad to share seed. Seed is ready in the fall when capsules start to split. It is easiest to cut the stems and collect dry inflorescences into a paper bag.



Collection is simplified by the fact that seeds are retained in the dry capsules for weeks or months, and seed remains viable for years after collection as long as it is kept dry. In fact penstemon seed often germinates better after dry storage for at least 6 months. Seeds can also be obtained from the American Penstemon Society or from commercial growers.

Most of our local native penstemon seeds require *cool*

moist stratification (CMS) for 6-12 weeks to germinate. Growers accomplish this in various ways. The easiest method is to simply sow the seed outdoors in fall in a well marked area and let nature take its course. Some growers



sow the seed in pots in sand, perlite, and/or vermiculite and leave it outside all winter. Once the plants are up they can be transplanted. Another method is to place the seeds in damp sand inside a plastic sandwich bag with a label and store in the refrigerator for a number of weeks. At the first sign of germination these seeds are planted into a sterile planting mix in a bright location with warming temperatures. Again these seeds will need to be transplanted or fertilized once they start to grow.

Some of our native species will germinate the first year while others have prolonged germination, with seeds germinating for several years after being sown. If possible, it is best to plant seed for many more plants

than you will need.



Tip cuttings can be taken from non-flowering stems. They should be only a few inches long and include 4-6 nodes. Remove the lowest 2 sets of leaves; treat

with rooting hormone powder or liquid. Use a few inches of rooting medium of sand and vermiculite in pots or trays, dampened. Create a hole in the medium before inserting the cutting, so as not to rub the rooting hormone off. Place the cutting in a greenhouse, cold frame, or simply a sheltered area where the medium will not dry out too quickly and cuttings will not wilt. There should be air circulation to prevent disease. Plastic lids or bags are often used to keep cuttings from drying out, but I have had the best luck with leaving penstemon cuttings in a shaded open air situation.

Many Penstemon species which have spreading stems naturally reproduce by layering. The stems nearest

the ground are covered with soil at the bases and take root. This situation can be created by spreading soil over the stems and is a good idea anyway for some semi-woody species such as *P. fruiticosus*, *P. duestus*, and *P. richardsonii* which may die out in the center after a few years if not renewed.

Buying Plants at Nurseries

Local or regional nurseries may carry some of our penstemons. Availability varies from year to year. *P. duestus* and *P. venustus* have been the most readily available in the past.

Floral Structure

A penstemon flower has 4 fertile stamens and one sterile stamen. The fertile stamens are attached in pairs to the inside of the floral tube, while the staminode projects from the roof of the floral tube, in front of the ovary. Each stamen includes anthers and a filament. The anthers produce pollen in two pouches. The variation in anther shape is used to classify penstemons, particularly to subgenus. There are 6 subgenera typically recognized, 4 of which occur in the Pacific Northwest. Once you are familiar with them, you will see that they share traits other than the shapes of their anthers. This provides a useful way to group the species presented here.

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Four fertile stamens, each with the hairy pair of anthers typical of the subgenus Dasanthera, are visible in this cut-away view of a *P. fruiticosus* flower. The fifth, infertile stamen is the yellowish one lying below the other four. The smooth filament projecting beyond the anthers in this photo is the female part or pistil, composed of stigma, style and ovary.



Native Penstemons of Union and Wallowa Counties

With so many Penstemon species to choose, not to mention named cultivars and a dazzling array of European hybrids, it may be hard to decide what to plant once an avid flower gardener discovers penstemons. Many of us have memories of an enchanted summer afternoon, coming across vast purple mountainsides while hiking in the Eagle Cap Wilderness, or being amazed at the brilliant blue penstemons in the hills north of Summerville. Why not grow these local beauties in our own gardens?

Following are 22 species which occur in Union and Wallowa counties, according to the American Penstemon Society website. All but two of them are growing in my yard in LaGrande, so I am confident that other gardeners will be able to grow them as well. *Penstemon elegantulus* and *P. spatulatus* are endemic to Hell's Canyon and the Wallowa Mountains respectively, and I have not yet collected seed or obtained photos of these two species, but look forward to the challenge. I have included them here for adventurous gardeners.

