

3. It is seen from the Table that the present study established new distributional records for *Culex apicalis*, *C. coronator*, *C. salinarius*, and *Psorophora discolor*.

4. *Aedes nigromaculis*, *Orthopodomyia signifera*, *Psorophora cyescens*, and *P. varipens*, which have been reported by previous workers were not taken in this study.

5. The present study showed the genus *Culex* to be the most abundant one in number of individuals and species. *Culex tarsalis* was the most abundant species in early summer and *C. quinquefasciatus* was most abundant in late summer. *Anopheles punctipennis* was the most abundant and widespread *Anopheles* in the neighborhood of Dallas.

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The Texas Species of *Psoralea* (Leguminosae)

Lloyd H. Shinnert¹

Twenty-five species and two varieties of *Psoralea*, distributed among three segregate genera, were recognized from Texas by Rydberg (1919) and by Tharp and Barkley (1945, 1946). Fourteen species and four varieties, of which one species and three varieties are newly described, are recognized in the present synopsis, all treated under *Psoralea*. For the most part the dismemberment of the genus is entirely reasonable as far as Texas species are concerned. Indeed at least one of the segregate genera of Rydberg could be further divided. *Pediomelum rhombifolium*, with slender elongate stems, strictly axillary, capitate, long-peduncled inflorescences, peculiar scarlet-brown corollas, and branched below-ground stem bases, is quite unlike the species with which it is usually associated. While admitting the justifications for recognizing separate genera, I prefer to follow Torrey & Gray, Vail, and Macbride in treating *Psoralea* as a single large and somewhat heterogeneous assemblage, but one of obviously closely allied groups, paralleling *Astragalus*. It is interesting to note that a recent South African student has gone so far as to merge with *Psoralea* a genus previously placed in a different tribe (Salter, 1939).

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This account is based on collections at Southern Methodist University (SMU in the citations), the Missouri Botanical Garden (Mo), and Iowa State College (IS); types and some other specimens were examined at the University of Texas (T). Grateful acknowledgment is made to those in charge of these collections for their courtesies.

KEY TO PLANTS IN FLOWER

- 1a. Leaves pinnately 3-foliolate
 - 2a. Leaflets lanceolate to oblong-lanceolate, 3-7 times as long as wide; flowers in elongate spike-like racemes
 - 3a. Corolla deep purple, 7-10 mm. long; calyx 3.2-4 mm. long
 - 1. *P. simplex*
 - 2. *P. psoralioides* var. *eglandulosa*
 - 3b. Corolla lilac or lavender, 4-7 mm. long; calyx 2-3 mm. long
 - 13. *P. rhombifolia*
 - 2b. Leaflets rhombic-lanceolate to ovate or suborbicular, about 1-2 times as long as wide; flowers few in heads or very short spikes
 - 4a. Plant with elongate prostrate leafy stems; leaves membranous, upper and lower surfaces not markedly different, both pubescent to nearly glabrous, without white veins
 - 14. *P. Rydbergii*
 - 4b. Plant scapose; leaves leathery, the lower surface densely appressed-pubescent, the upper glabrous or nearly so excepting the prominent white veins.....14. *P. Rydbergii*
- 1b. Leaves palmately 3-7-foliolate, or the uppermost only 1-2-foliolate (rare proliferous form of *P. scaposa* has rachis extended beyond main group of leaflets and terminated by 3 sessile leaflets)
 - 5a. Inflorescence a slender loose raceme or slender interrupted spike less than 1.5 cm. thick; bracts of inflorescence 4 mm. or less long; calyx 2-7 mm. long (enlarging in fruit)
 - 6a. Branches and under-surface of leaflets glabrous and prominently resin-dotted; upper and lower surfaces of leaflets similarly glabrous and prominently resin-dotted
 - 3. *P. lanceolata*
 - 6b. Branches and under surface of leaflets minutely or conspicuously pubescent, not prominently resin-dotted; upper and lower surfaces of leaflets dissimilar
 - 7a. Pedicels of many or all flowers longer than the calyxes; calyxes 2-4 mm. long (slightly enlarged after flowering)
 - 7b. Pedicels absent or shorter than the calyxes; calyxes 5-7 mm. long (conspicuously enlarged after flowering)
 - 5a. Inflorescence a slender loose raceme or slender interrupted spike less than 1.5 cm. thick; bracts of inflorescence 4 mm. or less long; calyx 2-7 mm. long (enlarging in fruit)
 - 8a. Leaflets linear to lanceolate, 7-16 times as long as wide
 - 4. *P. linearifolia*
 - 8b. Leaflets oblanceolate to oboval, 2-6 times as long as wide
 - 9a. Leaflets 3-6 times as long as wide; plants of general distribution5a. *P. tenuiflora*
 - 9b. Leaflets 2-3 times as long as wide; plants of Trans-Pecos.....5b. *P. tenuiflora* var. *Bigelovii*
 - 5b. Inflorescence a dense spike-like raceme 2-4 cm. thick; bracts of inflorescence 4-15 mm. or more long; calyx 8-17 mm. or more long
 - 10a. Leaflets oblong-elliptic to narrowly oblong-lanceolate, those of middle and lower leaves 4-8 mm. wide
 - 6a. *P. digitata*
 - 10b. Leaflets linear, those of middle and lower leaves 1.5-3 mm. wide.....6b. *P. digitata* var. *parvifolia*
- 11a. Plant leafy-stemmed, the leaves at flowering time not all at or very near the base
- 12a. Stem glabrous or appressed-pubescent

