

## Key to Northwest Penstemons

1a. Anthers (pollen sacs) covered with long, tangled, woolly pubescence, generally obscuring the outer surfaces of the valves; corolla quite long, 25 to 40 mm (1-1<sup>1</sup>/<sub>2</sub> in.), and keeled (ridged) on top; plants mostly shrubby (woody) at the base.

### GROUP I. (subgenus *Dasanthera*)

1 b. Anthers glabrous (smooth, nonhairy) or hairy-pubescent with sparse, generally short hairs (longer hairs in *P. caryi*) not obscuring the outer valve surfaces; corollas generally, but not always, smaller, 6 to 30 mm (1<sup>1</sup>/<sub>2</sub>-1 in.) long; plants mostly herbaceous or woody only at the ground.

2a. Anther sacs not dehiscent (opening) full length, remaining closed at least at one end.

3a. Anther sacs dehiscent in the middle, remaining closed at both ends (may open to, but not across, the connective). (*P. gracilis* and *P. euglaucus* sometimes have slightly pouched anthers.)

4a. Plants glabrous throughout; the inflorescence a densely clustered, globe-shaped, terminal thyrse, with or without 1 to 3 smaller verticillasters spaced lower on the stem; Blue Mts. of OR to cent ID and w MT.

**78. *P. globosus***

4b. Plants glandular-hairy in the inflorescence, glabrous below; the inflorescence of 1 to several open or moderately dense verticillasters, the terminal cluster not densely globe-shaped; cent and s-cent ID to adj MT.

**73. *P. attenuates* var. *militaris***

3b. Anther sacs dehiscent at one end and remaining closed at the other.

5a. Anther sacs dehiscent across the connective joining the 2 sacs, but remaining closed at the outer end, forming terminal pouches; the sutures noticeably toothed; the sacs remaining permanently parallel or horseshoe-shaped.

### GROUP II. (subgenus *Saccanthera*)

5b. Anther sacs remaining closed at the inner ends (at the connective joining the 2 adjacent sacs), dehiscent at the outer ends of the sacs. (*P. payettensis* may open to the connective.)

### GROUP III. (subgenus *Habroanthus*)

2b. Anther sacs dehiscent full length, including across the connective, the 2 sacs diverging or becoming opposite; anther sacs opening moderately to boat shape or completely flat (explanate).

### GROUP IV. (subgenus *Penstemon*)

**Group I. Anthers Woolly-Pubescent**  
**Subgenus *Dasanthera***

6a. Inflorescence glabrous (smooth); leaves bluish green from a glaucous coating, broad (width about 1/3 the length); endemic to the eastern end of the Columbia Gorge.

**1. *P. barrettiae***

6b. Inflorescence densely to remotely glandular (with gland-tipped hairs); leaves mostly bright green (*P. rupicola* a glaucous exception), leaves variable in shape.

7a. Corolla rose red to pink.

8a. Plants low, forming mats on rocky cliffs or outcrops; leaves blue-green glaucous; flowering stems 1 dm (4 in.) long or less; Cascade Mts., s WA to sw OR and n CA.

**2. *P. rupicola***

8b. Plants erect or spreading, rarely mat-forming; leaves green; flowering stems 1 to 4 dm (4-16 in.) long; s Josephine Co., OR, and adj n CA.

**3. *P. newberryi* var. *berryi***

7b. Corolla blue to lavender or purple.

9a. Inflorescence essentially a branching panicle.

10a. Upper leaves linear to narrowly lanceolate, 3 to 10 mm (to <sup>3</sup>/<sub>s</sub> in.) wide, finely toothed to entire; se BC, sw Alta., n ID and nw MT.

**4. *P. lyallii***

10b. Upper leaves broader, lanceolate to ovate, mostly 1 1/2 to 4 cm (<sup>5</sup>/<sub>s</sub>-1 Yz in.) wide; conspicuously toothed; Cascade and Coast Ranges.

**5. *Nothochelone nemorosa***

9b. Inflorescence essentially a raceme, two flowers at each node on individual pedicels; plants generally low, mat-forming or not, 1 to 3 (max. 4) dm (4-12 in.) high.

11a. Leaves all cauline (on the flowering stem) or occasionally on sterile stems subequal to the flowering stems in length; lower leaves smaller than the upper, not forming a basal cluster; cent ID to s-cent MT, w WY and cent UT.

**6. *P. montanus***

A1. Leaves entire or mostly entire, glaucous, glabrous or pubescent, but not glandular.

***P. montanus* var. *idahoensis***

A2. Leaves markedly toothed, green, pubescent and usually glandular.

***P. montanus* var. *montanus***

11b. Leaves generally forming rosettes or mats, glabrous, basal leaves robust.

12a. Leaves of the flowering stem well developed, generally larger than the basal leaves, elliptical and not sharp-pointed; plants often forming mats; n Rocky Mts.

**7. *P. ellipticus***

12b. Leaves of the flowering stem much reduced.