Subgenus Dasanthera

Penstemon fruiticosus shrubby penstemon



6-16 " tall

Freely branching evergreen plants with woody bases, often broader than tall. Leaves are thick, leathery and shiny serrate or entire depending on variety. The inflorescence is a few-flowered glandular raceme. Flowers are lavender, 25-50 mm (1 to 2 in.) long. There are 3 varieties; var. *serratus* and var. *fruiticosus* both grow in ne Oregon.

Habitat in open rocky slopes to moderately dense forests from foothills to subalpine. Blooms May to August.

Range S British Columbia, sw Alberta w Montana and Wyoming to central Oregon. 6500 – 8000'.

Growing conditions Germinates in 4-5 weeks at 70 F. Plants are easy to grow and generally available from nurseries. There are many named cultivars in the nursery trade.

Penstemon davidsonii Davidson's penstemon



To 6 " tall

Dense woody evergreen mat, often broader than tall. Leaves are mostly basal, elliptical to round, glabrous and thick, to 1.5 cm (5/8 inch) long. The inflorescence is few-flowered glandular raceme. Flowers are purple to lavender, 25-40 mm (1 to 1 1/2 inches) long.

Habitat in open rock talus from montane to subalpine. Blooms May to August.

Range S British Columbia, Washington, Oregon, n California and e to Nevada. 5600 – 12000'.

Growing conditions Germinates quickly at 70 F. Plants are easy to grow and there are many named cultivars in the nursery trade.

Subgenus Habroanthus Penstemon pennellianus Blue Mountain penstemon



Habroanthus group 8-24 " tall

Several stout stems from a branching woody root crown. Leaves are thick, entire and shiny green-glaucous, basal leaves large and forming a rosette. 8-25 cm (3-10 inches long), narrow elliptic with long petioles. The inflorescence is a panicle. Flowers are brilliant to deep blue with dark guide lines, 25-33 mm (1 to 1 5/16 inch) long.

Habitat in open forests and on ridgetops. Blooms June and July.

Range Blue Mountains of ne Oregon and se Washington e to Wallowa Co., Oregon. 4000 – 5400'.

Growing conditions Germinates sporadically, sometimes 1-2 years after planting. Plants are short lived perennials but are spectacular and otherwise easy to grow.

Penstemon payettensis Payette penstemon



Habroanthus group 6-28 " tall

Closely related to *P. pennellianus* but leaves are broader and glabrous. One to a few stout stems from a basal rosette. Leaves are thick, entire and glabrous, basal leaves large and forming a rosette. 15-18 cm (6-7 inches long), ovate with a long petiole. Cauline leaves sessile and lanceolate. The inflorescence is a dense panicle. Flowers are bright blue 18-28 mm (3/4 to 1 1/8 inch) long.

Habitat in open forests or shrublands and on ridgetops. Blooms June and July.

Range Wallowa Mountains of ne Oregon across central Idaho to w-central Montana. 5900 – 8200'.

Growing conditions Germinates with light and 12 weeks CMS. Plants are short lived perennials but are spectacular and otherwise easy to grow.

Penstemon speciosus showy penstemon



Habroanthus group 2-36 " tall A few stems from a small clump. Leaves are entire and glabrous to finely pubescent. basal leaves forming a rosette, 5-15 cm (2-6 inches long), narrow elliptic with long petioles. The inflorescence is a panicle. Flowers are sky blue on the petals

grading to violet on the tube with a pale throat, 25-38 mm (1 to $1\frac{1}{2}$ inch) long.

Habitat sagebrush to ponderosa pine forest, to subalpine. Blooms May to July.

Range Central and e Washington to sw Idaho, s Oregon and to California. 100 – 10,500'.

Growing conditions Germinates after 8 – 12 weeks CMS.

Subgenus Saccanthera

Penstemon cusickii Cusick's penstemon



Saccanthera group 6-18 " tall Numerous slender stems from a shrubby base. Leaves are grey-green pubescent, narrow entire. sessile, 2-8 cm (3/4 to 3 1/4 inches) long and all cauline. The inflorescence is open. Flowers are lavender to blue-violet 14-24 mm (5/8 to 1 inch) long.