- 13a. Bracts ovate-orbicular, abruptly contracted to a narrow sharp point, the body about as wide as long
—8. *P. Reverchoni*
- 13b. Bracts ovate-lanceolate or oblong-lanceolate, gradually acute or acuminate, much longer than wide
- 14a. Leaflets linear-lanceolate or narrowly oblong-lanceolate, 7-14 times as long as wide
—7. *P. cyphocalyx*
- 14b. Leaflets broadly lanceolate, rhombic, elliptic, or oboval, 2-5 times as long as wide.....9. *P. cuspidata*
- 12b. Stem densely hirsute with widely spreading hairs
—10. *P. latestipulata*
- 11b. Plant scapose, the leaves all at or crowded close to the base at flowering time
- 15a. Peduncles and petioles with widely spreading hairs
- 16a. Middle leaflet of later leaves 1.8-3 cm. wide, 4-6 cm. long
—11a. *P. subulata*
- 16b. Middle leaflet of later leaves 1-1.5 cm. wide, 2-3.2 cm. long.....11b. *P. subulata* var. *minor*
- 15b. Peduncles and petioles with appressed or closely ascending hairs
- 17a. Peduncles 4-10 cm. long, slightly shorter to slightly longer than the petioles.....12a. *P. scaposa*
- 17b. Peduncles 1-3 cm. long, mostly less than half as long as the petioles.....12b. *P. scaposa* var. *breviscapa*

