A New Species of *Galactia* (Fabaceae, Papilionoideae) from Central Texas, U.S.A.

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Abstract. *Galactia watsoniana* W. C. Holmes & Singhurst (Fabaceae, Papilionoideae), endemic to the southern part of the Balcones Escarpment of central Texas, is described as new. The new species is distinguished from *G. volubilis* (L.) Britton, its apparent nearest relative, by its solitary and larger flowers (17–22 mm vs. 6–12 mm), strigillose trichomes on plant surfaces, presence of a narrow white border on the leaflet margins, and ovate leaflets with reticulated abaxial surfaces.

Key words: Fabaceae, *Galactia*, Papilionoideae, Texas.

The state of Texas has approximately 298 species of vascular plants that are considered endemic (W. R. Carr, unpublished data), with about 35 of these endemic to the Pleistocene terraces of the lower (southern) rim of the Balcones Escarpment. The area, most often known as part of the Edwards Plateau or Hill Country, is also of substantial botanical interest because of the number of eastern species that are present as relicts. These include such species as *Aquilegia canadensis* L., *Arisaema dracontium* (L.) Schott, *Aristolochia serpentaria* L., *Bignonia capreolata* L., *Hamamelis virginiana* L., *Lindera benzoin* (L.) Blume, *Menispermum canadense* L., *Mitreola petiolata* (J. F. Gmelin) Torrey & A. Gray, and *Viola palmata* L. As a whole, the plateau is highly disturbed, mainly as a result of overgrazing, with the natural vegetation largely being replaced by Ashe juniper (*Juniperus ashei* J. Buchholz). Notable exceptions to this are portions of the canyonlands, the uplands that give rise to such rivers as the Medina, Sabinal, and Guadalupe. A number of drainages occur here that are in near pristine condition.

In 2004, while searching the above areas for new occurrences of the recently named Texas endemic *Prenanthes carrii* Singhurst, O'Kennon & W. C. Holmes (Asteraceae; see Singhurst et al., 2004), an unknown species of *Galactia* P. Browne was discovered at the Love Creek Preserve of the Nature Conservancy of Texas. Subsequent field studies have resulted in discovery of this unknown species at additional sites. It is described as follows.

Galactia watsoniana W. C. Holmes & Singhurst, sp. nov. TYPE: U.S.A. Texas: Bandera Co., Love Creek Preserve of the Nature Conservancy of Texas, sloping terrace of bank of Love Creek near cabin, 13 Aug. 2004, *W. C. Holmes 13069 & J. R. Singhurst* (holotype, BAYLU; isotypes, MO, TEX). Figure 1.

A *Galactia volubili* (L.) Britton corolla longiore (17–22 mm non 6–12 mm longa) et trichomatibus strigillosis non patulo-pilosis differt.

Perennial herbaceous trailing to twining vines; taproots vertical, woody, linear to spindle-shaped, at least 10 × 0.2–1 cm, brown; stems to ca. 1 m or longer, 1–2 mm thick, branched, terete to angled, retrorsely strigillose; internodes 8–10 cm or more, shorter above, nodes densely strigillose. Leaves alternate, pinnately trifoliate; stipules linear to narrowly lanceolate, 1–2.1 mm, antrorsely strigillose, densely so at bases, nerves 3(to 5), essentially parallel, apices narrowed to a slightly rounded apex; petioles 1–4.7 mm, antrorsely strigillose, grooved above; stipels linear, 0.4–1.2 mm, glabrate to sparingly antrorsely strigillose; lateral petiolules (pulvinus) 0.5–1.9 mm, densely spreading-strigillose, terminal petiolules 5–7 mm, antrorsely strigillose, the pulvinus 1–2 mm, densely spreading-strigillose; leaflets ovate, 1.3–2 × 2.7–4.7 cm, pinnately nerved, bases rounded to obtuse to occasionally obscurely subcordate, margins entire, densely antrorsely strigillose and appearing as a narrow white band, apices rounded to an acute apiculation 0.5–1 mm, adaxial surfaces glabrate to moderately antrorse strigillose, the secondary nerves exserted from the surfaces,

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Figure 1. *Galactia watsoniana* W. C. Holmes & Singhurst. Holotype specimen, *Holmes 13069 & Singhurst* (BAYLU).

abaxial surfaces paler in color, antrorsely strigillose, nerves and veinlets exserted from the surface, conspicuously reticulate. Inflorescence axillary, 1-flowered; pedicels 4–10.1 mm, antrorsely strigillose. Flowers 17–22 mm; calyx tubes ca. 6 × 1.5 mm; teeth 4, strigillose, upper 3 lanceolate-triangular, 0.7–1.25 mm, lowest tooth linear to lanceolate, 1.3–1.5 mm; corollas purple to pinkish purple; standard broadly obovate to orbicular, ca. 23 × 15 mm, margins entire, apices deeply emarginate; wings ca.

19 mm, keels 14–15 mm; stamens arranged 9 + 1, the tubes ca. 12 mm, filaments 1–1.5 mm, lone filament ca. 13 mm, anthers ca. 0.5 mm; pistil linear, ca. 20 mm, glabrous, the tip turned upward; stigma capitate. Fruit bracteate, 3.5–4 × ca. 0.5 cm, dehiscent, laterally compressed, outer surfaces brown, antrorsely strigillose, inner surfaces white, cobwebby, apex clawed, the remnants of stigma and style attached to claw; seeds 4 to 6, flattened ellipsoid, glabrous, brown splotched with darker brown, ca. 3.5 × 1.9–3 mm.