13a. Flowering stems 1 dm (4 in.) high or less; plants mostly forming low, spreading mats; n coast of BC through Coast and Cascade ranges to the Sierras of CA, also in the Steens Mts. of se OR.

**8. *P. davidsonii***

A1. Corolla 3.4 to 4.5 cm (1 1/4-1 3/4 in.) long; leaf tips sharp; Steens Mtn., O R.

***P. davidsonii* var. *praeteritus***

A2. Corolla 2 to 3.6 cm (<sup>3</sup>/<sub>A</sub>-1 3/4 in.) long; leaves mostly rounded or blunt.

B1. Leaves entire, spatulate or broadest near the end and consistently rounded; s WA Cascades to Sierras of CA.

***R. davidsonii* var. *davidsonii***

B2. Leaves markedly or remotely serrate, lanceolate and broadest below the middle; s Vancouver Is., Olympic Mts. and n Cascades in WA.

***P. davidsonii* var. *menziesii***

13b. Flowering stems generally 2 to 4 dm (8-16 in.) high; plants spreading or not.

14a. Cauline leaves mostly acute, serrate or entire; the inflorescence usually tightly secund (on one side of the stem); e of the Cascade Crest, s BC to w MT, w WY and cent OR<sup>9</sup>.

*P. fruticosus*

A1. Leaf blades mostly 1 to 27.2 cm (to 1 in.) long and sharply toothed (dentate); w-cent ID, se WA and ne OR.

*P. fruticosus* var. *serratus*

A2. Leaves generally longer and entire or finely toothed.

B1. Leaves linear or very narrow, mostly 6 to 10 times as long as wide, the blades 2 to 5 cm (to 2 in.) long; n ID, ne WA and se BC.

*P. fruticosus* var. *scouleri*

B2. Leaves broader, usually 2 to 7 times as long as wide, the blade to 6 cm (2+ in.) long; s BC e of the Cascade Crest to MT, WY and cent OR, except in the ranges of the other 2 varieties.

*P. fruticosus* var. *fruticosus*

14b. Cauline leaves rounded or obtuse, entire or minutely serrate.

15a. Some inflorescences with 4 to 8 verticillasters, tightly secund; generally lavender, also reported as pink; s Josephine Co., OR, and adj n CA.

3. *P. newberryi* var. *berryi* p. 28

15b. Inflorescences commonly with 1 to 3 verticillasters, tending to spread; usually purplish; w of the Cascade Crest, sw WA to the Coast Range in OR.

10. *P. cardwellii* p. 42

## Group II. Anther Sacs Parallel or Horseshoe-shaped Subgenus *Saccanthera*

(*P. gracilis* and *P. euglaucus* occasionally have slightly pouched sacs)

16a. Plants covered with glandular hairs throughout; plants herbaceous, woody only at the ground line; basal leaves large.

11. *P. glandulosus*

A1. Leaves serrate; Blue Mts., se WA, ne OR, and adjacent ID.

*P. glandulosus* var. *glandulosus*

A2. Leaves entire; e slope of the Cascade Mts., Chelan Co., WA, to Hood River Co., OR

*P. glandulosus* var. *chelanensis*

16b. Plants glabrous or with short, non-glandular pubescence on stems and leaves below the inflorescence, glabrous or glandular in the inflorescence; plants woody (subshrubs) at the base; basal leaves on sterile shoots often lacking (3 exceptions: *P. roezlii*, *laetus* and *leonardii*).

17a. Leaves toothed on the margins.

18a. Plants glandular in the inflorescence.

19a. Some leaves whorled in 3s or 4s at the nodes (some leaves may be opposite or somewhat scattered on the stem); Snake River Canyon and lower reaches of tributaries, ID, OR and WA to the Columbia River below Snake River.

**12. *P. triphyllus***

19b. Leaves in opposite pairs (may be occasionally offset, i.e. subopposite).

20a. Leaves deeply and sharply toothed (dentate), Vs or more of the way to the midrib; corolla generally more than 20 mm PA in.) long (*P. richardsonii* var. *curtiflorus* in n-cent OR, 15 to 20 mm [<sup>5</sup>/<sub>e</sub>-<sup>3</sup>/<sub>4</sub> in.) long); the Columbia Basin e of the Cascade Crest.

**13. *P. richardsonii***

A1. Corolla 15 to 20 mm (<sup>5</sup>/<sub>s</sub>-<sup>3</sup>/<sub>4</sub> in.) long; staminode not bearded; n-cent OR (Wheeler and Wasco Cos.).

***P. richardsonii* var. *curtiflorus***

A2. Corolla 22 to 32 mm (7/8-3/4 in.) long; staminode bearded.

B1. Leaves narrow and deeply and irregularly dentate about halfway to the midrib; s BC to n OR in the Columbia Basin.

***P. richardsonii* var. *richardsonii***

B2. Leaves mostly ovate, shallowly and regularly toothed, the upper surfaces gray-pubescent; n-cent OR (Wasco to Grant and Union Cos.)