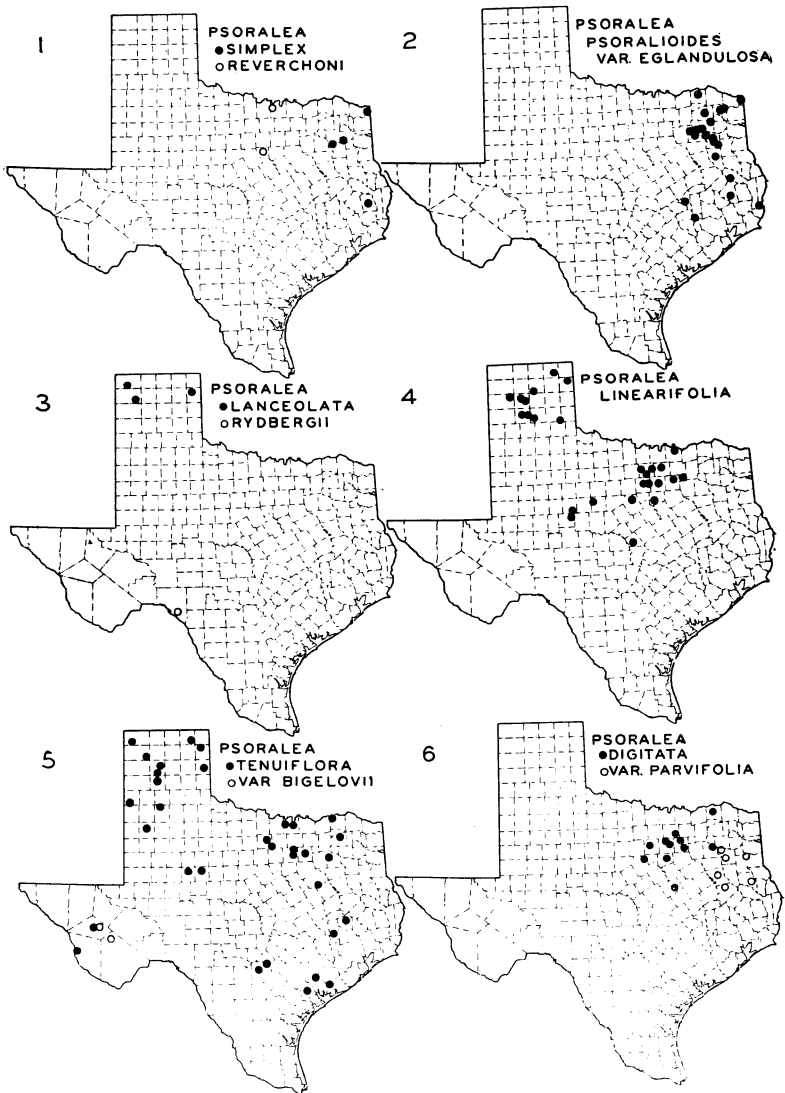
1. *P. SIMPLEX* Nutt. ex T.&G., Fl. N.A. 1: 303. 1838. "Plains of Red River, Arkansas [Territory], *Nuttall!* Texas, *Drummond!*" *Orbexilum simplex* (Nutt.) Rydb., N. Amer. Fl. 24: 6. 1919. *Psoralea palustris* Bush, Ann. Rept. Mo. Bot. Gard. 17: 121. 1906. TYPE: swamps, Lindale, Smith Co., Texas, *J. Reverchon 3175*, May 15, 1902 (Mo).—Damp sandy soils, pine region of eastern Texas (Map 1); local and rather rare. Flowering mid- and late May. Corolla deep purple. The name *Psoralea palustris* was originally coined by Reverchon, whose herbarium labels give extensive notes on what he took to be an undescribed species. Name and notes were published by Bush without acknowledgment of their source. The piracy was in vain; the species had been described nearly seventy years earlier by Nuttall, and published for him by a more ethical generation of botanists.

2. *P. PSORALIOIDES* (Walt.) Cory var. *EGLANDULOSA* (Ell.) Freeman, *Rhodora* 39: 426. 1937. *Psoralea pedunculata* (Mill.) Vail (in large part), Bull. Torr. Bot. Club 21: 114. 1894. (Not *P. pedunculata* Poir., 1816) *Orbexilum pedunculatum* (Mill.) Rydb., (in large part) N. Amer. Fl. 24: 7. 1919.—Widespread and locally very common, sandy soils of oak and pine belts of eastern Texas, west to Van Zandt and Brazos counties (Map 2). Flowering mid April-May. Corolla lilac or lavender.

3. *P. LANCEOLATA* Pursh, Fl. Am. Sept. 2: 475. 1814. "On the banks of the Missouri." *Psoralidium lanceolatum* (Pursh) Rydb., N. Amer. Fl. 24: 13. 1919. *Psoralea micrantha* Gray ex Torr., Rept. Explor. ... (Pacific R.R. Surveys) 4: 77-78. 1857. "Sand hills, near the last camp on the upper Canadian" [Dr. J. M. Bigelow]. *Psoralidium micranthum* (Gray) Rydb., l.c.—Sandy soils, northern part of the Panhandle (Map 3). Flowering June. Corolla very pale blue or bluish lavender, nearly white.

4. *P. LINEARIFOLIUM* T.&G., Fl. N.A. 1: 300. 1838. "Arkansas [Territory], *Beyrich!*" *Psoralidium linearifolium* (T.&G.) Rydb., N. Amer. Fl. 24: 14. 1919. *Psoralea linearifolia* var. *robusta* Coulter, Contrib. U.S. Nat. Herb. 1: 34. 1890. TYPE: Clarendon, Donley Co., Texas, G. C. Nealley, in 1888 (U.S. Nat. Herb.; not seen). *Psoralidium linearifolium* var. *palodurensense* Tharp & Barkley (as *palodurensis*), Bull. Torr. Bot. Club 73: 132. 1946. TYPE: Palo Duro Canyon, Randall Co., Texas, Tharp 5767, June 15, 1929 (T). *Psoralidium linearifolium* var. *texense* Tharp & Barkley (as *texensis*), l.c. TYPE: Sherman Lake, Grayson Co., Texas, Tharp, June 15, 1939 (T).—Prairies or open ground, especially characteristic of calcareous rock outcrops (though growing also in sandy soil), in the Panhandle and north-central Texas from Grayson, Rockwall, Ellis, and Mills counties westward; seemingly avoiding the area of Permian Red Beds (Map 4). Flowering late May-June, sporadically later. Corolla opening violet-blue, quickly fading nearly to white. *Beyrich* is known to have botanized in central Oklahoma (part of the "Arkansas Territory" of his day), and it is most probable that the type of this species came from that area. Tharp and Barkley, apparently assuming that the type locality was in the present state of Arkansas, remark that the typical variety enters Texas in the northeast corner. I have seen no specimens from farther east than the counties listed, over 100 miles west of the Arkansas border.

