

A NEW SPECIES OF LOBELIA (CAMPANULACEAE) FROM FLORIDA

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ABSTRACT

Lobelia apalachicolensis D.D. Spaulding, T.W. Barger, & H.E. Horne **sp. nov.**, from the Apalachicola region of the Florida Panhandle has broadly elliptic to ovate leaves, toothed calyx lobes, and lower corolla lip densely pubescent basally. This new species shares many characters with *Lobelia georgiana* but has a calyx tube and corolla lip similar to *Lobelia glandulosa*.

In preparing a taxonomic treatment of *Lobelia* of Alabama and adjacent states (Spaulding & Barger, in prep.), a new species was discovered from Florida.

LOBELIA APALACHICOLENSIS D.D. Spaulding, T.W. Barger, & H.E. Horne, **sp. nov.** **TYPE: USA. Florida.** Liberty Co.: Apalachicola region of the Florida Panhandle, roadside ditch bordering wet pine flatwoods off SR-20 E of Hosford between SR-65 and SR-267, lat. 30.385199°, long. -84.754225°, elev. 95 ft., 18 Oct 2014, *D.D. Spaulding* and *M.A. Taylor 14223* (holotype: AMAL; isotypes: ALNHS, AUA, FSU, JSU, UNA, NCU, USF, UWAL).

Lobelia apalachicolensis is a tall, large-flowered species that is similar to *L. georgiana* McVaugh and *L. glandulosa* Walt. in that it possesses toothed calyx lobes with very small auricles or none at all. It is perhaps most phenotypically similar to *L. georgiana* because they both have ovate to elliptic leaves, but differs markedly from that species in several features that are found in *L. glandulosa*. Most importantly, the lower lip of the corolla is densely pubescent basally and the calyx tube can be either long-hirsute or glabrous like *L. glandulosa*. *Lobelia georgiana* has a corolla lip that is usually completely glabrous or rarely minutely pubescent basally and typically lacks hair on its calyx tube. *Lobelia glandulosa* differs from *L. apalachicolensis* by its linear to lanceolate leaves, geniculate (zigzag) stems, and usually darkens when dried; *L. apalachicolensis* has broad ovate to elliptic leaves (like *L. georgiana*), mostly straight stems, and dries light green. Populations of *L. puberula* Michaux with toothed calyx lobes can also be mistaken for *L. apalachicolensis*, but *L. puberula* has densely pubescent stems, calyx lobes, and corollas in contrast to the sparsely pubescent stems, glabrous calyx lobes, and usually glabrous or sometimes sparsely pubescent corollas of *L. apalachicolensis*.

Perennial herbs from basal offshoots with sticky, yellowish sap. **Stems** 0.85–1.9 m high (avg. 1.3 m); mostly simple, occasionally branched just below inflorescence; stems moderately to sparsely hirtellous or almost glabrous, usually more pubescent basally. **Leaves** alternate, simple, elliptic to ovate, thick and often fleshy; margins glandular toothed; leaf surfaces sparsely hirtellous to almost glabrous adaxially and moderately to densely hirtellous abaxially. **Flowers** epigynous (inferior), perfect, 1.8–2.5 cm long (avg. 2.0 cm); arranged in racemes that are often partially secund; pedicel with two linear bracteoles near the base (1–2 mm long); flowering time Sep–Nov. **Calyx tube** densely or sparsely chaffy-hirsute to glabrous with a pebbled, warty surface (both kinds may be observed within the same population); calyx lobes glabrous with prominent teeth along the margin; auricles none or very small and inconspicuous. **Corolla** purplish to blue; zygomorphic with 5 lobes; lips glabrous except for the villous base of lower lip on upper surface; corolla tube fenestrate, exterior surface glabrous or sparsely pubescent in lines. **Stamens** 5 and united into a tube; filament tube 7.5–10 mm long (avg. 9 mm); anther tube 3.5–4.5 mm long (avg. 4 mm). **Gynoecium** (pistil) with 2 carpels; style 1; stigma 2-lobed; ovules numerous; seeds ellipsoid with reticulate surface.