***P. richardsonii* var. *dentatus***

20b. Leaves shallowly toothed (serrate); corolla 12 to 19 mm (1/2-3/4 in.) long; Bitterroot Mts. of MT and ID, disjunct in se WA.

**14. *P. diphyllus***

18b. Plants essentially glabrous throughout, except for minute pubescence on peduncles in *P. serrulatus*.

21 a. Stamen filaments glabrous below the anther sacs; corolla 15 to 25 mm (5/8-1 in.) long; Cascades to the Coast.

**15. *P. serrulatus***

21 b. Filaments pubescent just below the sacs (unique among all penstemons in this regard); corolla 25 to 38 mm (1-1<sup>1</sup>/<sub>4</sub> in.) long; Blue Mts. of OR and WA and adj ID.

**16. *P. venustus***

17b. Leaves essentially entire on the margins.

22a. Plants glandular in the inflorescence; glabrous below or with short, non-glandular hairs on the lower stems and leaves.

23a. Staminode bearded; leaves mostly near the base of the plant, widely spaced above; mountains of Lake Co., OR, to n NV and ne CA.

**17. *P. gracilentus***

23b. Staminode glabrous; flower stem leafy.

24a. Herbage densely gray-pubescent; stems decumbent (curved) at the base; basal leaves lacking; anther sacs 1 to 1<sup>1</sup>/<sub>2</sub> mm long; Great Basin, s Malheur Co., OR, and much of NV.

**18. *P. kingii***

24b. Herbage green, remotely pubescent; stems ascending; basal leaves on sterile shoots; anther sacs 1 ½ to 2 mm long; cent to sw OR to NV and CA.

25a. Corolla 14 to 20 mm (1/2-3/4 in.) long; anthers broadly rounded at the connective and stubby; cent and sw OR to NV and CA.

**19. *P. roezlii***

25b. Corolla 2 to 3 cm ( $3/4$ - $1\frac{3}{16}$  in.) long; anthers sagittate (arrow-shaped, narrow at the connective), elongate; sw OR (Josephine, Jackson and Klamath Cos.) and n CA.

**20. *P. laetus* var. *sagittatus***

22b. Plants glabrous throughout or with short, non-glandular hairs on the upper stem.

26a. Leaves linear, approximately 10 times as long as wide; e OR and sw ID.

**21. *P. cusicki***

26b. Leaves broader, approximately 2 to 5 times as long as wide.

27a. Herbage green; leaves narrowly oblong to oblanceolate, approximately 5 times as long as wide; Bear River Mts., se ID and n UT, disjunct in sw UT.

**22. *P. leonardii***

27b. Herbage blue-green glaucous; upper leaves wider, approximately 2 to 4 times as long as wide; sw OR, Siskiyou Mts. to n CA.

28a. Corolla 2 to 3 cm ( $3/4$ - $1\frac{3}{16}$ ) in long; stems 2 to 5 dm (8-20 in.) tall; inflorescence a raceme; sw OR and nw CA.

**23. *P. azureus***

28b. Corolla 1.4 to 2 cm ( $1/2$ - $3/4$  in.) long; stems  $\frac{1}{2}$  to 3 dm (6-12 in.) tall; inflorescence in part a branching panicle.

**24. *P. parvulus***

**Group III. Anther Sacs Dehiscing on the Outer Ends****Subgenus *Habroanthus***

- 29a. Corolla scarlet; tube spreading very moderately; exotic species native to sw US, seeded along highways in s ID by the Idaho Highway Dept. and now naturalized. (3 varieties, most commonly var. *undosus*). **25. *P. eatonii***
- 29b. Corolla blue to violet or purple.
- 30a. Anther sacs with long flexuous, non-dense pubescence, equal in length to the width of the sacs or more.
- 31 a. Leaves and stems surface-glandular, commonly bearing adhered, glistening soil particles; leaves linear-oblongate and 5 to 10 times as long as wide; anther sacs dehiscing by a narrow slot; s-cent ID (Cassia Co.) to ne NV and nw UT. **26. *R. idahoensis***
- 31 b. Leaves and stems glabrous; leaves linear, 15 to 25 times as long as wide; anther sacs boat-shaped; Pryor and Bighorn Mts., s-cent MT and n-cent WY. **27. *P. caryi***
- 30b. Anther sacs with short, stiff, scattered pubescence or glabrous; leaves variable. 32a. Anthers glabrous, except for minute hairs or teeth on the sutures.
- 33a. Anther sacs essentially straight (not curved or twisted); leaves mostly broad, 1 1/2 to 5 cm (1/2-2 in.) wide, lanceolate to ovate; upper leaves usually about twice as long as wide; se Blue Mts. of OR to w MT. **28. *P. payettensis***
- 33b. Anther sacs curved or twisted so the anthers appear S-shaped; leaves narrower, 1/2 to 2 cm (1/2-3/4 in.) wide; upper leaves mostly 3/2 to 10 times as long as wide.
- 34a. Corolla 18 to 22 mm (3/4-7/8 in.) long; staminode bearded; sepals 3 to 5 mm (to 3/16 in.) long; Snake River Plain of s ID. **29. *P. perpulcher***
- 34b. Corolla 25 to 35 mm (1-1 3/8 in.) long; staminode glabrous; sepals 5 to 10 mm (to 3/8 in.) long; cent WA to sw ID and n UT to sw OR and s CA. **30. *P. speciosus***
- 32b. Anthers pubescent with straight, stiff hairs (only at the connective in *P. pennellianus*).
- 35a. Stem leaves narrow to linear, 5 to 10 (max. 15) mm (3/16 -5/8 in.) wide, length variable.
- 36a. Staminode glabrous; anther sacs twisted or curved; sepals 7 to 11 mm (to 7/16 in.) long; e-cent ID and sw MT. **31. *P. lemhiensis***
- 36b. Staminode bearded; anther sacs variable; sepals 4 to 7 mm long.
- 37a. Inflorescence glandular; se ID, sw WY and n UT. **32. *P. subglaber***
- 37b. Inflorescence glabrous; se ID, w WY and ne UT. **35. *P. cyananthus* var. *subglaber***
- 35b. Stem leaves broader, lanceolate to ovate.
- 38a. Anther sacs dehiscing 4/5 of their length or more, some opening to but not across the connective; se MT and ne to cent WY. **33. *P. glaber* var. *glaber***