Distribution. *Galactia watsoniana* is known only from canyonlands of the upper drainage of the Medina and Sabinal rivers of Bandera County, Texas, U.S.A., and has been collected at elevations from 525–596 m.

IUCN Red List category. *Galactia watsoniana*, or "Watson's milkpea," is currently known from two locations and four occurrences in Bandera County, Texas, all discovered in the past two years. The area of occupation is estimated to be ca. 10 km^2, and the number of individuals is estimated to be less than 100. All currently known occurrences are on protected land (Lost Maples State Natural Area, Love Creek Reserve of the Texas Nature Conservancy) and are secure. The species, which is limited to low terraces of upland rivers and large streams, is expected to occur in suitable areas in this and nearby counties. Judging from present land use patterns, such occurrences would be expected to be in decline. The species may be negatively affected by grazing and alien angiosperm species, and is therefore assessed as Endangered (EN) according to IUCN Red List criteria (IUCN, 2001).

Phenology. Flowering late April to August.

Etymology. The new species is named to honor Geraldine Watson (1925–), botanist, conservationist, author, musician, founder of the Pinelands Research Institute, and one of the impelling forces behind the creation of the Big Thicket National Preserve in southeastern Texas. Geraldine is a beloved friend of both authors. In anticipation of the new species being given a common name, we are assigning it the name of "Watson's milkpea."

Discussion. *Galactia watsoniana* is characterized by its solitary flowers that are 17–22 mm long, which is considered large for the genus. The surfaces of the leaves, stems, flowers, and fruits of the plant are lightly to moderately covered with strigillose trichomes, while the pulvini, stipules, and stipels are densely strigillose. Margins of the leaflets are densely shrouded with these appressed trichomes so as to create an easily visible narrow white border. Undersurfaces of leaflets are reticulated and strigillose. Other species of the genus in the southeastern U.S.A. can be distinguished by their smaller flowers, which are generally less than 14 mm long (see Correll & Johnston, 1970; Isely, 1990), most often arranged in pseudoracemes of (1)2 to 3(6) flowers.

In Correll and Johnston (1970), *Galactia watsoniana* would key to *G. volubilis*, a species characterized by its flowers 6–12 mm long borne in clusters of 1 to 3, herbage (stems, leaves, petioles, bracts, etc.) and fruits covered with spreading hairs, leaves not conspicuously reticulated abaxially, and oval to oblong leaflets lacking a narrow white border at the margins.

At the present time, the *Galactia watsoniana* is known from above 520 m elevation in the headwater areas of the upper Medina River (Love Creek) and Sabinal River (Can Creek), both tributaries of the Nueces River. Most often the species occurs on shaded, gently sloping terraces above the creeks. Vegetation is generally sparse with the major dominant plants being *Quercus muehlenbergii* Engelmann and *Acer grandidentatum* Nuttall. *Diospyros texana* Scheele, *Q. laceyi* Small, *Frangula caroliniana* A. Gray, *Fraxinus texensis* (A. Gray) Sargent, *Juniperus ashei*, and *Tilia americana* var. *caroliniana* (Miller) Castiglione are of lesser occurrence. Shrubs present are *Sophora secundiflora* (Ortega) Lagasca ex DC., *Mahonia trifoliolata* (Moricand) Fedde, *Opuntia* Miller, *Smilax bona-nox* L., and *Vitis monticola* Buckley. The herbaceous flora is dominated by *Nassella leucotricha* (Trinius & Ruprecht) R. W. Pohl. Others include *Packera obovata* (Muhlenberg ex Willdenow) W. A. Weber & Á. Löve, *Verbesina virginica* L., *Viola sororia* Willdenow, *Dichanthelium acuminatum* subsp. *lindheimeri* (Nash) Freckman & Lelong, as well as the endemic taxa *Tragia nigricans* Bush, *Passiflora affinis* Engelmann, *Clematis texensis* Buckley, *Spigelia texana* (Torrey & A. Gray) A. DC., and *Prenanthes carrii* Singhurst, O'Kennon & W. C. Holmes. One specimen of *Galactia watsoniana* (*Holmes 13705 & Singhurst*) was growing from a crevice in a nearly vertical limestone canyon wall.

Paratypes. U.S.A. **Texas:** Bandera Co., Love Creek Preserve of the Nature Conservancy of Texas (LCPNCT), sloping terrace of bank of Love Creek near cabin, 14 May 2006, *Holmes 13532 & J. R. Singhurst* (BAYLU); LCPNCT, 285 m WSW of cabin, 13 Aug. 2004, *Holmes 13051 & J. R. Singhurst* (BAYLU); LCPNCT, upper reaches of Love Creek, 1900 m from type location, 18 July 2006, *Holmes 13705 & J. R. Singhurst* (BAYLU); Lost Maples State Natural Area, Can Creek, 17 May 2006, *Holmes 13557 & J. R. Singhurst* (BAYLU).

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