When this new species is keyed in McVaugh (1936), it stops at the couplet that includes *Lobelia glandulosa* and *L. glandulifera* (Gray) Small [= *L. georgiana*] (Fig. 1). *Lobelia apalachicolensis* cannot be keyed further because it has elliptic-ovate leaves and the lower lip of corolla is densely pubescent basally. McVaugh mentioned in his key that the calyx of *L. glandulosa* is often chaffy-hirsute, but he didn't mention the calyx of *L. glandulifera*. However, in his description of *L. glandulifera* he stated that the calyx is “smooth or rarely with a few hairs.”

- e. Plants usually weak; leaves 5–10, long-linear, to 0.5 × 15.0 cm., usually prominently denticulate. Flowers 1–10 (15), 20–33 mm. long. Lower lip of corolla hirsute at base. Filament-tube 8–10 mm. long. Calyx often chaffy-hirsute. . . . 6. *L. glandulosa*.
- cc. Plants slender or erect, smooth throughout. Leaves thick, lanceolate to oblong or ovate, to 3 × 7 cm., shallowly toothed or subentire. Flowers 6–20, 20–28 mm. long. Lip of corolla smooth. Filament-tube 7–8 mm. long. . . . 5. *L. glandulifera*.

Figure 1. Portion of *Lobelia* key from McVaugh (1936)

The first known collection of *Lobelia apalachicolensis* was made on 16 October 1954 by Robert K. Godfrey in Liberty Co., Florida, from a moist ditch bordering wet woodlands, about 3 miles east of Hosford. The type collection was made as close to this location as possible. Most specimens collected in the past were identified as *L. georgiana* [= *L. glandulifera*], but a few herbarium sheets were labeled or annotated as *L. glandulosa*, *L. ×rogersii* Bowden, or *L. georgiana* × *puberula*. *Lobelia apalachicolensis* was first thought by the senior author to be a possible hybrid between *L. glandulosa* and *L. georgiana*, but these two species were either absent or only *L. glandulosa* was present with *L. apalachicolensis*.

Collections examined (see Figure 2). **Florida**. Franklin Co.: [#1- originally det. as *L. georgiana*] in broad, shallow, wet ditches bordering pine flatwoods, 3.3 mi S of Liberty Co. line by Rt. C-67, N of Carrabelle, 8 Oct 1978. *Godfrey 76924* (FSU, BRIT); [#2- originally det. as *L. cf. georgiana*] stout plants with thick leaves, in ditch along highway 98 and bordering the Lanark Village golf course, 12 Sept 1984, *Anderson 7593* (FSU); [#3- originally det. as *L. glandulosa*] W of SR-319 ca. 1 mi S of Sopchoppy fire tower in ditch, 19 Oct 1989, *Johnson 8660* (FSU). Leon Co.: [#4- originally det. as *L. georgiana* × *puberula*?] wet roadside depression beside Rt. 375 just SW of Hwy 20, N side Soapstone Creek Bridge, 9 Oct 1995, *Larkin 95-38b* (MO). Liberty Co.: [#5- originally det. as *L. glandulifera*] moist ditch bordering wet woodland, about 3 mi E of Hosford, 16 Oct 1954,

Godfrey 52530 (USF). **Wakulla Co.:** [#6- originally det. as *L. georgiana*] scattered plants in low areas, edge of pine flatwoods alongside Fla. 375, 6.1 mi N of Sopchoppy, 18 Sep 1973, *Wooten 2271* (TENN, BRIT); [#7- originally det. as *L. georgiana*] along roadside of Fla 375, just S of Syffert Creek Bridge, 19 mi S of Leon County line, 13 Sep 1979, *Nelson 1348* (FSU, NCU); [#8- originally det. as *L. georgiana*] in boggy clearing at borders of titi bog, 5 mi N of Sopchoppy, by Fla. Rt. 375, 5 Nov 1980, *Godfrey 78256* (FSU); [#9- originally det. as *L. georgiana*] open, wet, peaty ditch, sphagnum area bordering pine flatwoods, Apalachicola National Forest, by Forest Road 365, NW of Crawfordville, 31 Oct 1981, *Godfrey 79253* (FSU); [#10- det. as *L. apalachicolensis*] roadside ditch, off Smith Creek Rd (CR-375) NW of Sopchoppy, *Spaulding & Taylor 14229* (AMAL).