5. *P. TENUIFLORA* Pursh, Fl. Am. Sept. 2: 475. 1814. "On the banks of the Missouri. *M. Lewis.*" *Psoralidium tenuiflorum* (Pursh) Rydb., N. Amer. Fl. 24: 15. 1919. *Psoralea floribunda* Nutt. ex T.&G., Fl. N.A. 1: 300. 1838. "Plains of the Arkansas and Platte, nearly to the Rocky Mountains, *Nuttall!* Arkansas, *Dr. Pitcher!* and *Dr. Leavenworth!*



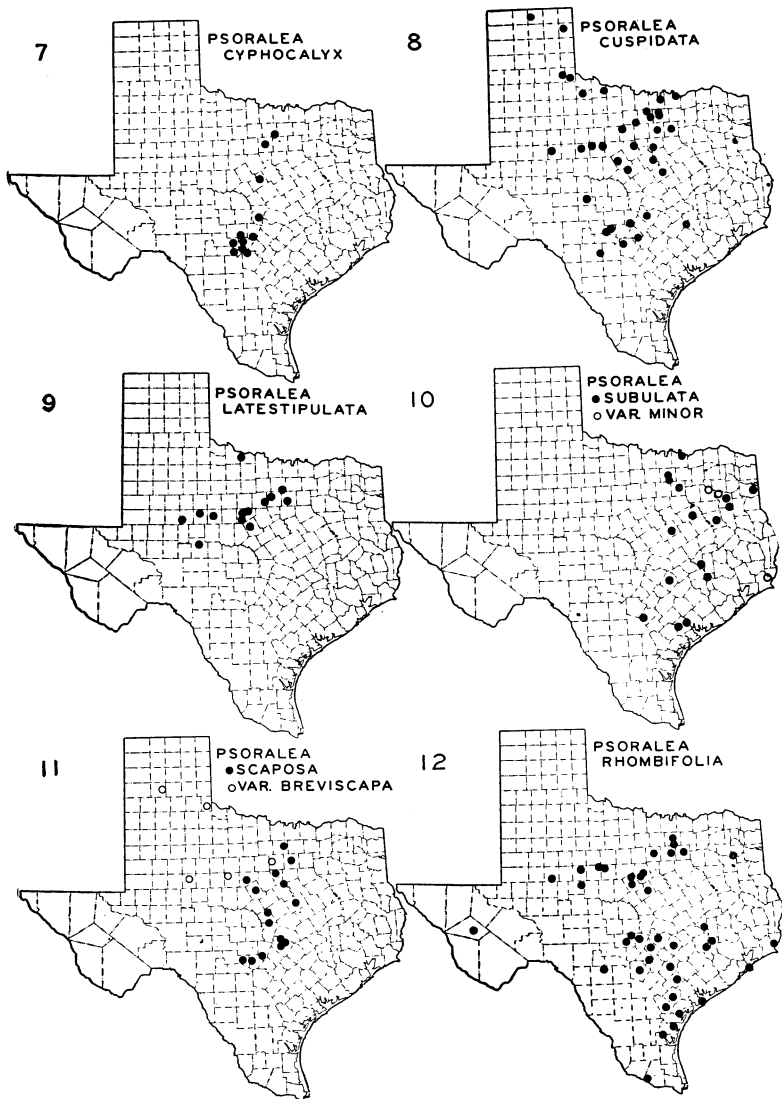
Illinois, Mr. Buckley!" *Psoralea tenuiflora* var. *floribunda* (Nutt.) Rydb., Fl. Nebr. 21: 55. 1895. *Psoralea obtusiloba* T.&G., Fl. N.A. 1: 300. 1838. "Texas, Drummond!" *Psoralea tenuiflora* var. *obtusiloba* (T.&G.) Wats., Bibl. Index (Smithsonian Misc. Coll. 15): 255. 1878. *Psoralidium obtusilobum* (T.&G.) Rydb., N. Amer. Fl. 24: 16. 1919. *Psoralidium Youngiae* Tharp & Barkley, Bull. Torr. Bot. Club 73:

131-132. 1946. TYPE: Midfield, Matagorda Co., Texas, *Tharp*, April 7, 1939 (T).—One of our most widespread species, rather common and variable; absent only from the extreme eastern and southern parts of the state (Map 5). The variations are so freely intergrading, and the extremes so poorly segregated geographically (except var. *Bigelovii*, below), that they scarcely seem worthy of recognition; certainly they would be weak varieties at most. The southernmost form has rather broad leaflets, approaching var. *Bigelovii*. The general area in which this occurs was botanized by Drummond, and also includes the type locality of *Psoralidium Youngiae*. The latter and *Psoralea obtusiloba* (based on a Drummond specimen) are undoubtedly the same. Flowering May-July, sporadically later. Corolla violet-blue or purple-blue.

5b. *P. TENUIFLORA* var. *BIGELOVII* (Rydb.) Macbride, Contrib. Gray Herb. 65: 14. 1922. *Psoralidium Bigelovii* Rydb., N. Amer. Fl. 24: 15-16. 1919. "Type collected at the Copper Mines [Santa Rita del Cobre], New Mexico, 1850, *Bigelow* [Mex. Bound. Surv.] 218 (herb. N.Y. Bot. Gard.)" (not seen). *Psoralea Bigelovii* (Rydb.) Tidestrom, Contrib. U.S. Nat. Herb. 25 (Fl. Utah & Nev.): 304-305. 1925.—Occurring from Trans-Pecos Texas (Map 5) westward to Arizona. In Texas and New Mexico intermediates between species and variety occur, and were it not for the exclusive occurrence of the latter farther west, its recognition might not be justified.

6a. *P. DIGITATA* Nutt. ex T.&G., Fl. N.A. 1: 300. 1838. "Sandhills of the Red River, Arkansas Territory, *Nuttall! Dr. Leavenworth!* Western parts of Arkansas [Territory], *Beyrich!*" *Psoralidium digitatum* (Nutt.) Rydb., N. Amer. Fl. 24: 16. 1919.—Sandy soils, East and West Cross Timbers, river terraces, and Oak Belt bordering eastern pine area, north central Texas (Map 6). Flowering late May-early July. Banner pale grayish or bluish lavender, wings blue-violet; keel covered.

6b. *P. DIGITATA* var. *parvifolia* Shinnery, var. nov. Foliola angustiora linearia, foliorum mediorum inferiorumque 1.5-3 mm. lata. TYPE: 1¼ miles northwest of Lindale, Smith Co., Texas, *Shinnery 11174*, May 15, 1949 (SMU).—Sandy oak and pine woods, northeast Texas. Seven additional col-



lections have been seen. ANDERSON Co.: sandy ground north of Palestine, *H. Eggert*, June 8, 1899 (Mo). HENDERSON Co.: without locality, *Tharp*, June 6, 1932 (T). HOUSTON Co.: Grapeland, *E. J. Palmer 12075*, May 28, 1917 (Mo). LIMESTONE Co.: without locality, *Tharp*, July 2, 1924 (T). NACOGDOCHES Co.: 5½ miles south of Nacogdoches, *Cory 56753*, July 10, 1949 (SMU). RUSK Co.: 5¼ miles northwest of

Tatum, *Cory* 56449, July 6, 1949 (SMU). SMITH Co.: 3 miles west of Tyler, *Cory* 56220, May 21, 1949 (SMU). The Henderson and Limestone County records are not mapped; both would be just west of those shown.

7. *P. CYPHOCALYX* Gray, Boston Journ. Nat. Hist. 6 (Pl. Lindh. II): 172-173. 1850. TYPE: "Rocky prairies on the Cibolo and Piedernales," Texas, *Lindheimer exs.* 593 (isotypes Mo, SMU). *Pediomelum cyphocalyx* (Gray) Rydb., H. Amer. Fl. 24: 19. 1919.—Restricted endemic of the southeastern border of the Edwards Plateau, extending northward on outcrops of similar calcareous rocks to southeastern Wise County (Map 7). Flowering late May-June. Color of dried specimens similar to that of *P. cuspidata*; no color notes on fresh flowers available.