38b. Anther sacs dehiscing no more than 4/5 of their length.

39a. Anther sacs remaining essentially straight after dehiscing, the line of the sutures not curved to one side.

40a. Plants dwarfed, compact, generally 1 to 2 dm (4-8 in.) high; sepals glandular; inflorescence dense and secund (all on one side of the stem), of 2 or 3 verticillasters; Bear River Mts., se ID to cent UT.

**34. *P. compactus***

40b. Plants taller, generally 2 to 7 dm (8-28 in.) tall; sepals glabrous; inflorescence of 2 to 5 well-separated verticillasters, mostly to entirely encircling the stem; se ID to w WY and ne UT and possibly sw MT.

**35. *P. cyananthus* var. *cyananthus***

39b. Anther sacs curved, the anthers somewhat S-shaped.

41 a. Sepals ovate to nearly round (as wide as long) and erose (raggedly toothed on the margins); Snake River Plain, s ID to sw MT.

**36. *P. cyaneus***

41 b. Sepals narrow and acuminate (curved inward to a sharp point); n Blue Mts., se WA and n Wallowa Co., OR.

**37. *P. pennellianus***

**Group IV. Anthers Dehiscing Full Length, Usually Across the Connective**  
**Subgenus *Penstemon*, mostly**

42a. Plants shrubby (woody) at the base and lower branches; leaves toothed and leathery; corolla white or pale yellow, sometimes with red guide lines; corolla may be glandular within; cent WA to sw MT, nw WY and s CA.

**38. *P. deustus***

A1. Some leaves 3- or 4-whorled at the nodes, leaves entire or minutely serrate near the tips; n-cent OR into s-cent WA in Klickitat Co.

***P. deustus* var. *variabilis***

A2. Leaves all opposite, markedly toothed throughout.

B1. Corolla less than 1 cm ( $\frac{3}{8}$  in.) long; staminode bearded; sw OR and nw CA.

***P. deustus* var. *suffrutescens***

B2. Corolla more than 1 cm long; staminode glabrous.

C1. Corolla 12 to 18 mm (to  $\frac{1}{2}$  in.) long, the upper petal lobes white or cream-colored; cent WA, ne OR, ID, sw MT and nw WY.

***P. deustus* var. *deustus***

C2. Corolla generally smaller, 10 to 15 mm (to  $\frac{9}{16}$  in.) long, the upper petal lobes brownish; se OR and sw ID to n NV and ne CA.

***P. deustus* var. *pedicellatus***

42b. Plants herbaceous, woody only at the very base; leaves and corolla variable.

43a. Leaves linear, 2 (max. 3) mm wide or less.

44a. Leaves needle-shaped, about 1 mm wide, forming a dense tuft or rosette at the base; all cauline leaves in opposite pairs, not revolute.

45a. Anther sacs narrowly dehiscent, oblong; inflorescence glabrous; corolla pink to lavender; sepals 4 to 6 mm (to  $\frac{1}{4}$  in.) long with acuminate tips; Pryor Mts. area of s-cent MT into WY.

**39. *P. laricifolius* var. *laricifolius***

45b. Anther sacs ovate to rotund; inflorescence glandular; corolla blue-purple; sepals 2 to 4 mm long, ovate to rotund with a short tip; sw MT, se ID and n-cent WY.

**40. *P. aridus***

44b. Leaves, some or all, 2 mm wide, some on sterile shoots, but not forming a dense basal tuft; some leaves alternate or scattered on the stem and mostly revolute.

46a. Leaf bases connected, clasping or making a ridge around the stem, some may be offset and not quite opposite near the top of the stem; corolla glabrous and white within; corolla lobes approximately  $\frac{1}{2}$  the length of the corolla tube; cent OR to sw ID.