Habitat sagebrush sites with light basaltic substrate at low to moderate elevations. Blooms May and June.

Range Baker Co. Oregon s to Harney Co. and e to Blaine Co., Idaho. 3600'

Growing conditions Undocumented germination requirements. Probably several weeks CMS.

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Penstemon glandulosus glandular penstemon



Serrulati group Up to 42 " tall Several stout stems. densely glandular throughout. There are two varieties; in our area var. glandulosus has dentate leaves 1-3.5 dm (4-14 inches) long. The inflorescence is also densely glandular. Flowers are large 2.5-4.5cm (1-1 ³/₄ inches) light lavender with dark guide lines and white throat.

Habitat open rocky hillsides to sparse timber in the mountains. Blooms May through July.

Range se Washington, ne Oregon to sw Idaho and disjunct along the east slope of the Cascades in Washington. Up to 4600'.

Growing conditions Germinates after 8 weeks at 40 F

Penstemon richardsonii Richardson's penstemon



Serrulati group 12-34 " tall Few to many stems in a bushy clump, often lax and sprawling. Leaves are distinctly

serrate, 2-5 cm (1-2 inches) long. The inflorescence is an uncrowded glandular panicle. Flowers are brilliant pink to lavender with dark guide lines, 20-25 mm (13/16 to 1 inch) long. There are 3 intergrading varieties, ours is *curtifolius*.

Habitat open rocky terrain. Blooms May through August.

Range s British Columbia to central Oregon, e of the Cascades and along the Columbia and Snake Rivers to Washington. 4300 – 7300'

Growing conditions Germinates after 6 weeks CMS, is long-lived and tolerated part shade in the garden.

Penstemon venustus lovely penstemon



Serrulati group 12-32 " tall Few to many smooth stems in a large clump with no basal mat. Leaves are all cauline, finely serrate, 4-10 cm (1 ½ - 4 inches) long. The inflorescence is a racemepanicle. Flowers are

lavender to violet 20-38 mm (3/4 to 1 $\frac{1}{2}$ inch) long.

Habitat open rocky terrain from low canyons to subalpine elevations. Blooms May through August.

Range Blue Mountains of se Washington and ne Oregon, and adjacent w-central Idaho. 3000 – 7300'

Growing conditions Germinates after 8 weeks CMS, is long-lived and tolerates part shade in the garden.

Subgenus Penstemon

Penstemon eriantherus fuzzy tongue penstemon





Cristati group
4-16 " tall
One to several stems,
curving at base and mostly
finely pubescent. Leaves

are entire to sharply toothed, narrow to oblanceolate, petioled below and clasping above. The entire plant is glandular. The inflorescence is a narrow panicle of 3-6 well spaced verticillasters. Flowers are pink to purple to blue with dark guide lines, a narrow tube expanded to a broad mouth, with expanded petals and goldenbearded palate, 15-35 mm (5/8 to 1 3/8 inch) long. There are 5 varieties, ours is redactus, about 8" tall.

Habitat dry open terrain. Blooms May and June.

Range Central Washington and Oregon, s British Columbia and Alberta to North Dakota, Wyoming, and Colorado. 3250 – 5800'

Growing conditions Germinates best at 70 F after 12 weeks CMS.

Penstemon acuminatus sand dune penstemon



stems. Leaves are thick and leathery, 2-7 cm (3/4 -2 3/4 inches) long on stiff petioles. The inflorescence is a narrow, elongated and congested panicle. Flowers are sky blue to lavender, 1.2-2 cm (1/2 to 3/4 inch) long. There are 2 intergrading varieties, ours is acuminatus.

Habitat open sandy places. Blooms April through June.

Range central Washington to n Oregon, and se Oregon to the Snake River Plain of Idaho. 2100 – 4600'

Growing conditions Germinates after 4-12 weeks CMS followed by warmer temperatures. Requires full sun and sandy or gravelly soil in the garden.