8. *P. REVERCHONI* Wats., Proc. Amer. Acad. 21: 447-448. 1886. "Collected by J. Reverchon in 1877 on rocky prairies in Hood and Johnson Counties, western Texas, and distributed in Curtiss's sets as *P. cyphocalyx*" (isotype, Mo; probable topotypes collected by Reverchon at Station Creek, HOOD Co., (Mo, SMU). *Pediomelum Reverchoni* (Wats.) Rydb., N. Amer. Fl. 24: 19. 1919.—Restricted endemic of north central Texas and central Oklahoma, on limestone outcrops (Map 1). Flowering July. Corolla lavender (noted on one collection).

9. *P. CUSPIDATA* Pursh, Fl. Am. Sept. 2: 741. 1814. "In Upper Louisiana. *Bradbury*." (Probably in present Dakotas.) *Pediomelum cuspidatum* (Pursh) Rydb., N. Amer. Fl. 24: 19. 1919. *Pediomelum caudatum* Rydb., l.c. 19-20. TYPE: sandy soil, Dallas Co., Texas, *Reverchon (Curtiss, 1st Distrib. N. Am. Pl. 563**)*, May (isotype, Mo; topotypes, almost exclusively from calcareous soils, SMU). *Psoralea caudata* (Rydb.) Cory, Rhodora 38: 406. 1936. *Pediomelum Parksii* Tharp & Barkley, Madrono 8: 49. 1945. TYPE: Childress Co., Texas, *Biology Class*, July, 1929 (T).—Common in calcareous prairies, less often in sandy soil, throughout central Texas and the Panhandle, the southern and eastern limits approximately coinciding with those of the Edwards Plateau and Blackland Prairie, excepting an isolated locality in northwestern Waller County (Map 8). Variable, but the variations even less worthy of nomenclatorial recognition than those of *P. tenuiflora*. Flowering

April (south), late April-May (north Texas), May-early June (Panhandle). Corolla purple-blue to light violet-blue; flowers sometimes with strong sweet scent of alfalfa or sweet clover.

10. *P. latestipulata* Shinnery, sp. nov. *P. esculentae* affinis, differt praecipue stipulis latioribus obtusis vel subacutis cum foliolis calycibusque conspicue resinoso-punctatis, pedunculis abbreviatis 0.7-4.8 cm. longis. TYPE: dry caliche slopes, NW $\frac{1}{4}$ Sec. 31, S.P.R.R. Block 17 [24 airline miles southwest of Colorado City], Mitchell Co., Texas, *Richard W. Pohl 4817*, April 16, 1945 (SMU).

Root tuberous-enlarged 3-5 cm. below the surface of the ground, napiform or fusiform-globose, 1.5-3.2 cm. thick. Stem erect, 7-18 cm. high above ground, densely spreading-hirsute with white, somewhat curled or deflexed hairs. Leaves 4-6, crowded below and in the inflorescence. Stipules somewhat chartaceous, oblong-lanceolate or oblong-ovate, 3-7 mm. wide by 7-12 mm. long, obtuse or broadly acute, yellowish basally, green apically, glabrous or nearly so and conspicuously resinous-punctate on both surfaces, densely hispid-ciliate. Petioles 1.5-7 cm. long, rather sparsely spreading-hirsute. Leaflets 4-7, oblanceolate or oboval, 2.5-6.5 times as long as wide (5-11 mm. wide by 13-48 mm. long), obtuse or broadly acute; lower surface sparsely strigose, punctate, prominently veined; upper surface glabrous, densely and prominently black-punctate, the veins (except the impressed midrib) not prominent. Peduncles shorter than the leaves (0.7-4.8 cm. long in flower), rather sparsely to densely hirsute partly with spreading and partly with upwardly appressed hairs. Flowers in short dense spike-like racemes 2-5 cm. long, eventually about equalling the peduncle. Bracts ovate or ovate-lanceolate, acute, similar to the stipules in texture, indument, and coloration or usually more purpletinged, deciduous. Pedicels 1-2 mm. long. Calyx gibbous in flower, divided about half way (tube 6-8 mm. long, unequal lobes 5-8 mm. long), sparsely hirsute or glabrate, conspicuously dark-punctate, especially on the narrowly deltoid-lanceolate or linear-lanceolate lobes, the latter densely hispid-ciliate. Fruiting calyx enlarged, exceeding the pod. Legume thin-walled, glabrous, resin-dotted, about 6 mm. long with a nearly straight beak 5 mm. long; seed oval, turgid, black, 3 x 4 mm.