**41. *P. seorsus***

46b. Leaf bases separate, leaves alternate or some leaves scattered on the stem (leaves of *P. gairdneri* var. *oreganus* may all be opposite); corolla glandular within the throat and on the palate; corolla lobes larger, approximately  $\frac{1}{3}$  the tube length; cent WA and cent OR to Valley Co., ID.

**42. *P. gairdneri***

A1. Leaves alternate (may be a few opposite); cent WA to cent and e-cent OR.

***P. gairdneri* var. *gairdneri***

A2. Leaves opposite, usually with a few scattered or alternate leaves on the stem; Union and Baker Cos., OR, to Valley Co., ID.

***P. gairdneri* var. *oreganus***



43b. Leaves broader, more than 3 mm ( $1/8$  in.) wide.

47a. Plants entirely herbaceous above ground, stems single or branching from the root crown below ground; leaves toothed slightly or all entire; corolla pale violet, nearly white within and marked with guide lines in the throat; e MT and WY and the Great Plains. **43. *P. gracilis***

47b. Plants woody at the ground line; not as described above.

48a. Corolla white or creamy with glandular pubescence within; e MT and the Great Plains

**44. *P. albidus***

48b. Corolla pink, blue or purple, sometimes pubescent within, but not white or cream-colored.

49a. Some stem leaves connate-perfoliate (leaf pairs joined at the base around the stem); corolla 27 to 35 mm (1 + in.) long; an alien species seeded along ID highways (3 varieties may occur).

**45. *P. palmeri***

49b. Leaves not connate-perfoliate; native species.

50a. Corolla large, 35 to 50 mm ( $1\frac{3}{4}$  in.) long; plant glabrous throughout; staminode included within the corolla; e MT and the Great Plains.

**46. *P. grandiflorus***

50b. Corolla smaller, 25 mm (1 in.) long or less.

51 a. Anther valves on mature flowers dehiscent narrowly to oblong slots or very narrow boat shape (observe several).

52a. Leaves markedly dentate, ash-colored and densely short-hairy; stems mostly 3 to 4 dm (12-16 in.) tall; n-cent OR in the Deschutes and John Day river drainages.

**52. *P. eriantherus* var. *argillosus***

52b. Leaves entire; not as described above.

53a. Stem short, 8 to 18 cm (3-7 in.) tall; guide lines prominent in the throat; cent WY to nw CO and UT, reported in sw MT.

**47. *P. arenicola***

53b. Stems longer, generally 2 to 6 dm (8-24 in.) tall; guide lines absent or not.

54a. Leafy bracts in the inflorescence wider than long, fleshy; cent WA to n-cent OR; se OR and sw ID to nw NV.

**48. *P. acuminatus***

A1. Corolla 10 to 15 mm ( $\frac{3}{8}$ - $\frac{5}{8}$  in.) long; calyx  $4\frac{1}{2}$  to  $6\frac{1}{2}$  mm long; s-cent OR, sw ID and nw NV.

***P. acuminatus* var. *latebracteatus***

A2. Corolla 15 to 20 mm ( $\frac{5}{8}$ - $\frac{3}{4}$  in.) long; calyx 5 to 11 mm long; Columbia Basin, s-cent WA and n-cent OR.

***P. acuminatus* var. *acuminatus***

54b. Bracts narrower, longer than broad.

55a. Floral bracts many times longer than broad, acute or acuminate, fleshy, glaucous; e MT and the Dakotas to n NM, ne AZ and cent UT.

**49. *P. angustifolius* var. *angustifolius***

55b. Bracts of the lower inflorescence broadly lanceolate, ovate or rotund, 1 ½ to 2 (max. 3) times as long as wide.

56a. Bearded portion of the staminode elongated, not tufted, the hairs normally well over 72 mm long; w MT to the Great Plains, s Alta. to Man. and n WY.

**50. *R nitidus***

A1. Leaves and bracts of the lower inflorescence broadly ovate to nearly round; calyx 3 to 6 mm (to ¼ in.) long.

***P nitidus* var. *nitidus***

A2. Leaves and bracts of the inflorescence narrowly lanceolate, much longer than broad; calyx 5 to 8 mm (to 5/16 in.) long.

***R nitidus* var. *polyphyllus***

56b. Bearded portion of the staminode tufted, the hairs about 1/2 mm long or the staminode glabrous; central WA to n-cent OR and se OR, sw ID to nw NV.

**48. *R acuminatus* var. *acuminatus***

51 b. Anther valves dehiscing to moderately broad boat shape or explanate (completely flat).

57a. Leaves mostly (or some) toothed on the margins (some leaves occasionally toothed in *P. attenuates* and *P. rydbergii*); inflorescence glandular, rather open and few-flowered; corolla typically pale in the throat and marked with guide lines.