Section Penstemon

Penstemon globosus globe penstemon



Proceri group 8 – 24 " tall Rosettes of bright green lvs with erect flower stems. Basal and stem leaves oval with pointed tip. Smaller leaves clasp stem. Flowers to 3/4 " long, bright blue to purple blue. In small clusters, or more often in one large globe at stem top.

Habitat Moist to vernally wet meadows at high elevation. Blooms in summer and fall.

Range Wallowa Mountains of ne Oregon, to central Idaho and the edge of Montana. This is the penstemon you notice filling large meadows with brilliant blue all summer in the Eagle Cap Wilderness.

Growing conditions Germinates after 12 weeks of CMS. One of the few penstemons that enjoys moist growing conditions. Will bloom in late spring in LaGrande.

Penstemon procerus tiny flowered penstemon



Proceri group 2-16" tall

Leaves thin, ovate, and entire.

Inflorescence is a series of dense whorls of downward facing flowers to $\frac{3}{4}$ " long. Flowers come in shades of blue, purple, pink and white. There are 6 varieties, 2 of them found in our area.

Habitat lightly shaded to open rocky slopes, from mid to high elevation.

Range Alaska and the Yukon to California, Montana, and Colorado.

Growing conditions Germinates after 8 weeks CMS. One of the easiest Penstemons to grow in the LaGrande area, tolerant of many soil types. Bloom time is late spring in town, and may extend to fall if periodically watered. Does well in part shade and clumps are long-lived.

Penstemon rydbergii Rydberg's penstemon



Proceri group 8-25" tall Similar to *P. procerus*, but often taller with slightly larger flowers which do not face downward. Whorls of flowers are well separated. There are 3 varieties; ours is *oreocharis*.

Habitat Prefers a

moist climate, in meadows, lightly forested areas, and along streams in its native habitat.

Range central Washington east of the Cascades e to Montana and s to California, and Sierras to Utah and New Mexico.

Growing conditions Germinates after 12 weeks of CMS. Long-lived, prefers moister soils in the garden. I have found it prefers light shade to sun in LaGrande.

Penstemon attenuatus taper leaved penstemon





Proceri group 1-2 ft. tall

The leaves of the basal rosette are on short petioles, lanceolate ovate and entire to slightly

toothed. Cauline leaves are reduced.

More matt-forming than *P. procerus*, this species is also known as an easy-going garden subject. Clumps are up to 2 ft. across. The 4 varieties vary in form from delicate to sturdy and in color from deep blue to purple, yellow, white, and cream.

Habitat low to high elevations in pine woods to open gravelly slopes, with one variety growing marshy areas.

Range central Washington and ne Oregon to w Montana, s Idaho and Wyoming.

Growing conditions It is probably the most prolific penstemon in the Starkey Experimental Forest area NE of LaGrande, seen on the edges between Ponderosa pine stands and vernally moist meadows. Seeds germinate after 3-4 weeks at 70 F.

Penstemon spatulatus Wallowa Mountain penstemon Proceri group 4-10 " tall

Prostrate mat of stems. Leaves are mostly basal and entire, oblong to spatulate, 2-6 cm (3/4 -2 1/4 inches) long. The inflorescence is a narrow crowded and glandular panicle of 2-4 verticillasters. Flowers are pale blue to violet with dark guide lines, 10-13 mm (3/8 to 1/2 inch) long.

Habitat open rocky terrain of subalpine areas. Blooms July through August.

Range endemic to the Wallowa Mountains. >9000 ft.

Growing conditions Germinates after 8 weeks of CMS.

Penstemon confertus yellow penstemon



Forms small mats with upright stems and dense whorls of flowers. Leaves are lance shaped, bright green and thin. Flowers are cream or pale yellow, up to $\frac{1}{2}$ inch long.

Habitat a wide variety of habitats, from rocky to good soils, at low to subalpine elevation, and meadows to forested sites.

Range se British Columbia and sw Alberta to Cascade foothills in Washington, w to Montana and s to ne Oregon. 4000-10,000 ft.

Growing conditions Germinates after 8 weeks CMS.