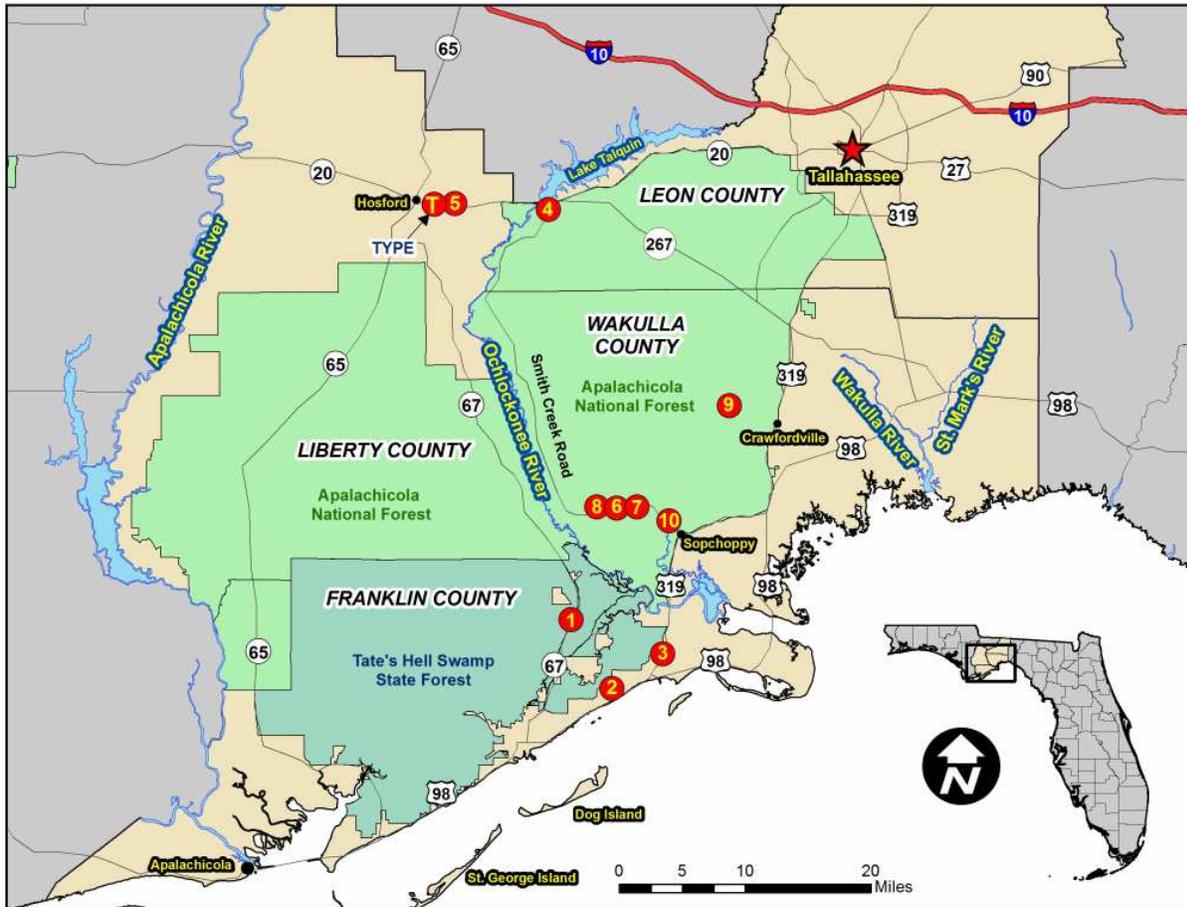


Figure 2. Sites of *Lobelia apalachicolensis* in Florida. Collections are marked in red circles.