**GROUP IV-A. (mostly section *Humiles*)**

57b. Leaves entire (occasional exceptions noted above); inflorescence glabrous or glandular, generally tightly crowded with many flowers in one or more verticillasters or thyrses (*P. aridus* an exception); corolla not usually pale in the throat or marked with guide lines.

**GROUP IV-B. (mostly section *Proceri*)**

**Group IV-A. Anthers Dehiscing Completely;  
Leaves Toothed, Some Remotely; Inflorescence Glandular  
Section *Humiles*, mostly**

58a. Stems short, 1 to 3 dm (4-12 in.), rarely to 4 dm (16 in.).

59a. Staminode exerted well beyond the corolla throat and with prominent orange beard.

60a. Corolla deeply incised on the sides into two lips; leaves entire or toothed only at the apex; sw ID, se OR, n NV and ne CA.

**51. *P. janishiae***

60b. Corolla 2-lipped, but not deeply incised on the sides; leaves toothed, sometimes remotely; se BC to ND, WY, cent OR and cent ID.

**52. *P. eriantherus***

A1. Anther sacs mostly explanate (flat) and broad, approximately as long as broad with long lines of contact between the 2 halves; ne WA, se BC and s Alta., most of MT and e to cent ND, nw NE and n-cent CO.

***P. eriantherus* var. *eriantherus***

A2. Anther sacs mostly boat-shaped and oval, 1 ½ to 2 ½ times as long as broad with a relatively short line of contact.

B1. Upper stem leaves sessile, 5 to 10 times as long as broad; calyx 4 to 6 mm (to 'A in.) long; sw MT and cent ID to Baker and Union Cos., OR.

***P. eriantherus***

**var. *redactus***

B2. Upper stem leaves cordate clasping, 3 to 4 times as long as broad; calyx 7 to 12 mm (to '2 in.) long; cent WA, Chelan and Douglas Cos.

***P. eriantherus* var. *whitedii***

59b. Staminode included or reaching the orifice with yellow beard or glabrous.

61 a. Corolla small, 11 to 16 mm (7/16 – 5/8 in.) long; e slope of the Cascades into the Columbia Basin in cent WA and s BC.

**53. *P. pruinosus***

61 b. Corolla larger, 15 to 24 mm (5/8 - 1 in.) long.

62a. Leaves bright green, lightly or remotely toothed; stems glabrous, mostly less than 3 dm (12 in.) tall.

63a. Stem leaves lightly short-hairy; ridge tops and upper slopes above Hell's Canyon, OR and ID.

**54. *P. elegantulus***

63b. Stem leaves glabrous; se BC and sw Alta. to w MT and s ID.

**55. *P. albertinus***

62b. Leaves ash-colored, densely short-hairy and dentate; stems retrorsely (pointed downward) pubescent with short, stiff hairs, mostly 3 to 4 dm (12-16 in.) tall; n-cent OR in the Deschutes and John Day river drainages.

**52. *P. eriantherus* var. *argillosus***

58b. Stems generally longer, mostly 4 to 10 dm (16-40 in.) long.

64a. Sepals 5 to 11 mm (<sup>3</sup>/<sub>16</sub>-<sup>3</sup>/<sub>8</sub> in.) long, narrow and green, not scarious (white) on the margins.

65a. Corolla 13 to 18 mm (<sup>1</sup>/<sub>2</sub> – <sup>3</sup>/<sub>4</sub> in.) long; sw OR and n CA.

**56. *P. anguineus***

65b. Corolla 18 to 30 mm (<sup>3</sup>/<sub>4</sub> – 1 1/8 in.) long.

66a. Lower lip much longer than the upper; Staminode well exerted.

67a. Calyx 2 to 6 mm long; Staminode glabrous or bearded with a tuft at the end; sw MT, se ID to se WY, CO, AZ and UT.

**57. *P. whippleanus***

67b. Calyx 6 to 9 mm (to  $\frac{3}{8}$  in.) long; staminode bearded  $\frac{1}{2}$  length or more; Coast Range and s Willamette Valley, sw OR and nw CA.

**58. *P. rattanii* var. *rattanii***

66b. Lower lip subequal to the upper; staminode included; n-cent OR in the Deschutes and John Day river drainages.

**52. *P. eriantherus* var. *argillosus***

64b. Sepals 3 to 5 mm ( $\frac{1}{8}$ - $\frac{3}{16}$  in.) long and generally scarious-margined.

68a. Inflorescence expanded; cymes often long and many-flowered (10 to 20); corolla 15 to 23 mm ( $\frac{5}{8}$  -  $\frac{15}{16}$  in.) long.

69a. Leaves coarse-toothed and finely pubescent; inflorescence strongly glandular; s BC to n OR, w of the Cascade Crest.

**59. *P. ovatus***

69b. Leaves fine-toothed and usually glabrous; inflorescence lightly to moderately glandular; n ID and w MT to e WA, ne OR and cent ID.

**60. *P. wilcoxii***

68b. Inflorescence narrow and few-flowered (2 to 6 blossoms per cyme); corolla generally smaller, 12 to 16 mm ( $\frac{1}{2}$  -  $\frac{5}{8}$  in.) long.