Penstemon humilis low penstemon



Humiles group 2-14 " tall

Produces several stems from a clump. Leaves are entire, 2-5 cm (1-2 inches) long and gray-green. The inflorescence is open, narrow, and glandular. Flowers are deep blue, cylindrical and 1-1.7 cm long with yellow bearded palate.

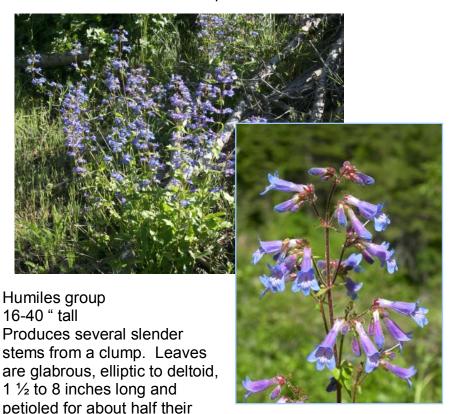
Habitat dry rocky places and foothills, commonly with sagebrush. Blooms May to August.

Range e of Cascades in central Washington s to California and e to central Idaho, w Wyoming and s Utah.

Growing conditions Germinates after 8 weeks of CMS but some seeds may not germinate until subsequent years. Plants are long-lived in the garden.

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Penstemon wilcoxii Wilcox' penstemon



length, and serrate. The inflorescence is airy, a broadly spreading panicle. Flowers are bright blue with a pale throat and guide lines, funnel shaped and ½ inch to nearly 1 inch long.

Habitat open rocky sites to thick forest and from low to subalpine elevation.

Range n Idaho and nw Montana to se Washington, ne Oregon and s Idaho.

Growing conditions Germinates after 12 weeks CMS.

Penstemon elegantulus elegant penstemon Humiles group 4-12 " tall

Produces several slender stems from a clump. Finely pubescent below infl. Leaves are glabrous to finely pubescent, lanceolate to eliptic, to 4 inches long and short to long petioled. The inflorescence is composed of 3-5 distinct few-flowered verticillasters. Flowers are blue to blue-violet, glandular and with lower lip longer than the upper, 5/8 to 7/8 inch long.

Habitat upper slopes and ridgetops in the open to scattered timber around 5400'.

Range limited to Hell's Canyon in Oregon and Idaho

Growing conditions Germinates after 8 weeks CMS.

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Penstemon deustus hot rock penstemon



leaves to 2 inches long on short petioles while cauline leaves are sessile to clasping and reduced upward. The inflorescence is several to many loose to crowded verticillasters forming a spike like panicle. Flowers are white to pale yellow with or without red to purple guidelines, 8-20 mm long.

Habitat open dry rocky sites often in cliffs from low to subalpine elevation.

Range Central Washington to sw Montana, nw Wyoming, nw Utah, and s California. Blooms late spring to early summer. 2600 – 9000 ft.

Growing conditions Germinates after 8 weeks of CMS. Easy to grow but garden conditions must be dry.

Penstemon gairdneri Gairdner's penstemon



Gairdneriani group 4-16 " tall

Produces several stems from a mat-forming clump. Leaves are grey-green, narrow to linear, entire, numerous, 1-7 cm (2 ¾ inch) long and 2-3 mm wide, mostly alternate, and finely pubescent throughout. The inflorescence is a few flowered raceme. Flowers are lavender to purple to rose with a white throat, with a narrow tube and widely expanding petals, 14-22 mm (1/2 to ¾ inch) long.

Habitat dry rocky sagebrush sites at low to moderate elevations. Blooms June to July.

Range Central Washington to eastern Oregon and Valley Co., Idaho. 3250 – 5800'

Growing conditions Germinates after 2-3 months at 40 F.

References and Resources

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Websites

GROWISER (Grande Ronde Wildflower Institute Serving Ecological Restoration), Andy Huber contact for tours (541)962-3543 website: www.growiser.org

Native Plant Society of Oregon website: http://www.npsoregon.org/
William Cusick chapter: http://williamcusick.npsoregon.org/

The American Penstemon Society website: http://www.apsdev.org/

The Xerces Society website: http://www.xerces.org/

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