Very distinct from *P. esculenta* Pursh, for which it has passed. The latter species, occurring as far south as Murray County, Oklahoma, has elongating stems often with many leaves; narrowly deltoid-lanceolate to linear-lanceolate, acuminate or gradually acute, pubescent or canescent stipules; ultimately elongate peduncles exceeding the inflorescence, up to 10 cm. or more long; leaflets canescent beneath, glabrous above, not punctate; calyx lobes green, not punctate. *Psoralea latestipulata* is an apparently localized endemic of calcareous rock outcrops in north central Texas, from the Grand Prairie westward (Map 9). The following additional specimens have been seen:

BROWN Co.: "western plains," *Reverchon 1267*, April, 1882 (Mo). COMANCHE Co.: Round Top Mountain, north of Comanche, *Eggert*, May 9, 1900 (Mo). EASTLAND Co.: 3 miles north of Ranger, *Culwell & Timmons 3090*, April 29, 1939 (T). Rising Star, *Ward School*, April 10, 1931 (T). PALO PINTO Co.: Brazos, *Brazos School*, April, 1931 (T). PARKER Co.: without locality, *G. C. Broadhead*, no date or number (Mo). TARRANT Co.: 2 airline miles southwest of Benbrook, *Cory 54394*, May 7, 1948 (SMU). TOM GREEN Co.: San Angelo, *Reverchon*, May 19, 1903 (Mo). WICHITA Co.: 1.6 miles west of Electra, *Whitehouse 9772*, May 1, 1945 (SMU). WISE Co.: near Marine Camp at Newark, *Whitehouse 15152*, April 6, 1946 (SMU).

11a. *P. SUBULATA* Bush, Ann. Rept. Mo. Bot. Gard. 17: 120. 1906. TYPE: uncommon in sand, Dallas, Texas, *Reverchon 697*, May 10, 1900 (Mo). *Pediomelum subulatum* (Bush) Rydb., N. Amer. Fl. 24: 20. 1919.—Sandy oak and pine woods, eastern Texas, west to Denton, McLennan, and Wilson counties (Map 10). Flowering late March-early May. Wings and keel purple-tipped, standard violet-blue with white base (notes from one specimen).

11b. *P. SUBULATA* var. **minor** Shinnery, var. nov. Planta tota minor foliolis (nisi foliorum primorum) 1-1.5 cm. latis, 3-3.2 cm. longis. TYPE: sandy hillside oak woods 10 miles east of Wills Point, Van Zandt County, Texas, *Shinnery 11024*, April 29, 1949 (SMU).—Restricted endemic, east Texas (Map 10). When first collected, this was thought to be a distinct species, but in the herbarium the only difference between it and *P. subulata* appears to be size. Flower color may be an important distinguishing characteristic, but unfortunately only one detailed description of fresh flowers of each is available. The variety has keel and wings purple, the banner white with purple-streaked center. The following additional collections have been seen: SMITH Co.: Lindale,

Reverchon, April 23 (Mo). 1½ miles northwest of Lindale, *Shinners 11177*, May 15, 1949 (SMU). ANGELINA CO.: Pine Island, *Reverchon*, May 5, 1903 (Mo).

12a. *P. SCAPOSA* (Gray) Macbride, Contrib. Gray Herb. 65: 15. 1922. *P. hypogaea* var. *scaposa* Gray, Boston Journ. Nat. Hist. 6 (Pl. Lindh. II): 173. 1850. TYPE: Hills on the Piedernales, near Fredericksburg, Gillespie Co., Texas, *Lindheimer exs. 594* (isotype, Mo). *Pediomelum scaposum* (Gray) Rydb., N. Amer. Fl. 24: 21. 1919. *Pediomelum Goughiae* Tharp & Barkley (as *Goughae*), Madrono 8: 50-52. 1945. TYPE: Stephenville, Erath Co., Texas, *Lula C. Gough*, April 12, 1921 (T).—Limestone outcrops, the distribution almost exactly coinciding with that of *P. cyphocalyx*, following the eastern border of the Edwards Plateau and similar rock outcrops north to Wise County (Map 11). Flowering April-early May. Corolla purple (banner sometimes paler or white-margined). The type of *Pediomelum Goughiae* is a freak form of this species in which some of the leaves have an extending rachis beyond the usual group of leaflets, terminating in three sessile smaller leaflets.