70a. Cymes usually 1- to 4-flowered; e slope of the Cascades, WA to Mt Hood, OR

**61. *P. subserratus***

70b. Cymes usually 4- to 6-flowered; generally nw MT to Lemhi Co., ID.

**55. x 60. *P. wilcoxii* x *albertinus* (hybrid)**

## Group IV-B. Leaves Entire; Inflorescence Glabrous or Glandular

### Section *Proceri*

71 a. Corolla white, cream, pale pink or yellow. (*P. peckii*, *procerus* and *washingtonensis* may develop pink corollas).

72a. Corolla 4 to 12 mm ( $\frac{3}{16}$  -  $\frac{1}{2}$  in.) long; anther sacs about  $\frac{1}{2}$  mm long; staminode tip not expanded; se BC, sw Alta., w MT to ne OR.

**62. *P. confertus***

72b. Corolla 11 to 16+ mm ( $\frac{3}{8}$  -  $\frac{5}{8}$  in.) long; anther sacs  $\frac{1}{2}$  to 1 mm long; staminode tip noticeably expanded.

73a. Corolla white or cream (may be intermixed with pink and blue in hybrid swarms); calyx mostly entire; se OR, sw ID and adj n NV.

**63. *P. pratensis***

73b. Corolla yellow or pink; calyx erose-toothed on the margins.

74a. Staminode well included within the corolla; plants spreading by rhizomes and often mat-forming; corolla bright yellow; Bitterroot Mts., w MT and e-cent ID.

**64. *P. flavescens***

74b. Staminode reaching the orifice or exerted; plants not mat-forming; corolla pale yellow or pink; sw WA and adj n ID. Often in hybrid swarms.

**73. *P. attenuates* var. *attenuates***

71 b. Corolla blue or purple.

75a. Inflorescence glandular.

76a. Plants forming mats; stems often pubescent in lines; alpine endemic to Wallowa Mts., ne OR

**65. *P. spatulatus***

76b. Plants not as described above.

77a. Leaves all cauline, not forming basal rosettes or sterile basal shoots.

78a. Corolla 16 to 23 mm ( $\frac{5}{8}$ - $\frac{7}{8}$  in.) long; corolla white inside with blue or purple guide lines on the palate; sw MT and e ID to n NV and CO.

**66. *P. radicosus***

78b. Corolla very small, 8 to 10 mm ( $\frac{3}{8}$  in. or less) long; pale blue inside without noticeable guide lines; e base of the Cascades in Deschutes Co., OR.

**67. *P. peckii***

77b. Some leaves forming basal rosettes or plants with leafy, sterile shoots at the base.

79a. Stems short, generally 1 to 3 dm (4-12 in.) long.

80a. Leaves glabrous except for the margins on some plants.

81 a. Calyx lobes broad with a short, sharp tip; se ID to sw MT and n cent WY **40. *P. aridus***

81 b. Calyx lobes lanceolate, tapering to the tip; endemic to Chelan and Okanogan Cos., WA, in the higher mountains. **68. *R. washingtonensis***

80b. Leaves densely short-hairy.

82a. Corolla 16 to 22 mm (5/8 – 7/8 in.) long; anther sacs about ½ to just over 1 mm long.

83a. Anther sacs dehiscent broadly to explanate; leaves lanceolate, 4 to 12 mm (to ½ in.) wide, entire or toothed.

84a. Staminode long exerted, tip curled under; corolla deeply incised on the sides so lips are nearly ½ the corolla length; sw ID, s Harney Co., OR, NV and ne CA.

**51. *P. janishiae***

84b. Staminode barely exerted, tip straight; corolla 2-lipped, but not deeply incised on the sides, lip less than 1/3 the corolla length; se OR, sw ID to cent NV and ne CA.

**69. *P. miser***

83b. Anther sacs boat-shaped; leaves linear, 1 to 2.5 mm wide, entire; endemic to se ID.

**70. *P. pumilus***

82b. Corolla 12 to 16 mm (1/2 – 5/8 in.) long; anther sacs about ½ mm long; cent WA to cent ID, w CO and e CA.

**71. *P. humilis* var. *humilis***

79b. Stems generally longer, 3 dm (12 in.) long or more.

80b. Leaves densely short-hairy.

85a. Corolla very small, 8 to 10 mm (to 3/8 in.) or less long; anther sacs about ½ mm long; leaves almost all cauline; e base of the Cascades in Deschutes Co., OR. **67. *P. peckii***

85b. Corolla larger, 12 to 20 mm (1/2 – ¾ in.) long; basal leaves well developed.

86a. Leaves glaucous; leaf tips rounded; upper leaves much reduced, narrow to linear; staminode not expanded at the tip; Lake Co., OR, local endemic. **72. *P. glaucinus***

86b. Leaves green; leaf tips acute; upper leaves robust; staminode noticeably expanded at the tip; cent WA to w MT, s ID and n-cent WY

**73. *P. attenuates***

A1. Anther sacs not dehiscent full length, often to, but not across the connective and not reaching the free tips; s ID.

