

## PRACTICE: Using the Key to *Penstemon* in New Mexico

When working with this Key and only photographs the reader will quickly recognize the limitations of photographs. Nonetheless some valuable information is present. Use the Key to try to differentiate the two pairs given below.

### Is it *Penstemon thurberi* or *ambiguus*?

1 Plants shrubby; leaves linear & < 35 mm long

2 Corolla blue, blue-purple, or reddish purple; 8-14 mm long; all lobes spreading; tube gradually expanded; desert grasslands in sNM (CA, HI, LU),

sAZ, sCA, nMEX; Apr-Aug.....*P. thurberi* Torr.

2 Corolla pink externally, 15-24 mm long, white on the face of the lobes; upper lobes reflexed, lower lobes projecting; tube narrow and curved

3 Stems puberulous; sandy soils in eNM (BE, CU, DB, GU, LE, QU, RO, SF, TO, UN), eCO, wTX, wOK; (May)

Jun-Jul (Aug).....*P. ambiguus* Torr. subsp. *ambiguus*

3 Stems glabrous; sNM (ED, LU, SO), AZ, TX, NV, MEX; Jun-Jul.....*P. ambiguus* Torr. subsp. *laevissimus* Keck



**Question:** Which penstemon found in New Mexico is pictured above? *thurberi* or *ambiguus*?

**Key Information:**

Do all lobes spread? Is the tube gradually expanded? If so it's *P. thurberi*

or

Are the upper lobes reflexed? Do the lower lobes project? Is the tube narrow? Is the tube curved? If so it's *P. ambiguus*

**Answer:**

It's *P. thurberi*.

**Discussion:**

As often is the case, colors vary from plant to plant so color is not a reliable way to distinguish between *thurberi* and *ambiguus*; however the description of the flower is very different. Narrow leaves are not shown, and shrubbiness cannot be determined from this photo.

As always, if you are out in the wild your location (in this case New Mexico) makes identification a lot easier as it immediately narrows your choices.



**Question:** Which penstemon found in New Mexico is pictured above? *thurberi* or *ambiguus*?

**Key Information:**

Do all lobes spread? Is the tube gradually expanded? If so it's *P. thurberi*

or

Are the upper lobes reflexed? Do the lower lobes project? Is the tube narrow? Is the tube curved? If so it's *P. ambiguus*

**Answer:**

It's *P. ambiguus*

**Discussion:**

Though photos are often confusing and unhelpful with identification, in this case we have a picture that demonstrated the reflexed upper lobe and the projecting lower lobes. The narrowness of the tube is evident in three of the flowers as well as its curvature. Narrow leaves are not shown, and shrubbiness cannot be determined from this photo, nor whether the stem is glabrous.

As always, if you are out in the wild your location (in this case New Mexico) makes identification a lot easier as it immediately narrows your choices.

**Is it *Penstemon pinifolius* or *linarioides*?**

1 Plants herbaceous or woody only at the base; leaves linear or broader

4 Leaves linear and short (< 35 mm long)

5 Corollas red, 25-32 mm long, tubular, strongly bilabiate; inflorescence secund, glandular; anthers explanate, glabrous; staminode

bearded most of length with bright yellow hairs; base of lower lobes with long, flat, yellow hairs; stems woody well above base; leaves small, needlelike, crowded on lower part of stems; rocky areas in swNM (CA, GR, fl, SO), seAZ, nMEX; 5800-10,000 ft; Jun-Aug.....*P. pinifolius*

Greene

5 Corollas some shade of blue or purplish; bottom of corolla throat plicate (2-ridged) forming a low palate

6 Stems and leaves puberulous with flat, appressed scalelike hairs, especially on lower leaves (scales much smaller & stems more uniformly retrorsely puberulent in var. *linarioides*); leaves scattered on flowering stems; calyx lobes acute or very short acuminate, scarious margined almost to tip

7 Principal leaves mostly lanceolate to oblanceolate; limestone cliffs; apparently last collected in NM in 1880 (Gila valley, GR), seAZ

.....*P. linarioides* Gray  
subsp. *maguirei* Keck

7 Principal leaves essentially linear; base of lower lobes lightly bearded

8 Staminode sparsely bearded with short hairs, longer golden hairs in apical tuft; base of lower lobes lightly bearded; plants shorter (1-3.5 dm); resembles *P. crandallii glabrescens* in habit; vestiture variable; common in plains & foothills with sagebrush, PJ, oak in nwNM

(CI, MC, RA, SJ) & swCO; 5200-8700 ft; Jun-Jul ..... *P. linarioides* Gray subsp. *coloradoensis* (A.Nels.) Keck

8 Staminode more densely bearded with longer hairs for most of its length; base of lower lobes strongly bearded; plants relatively tall (2-5 dm), scoparioid, stem bases more-or-less woody; common in canyons & foothills in PJ & PIPO in swNM (DA, CA, GR, HI, LU, MC,

SI, SO) & seAZ; 4500-6000 ft; Jun Aug..... *P. linarioides* Gray  
subsp. *linarioides*



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**Question:** Which penstemon found in New Mexico is seen in the four pictures above? *pinifolius* or *linarioides*?

**Key information available from viewing photo:**

Are corollas red? Are corollas tubular, strongly bilabiate? Is inflorescence secund? Are anthers exserted? Are leaves small, needlelike, crowded on lower part of stems? **If yes, it's *P. pinifolius***

or

Are corollas some shade of blue or purplish. Is the bottom of corolla throat plicate (2-ridged) forming a low palate? Are leaves scattered on flowering stems? Are calyx lobes acute or very short acuminate? Are principal leaves essentially linear? **If yes, it's *P. linarioides*.**

**Answer:** The penstemon seen in the four photos is ***P. pinifolius***.

**Discussion:** In this case the color of the corolla is helpful as is its shape. One also can observe the secund inflorescence and garner some information about the anthers. The leaves also are a tip off. If you could measure the corolla and peer at the stamens with a x10 lens, think of how much more information you would have!



Eric M. Kiefer

[www.durangoplants.com](http://www.durangoplants.com)



**Question:** Which penstemon found in New Mexico is seen in the two pictures above? *pinifolius* or *linarioides*?

**Key information available from viewing photo:**

Are corollas red? Are corollas tubular, strongly bilabiate? Is inflorescence secund? Are anthers explanate? Are leaves small, needlelike, crowded on lower part of stems? **If yes, it's *P. pinifolius***

or

Are corollas some shade of blue or purplish. Is the bottom of corolla throat plicate (2-ridged) forming a low palate? Are leaves scattered on flowering stems? Are calyx lobes acute or very short acuminate? Are principal leaves essentially linear? **If yes, it's *P. linarioides*.**

**Answer:** This lovely plant is *Penstemon linarioides*.

**Discussion:** Once again, once you know location, characteristics of the corolla are helpful. The penstemon photographer will want to keep that in mind.