Lobelia apalachicolensis is a Florida endemic known so far only from Franklin, Leon, Liberty, and Wakulla counties in the lower Ochlockonee River watershed (Fig. 2). Sorrie and Weakley (2001) observed that this area in the central panhandle of Florida flanking the Apalachicola River is known for its endemism and floristic richness. Clewell (1977) noted that there are 116 rare and noteworthy species in this area and that “nine are narrowly endemic within the watershed of the Apalachicola River, and 27 others are endemic to a somewhat larger region which includes the Apalachicola River area.” Since Clewell’s report in 1977, several new plant species have been described: *Sorghastrum apalachicolense* (Hall 1982), *Boltonia apalachicolensis* (Anderson 1987), *Hymenocallis godfreyi* (Smith & M. Darst 1994), *Hymenocallis franklinensis* (Smith et al. 2001), *Liatris gholsonii* (Anderson 2002), *Xyris panacea* (Anderson & Kral 2008), and *Hymenocallis gholsonii* (Smith & Garland 2009). *Lobelia apalachicolensis* represents another previously unrecognized and overlooked

endemic of this global biodiversity hotspot of the North American Coastal Plain (Noss et al. 2015). Due to the restricted range and number of populations of this species, it should be ranked as globally imperiled (G2) and imperiled within the state of Florida (S2).

Lobelia apalachicolensis (Fig. 3) is most commonly found in roadside ditches, but it also occurs along margins of wet pine flatwoods and shrubby (titi) bogs. This species is a hydrophyte and its wetland indicator status is most likely Facultative-Wetland (FACW). The specific epithet refers to the Apalachicola region of the Florida Panhandle and we have chosen the common name "Apalachicola lobelia" because many collections were made in the Apalachicola National Forest. The key below includes species of *Lobelia* from Florida with large flowers (>15mm long) and toothed calyx lobes that lack auricles or have inconspicuous ones at the base of the lobes.

- 1. Stem leaves linear or lanceolate (all leaves less than 1.5 cm wide); internodes often geniculate (zigzag); plants usually drying darker; basal portion of lower lip of corolla densely pubescent **Lobelia glandulosa**
- 1. Stem leaves ovate, elliptic, obovate, oblong or broadly lanceolate (most leaves much wider than 1.5 cm); internodes not geniculate or only slightly so; plants usually drying lighter; basal portion of lower lip of corolla either pubescent or glabrous.
 - 2. Stems densely pubescent throughout; margins of calyx lobes ciliate with sharp hairs; corolla tube exterior densely pubescent **Lobelia puberula**
 - 2. Stems sparsely pubescent to glabrous (more pubescent at the base); margins of calyx lobes glabrous (lacking cilia); corolla tube exterior glabrous or sparsely pubescent in lines.
 - 3. Lower lip of corolla typically glabrous on upper surface near throat of tube, but occasionally papillate or minutely pubescent with very short hairs; calyx tube usually glabrous, rarely with a few scattered chaffy hairs; corolla tube exterior glabrous; ranges from Virginia south to Florida and west to Alabama **Lobelia georgiana**
 - 3. Lower lip of corolla distinctly pubescent with villous hairs on upper surface near throat of tube; calyx tube long-hirsute to glabrous; corolla tube exterior glabrous or pubescent in lines; endemic to the Florida Panhandle **Lobelia apalachicolensis**



(3A) Habitat of type collection is a roadside ditch bordering wet pine flatwoods.



(3B) Inflorescence often secund.



(3C) Flowers usually purplish in color.



(3D) Lower lip of corolla distinctly villous at base.



(3E) Tall plants (Melanie Taylor = 1.6 meters).