***P. attenuates* var. *militaris***

A2. Anther sacs dehiscent completely, but not spreading flat (explanate).

B1. Corolla 7 to 12 mm (to 1/2 in.) long; wet meadows in the s Blue Mts., OR.

***P. attenuates* var. *palustris***

B2. Corolla normally longer than 12 mm long; habitat variable and ranges as shown on p. 168.

C1. Stems generally short, 2 to 3 ½ dm (8-14 in.) tall; sepals oval and broadly scarious; corolla blue-purple; se ID, sw MT and nw WY ***R attenuates var. pseudoprocerus***

C2. Stems taller, 3 to 9 dm (12-36 in.); sepals lanceolate and narrowly scarious; corolla blue-purple, pinkish or yellow; e WA and ne OR to w MT and sw ID.

***P. attenuates var. attenuates***

75b. Inflorescence glabrous or pubescent with short, non-glandular hairs.

87a. Corolla very small, 5 to 10 m (3/16 – 3/8 in.) long.

88a. Inflorescence densely crowded at the apex, composed of many flowers, some declined (angled downward) on the underside of the thyrse(s); basal leaves usually present; leaves lanceolate to ovate, mostly straight, not arched; widespread species, AK and the Yukon to CA and CO.

**74. *P. procerus***

A1. Plants dwarf, mostly ½ to 1 ½ dm (2-6 in.) tall, usually with 1 dense thyrse at the apex, occasionally with 1 or 2 verticillasters; alpine and subalpine.

B1. Calyx 3 to 6 mm (to 1/4 in.) high, the sepals caudate-tipped or narrow and acute; Olympic and Cascade Mts. of WA and BC.

***P. procerus var. tolmiei***

B2. Calyx 1 ½ to 3 mm (to 1/8 in.) high, the sepals rounded or truncate, often with a short sharp tip; Willowa Mts., OR to NV and CA.

***P. procerus var. formosus***

A2. Plants larger, mostly 1 7/2 to 3 dm (6-12 in.) tall, usually with 2 to 4 verticillasters in the inflorescence.

C1. Calyx 3 to 6 mm (to 1/4 in.) high, the sepals caudate-tipped or narrow and acute; AK and the Yukon to the e base of the Cascades in WA, to ne OR, MT and CO. ***P. procerus var. procerus***

C2. Calyx 1 7/2 to 3 mm (to 7/8 in.) high, the sepals rounded or truncate, often with a short, sharp tip; Willowa Mts., OR, OR Cascades to n CA. ***P. procerus var. brachyanthus***

88b. Inflorescence few-flowered at the apex and more open, flowers inclined upward or horizontal; basal leaves lacking; leaves narrow to linear, arching and recurved; e base of the Cascades, cent OR to n CA. **75. *P. cinicola***

87b. Corolla larger, 11 to 20 mm (3/8 – 13/16 in.) long.

89a. Leaves all cauline (on the stem).

90a. Corolla narrowly tubular, not much expanded at the throat, 2 to 3 mm (to 1/8 in.) wide when pressed; palate densely bearded, completely filling the throat; s ID, n of Snake River Plain. **76. *P. laxus***

90b. Corolla spreading, 3 to 6 mm (to 7/4 in.) wide at the throat; palate moderately bearded; s ID, s of Snake River Plain, NV and UT. **77. *P. watsonii***

89b. Basal rosette of leaves well developed, many on sterile, nonflowering shoots.

91 a. Corolla relatively large, 1 5 to 20 mm (5/8-13/16 in.) long; inflorescence a dense, globe-shaped terminal thyrse, may develop 1 or 2 crowded verticillasters below the apex; Blue Mts. of ne OR to cent ID and w MT. **78. *P. globosus***

91 b. Corolla smaller, generally 11 to 15 mm (3/8-9/16 in.) long.

92a. Leaves glaucous; Cascade Mts., s WA, to Deschutes Co., OR.

**79. *P. euglaucus***

92b. Leaves green; e of Cascades, cent WA to w-cent MT, n WY, n NM, the Sierras of CA and the n end of the Willamette Valley and adjacent sw WA **80. *P. rydbergii***

A1. Calyx 5 to 8 mm long; corolla 13 to 20 mm (1/2 – 13/16 in.) long; foliage finely pubescent; se ID, sw WY, UT and n AZ.

***P. rydbergii* var. *aggregates***

A2. Calyx 3 to 6 mm long, corolla 10 to 14 mm (3/8 – 9/16 in.) long, foliage glabrous or finely pubescent.

B1. Sepals broadly scarious and deeply erose-toothed; foliage finely pubescent; se WA and ne OR, cent ID and sw MT.

***P. rydbergii* var. *rydbergii***

B2. Sepals slightly scarious and entire or shallowly erose; foliage glabrous; Cascade-Sierras of OR and CA to nw NV.

***P. rydbergii* var. *oreocharis***