12b. *P. SCAPOSA* var. *breviscapa* Shinners, var. nov. Scapi abbreviati 1-3 cm. longi, foliis valde breviores. TYPE: 6 miles west of Weatherford, sandy roadway, Parker Co., Texas, *Shinners 10190*, May 30, 1948 (SMU; fruiting).—Sandy soils, West Cross Timbers westward (Map 11). I agree with Macbride and Rydberg that Gray's var. *scaposa* is specifically distinct from *P. hypogaea* Nutt. The latter is a localized species of eastern Colorado and adjacent New Mexico and Wyoming, with nearly oblong or linear leaflets up to 9 mm. wide and 46 mm. long, wider near base or of uniform width, and lower lobe of fruiting calyx about 3.5-3.8 mm. wide. In *P. scaposa* and var. *breviscapa*, of Oklahoma and Texas, the leaflets are broadly lanceolate or elliptic-oblong, up to 14 mm. wide and (rarely) 46 mm. long, widest near middle, and lower lobe of fruiting calyx about 4-4.5 mm. wide. Short scapes are found in *P. hypogaea* and in *P. scaposa* var. *breviscapa*, but the latter is otherwise similar to *P. scaposa*, except in its preference for sandy soils. The following additional collections have been seen:

OKLAHOMA. TILLMAN Co.: Frederick, *Mrs. J. F. Duncan*, 25, July 6, 1903 (Mo). WOODS Co.: near Fairvalley, *G. W. Stevens 754*, May 28, 1913 (Mo). TEXAS. CALLAHAN Co.: Clyde, *Palmer 13824*, May 30,

1918 (Mo). CHILDRESS Co.: no locality, *Childress School*, March, 1930 (T). MITCHELL Co.: S.E. $\frac{1}{4}$ Sec. 34, J. P. Smith Survey, *Pohl 4854*, April 25, 1945 (SMU). At waterworks, Colorado City, *Pohl 4969*, June 7, 1945 (SMU). RANDALL Co.: Palo Duro Canyon, Harding Ranch, *Tharp*, June 15, 1929 (T).

13. P. RHOMBIFOLIA T.&G., Fl. N.A. 1: 303. 1838. "Texas, *Drummond!*" *Pediomelum rhombifolium* (T.&G.) Rydb., N. Amer. Fl. 24:23. 1919. *Pediomelum Coryi* Tharp & Barkley, Madrono 8: 54-56. 1945. TYPE: Katherine, Willacy Co., Texas, *W. L. Bray & H. H. York 5*, March 22, 1907 (T).—Sandy soils, nearly throughout the state, absent from the Panhandle and rare in the Trans-Pecos (Map 12). New shoots are usually more pubescent than older ones, and the canescence is occasionally persistent. Specimens have been seen from widely scattered localities similar to the type of *Pediomelum Coryi*, which I consider to be merely a growth form of *Psoralea rhombifolia*. Flowering March-July. Corolla rust-brown or scarlet-brown, unique among our species of this genus.

14. P. RYDBERGHII Cory, *Rhodora* 38: 405. 1936. *Pediomelum humile* Rydb., N. Amer. Fl. 24: 24. 1919 (Not *Psoralea humilis* Mill., 1768.) "Type collected in the valley of the Rio Grande near Piedras Negras, Coahuila, April 19, 1910, *Pringle 9205* (U.S. Nat. Herb. no. 381823). DISTRIBUTION. Type locality and San Felipe, Texas." (The latter is not the town of San Felipe in Austin County, famous as the San Felipe de Austin of Berlandier's collections, but the San Felipe Springs or Creek of Charles Wright's collections, near Del Rio, Val Verde County.) Evidently a very rare species (Map 3); only the following collection has been seen. VAL VERDE Co.: rocky (limestone) hills above dam at foot of Devil's Lake, about 20 miles N-NW of Del Rio, *Rogers McVaugh 8261*, May 9, 1947 (SMU).

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