(3F) Close-up of stem and inflorescence (the upper stems are sometimes glabrous).



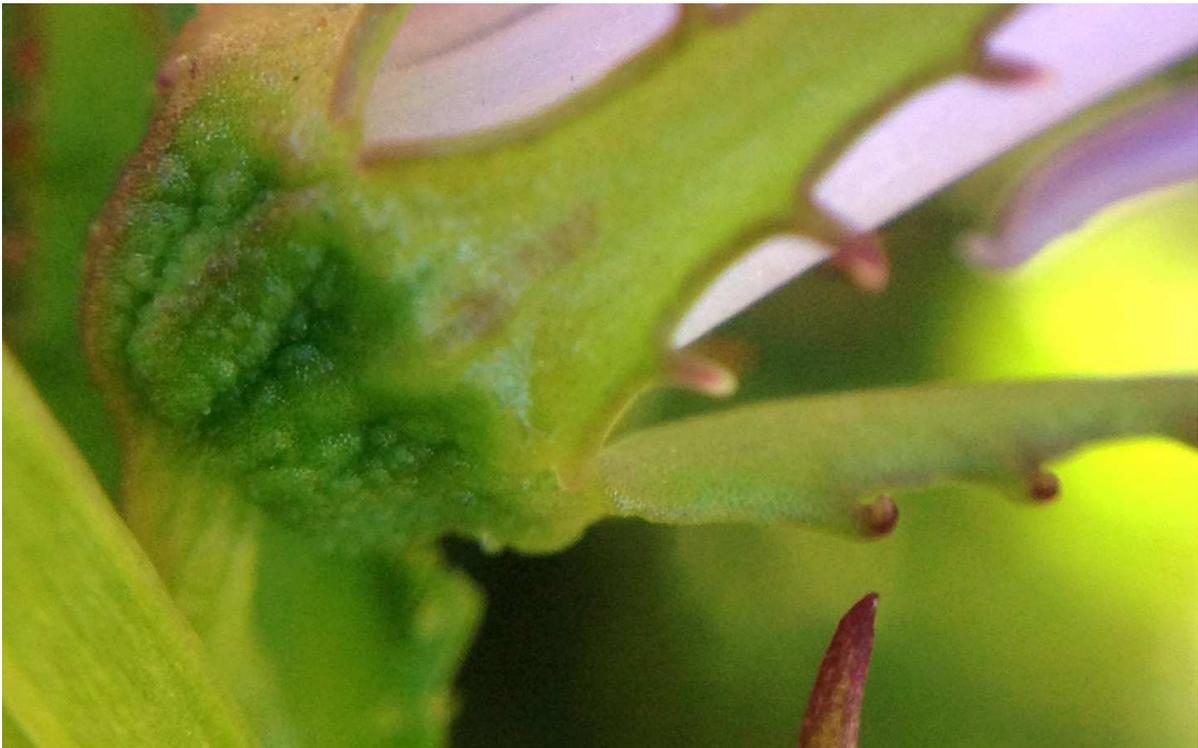
(3G) Sparsely pubescent stems (rarely almost glabrous).



(3H) Ovate-elliptical leaves.



(3I) Calyx tube densely long-hirsute (it can also be sparsely long-hirsute or glabrous).



(3J) Glabrous calyx tube with a warty texture.



(3K) Glabrous corolla tube (the calyx tube is either glabrous or chaffy-hirsute).



(3L) Sparsely pubescent corolla tube, with hairs in lines (the calyx tube will usually be densely chaffy-hirsute).

Figure 3. *Lobelia apalachicolensis* from type locality. (A-L) Roadside ditch bordering wet flatwoods, Liberty Co., Florida. (J-K) Herbarium specimen of type (AMAL), Spaulding & Taylor 14223, roadside ditch bordering wet flatwoods, Liberty Co., Florida. Photos by Dan Spaulding and Melanie Taylor, 18 Oct 2014.

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