

Menges of the U.S. Public Health Service in Kansas City, Kansas, for autopsy. No gross lesions were found in the viscera of any of the birds. Hearts, livers, gizzards, and lungs were subjected to histo-pathological study and blood smears were made for each bird.

Numerous microfilariae were found, however, in blood smears of all the birds (grackles) examined. As no other infectious agent was observed, it seems that this parasite may have caused the deaths of the birds. No adult worms could be found. The microfilariae were 3.2-4.8 micra in width and 144-149 micra in length. Both ends were blunt, with one end slightly more obtuse than the other. No sheath was evident. The identity of the parasite is at present unknown.—

William B. Stallcup.

OBSERVATIONS ON A PARTIALLY-WHITE ENGLISH SPARROW, *Passer domesticus domesticus* (L.).—Reports in ornithological literature concerning albino- or partially-white birds are not rare. Few of these reports, however, include details of the actual coloration or of the behavior of such individuals.

In Lawrence, Kansas, during the springs of 1951 and 1952, I observed at close range a partially-white English sparrow which came regularly to feed in my yard. Food placed near my window brought the bird close enough to permit accurate observation.

Most of the contour feathers of this individual were white. There was a brownish horizontal stripe through each eye and a faint black wash on the throat and upper breast. The bird was probably a male, for that sex normally possesses black feathers in this area. The primary and secondary feathers were brown, as were also the tail feathers (except for the outermost ones). The wings were very conspicuous against the white body in the resting bird. When the bird took flight, however, they became less conspicuous; and one had the impression of a bird almost completely white. The bill was of normal coloration, as were also the eyes. Feet and legs, however, seemed to lack the normal amount of pigment, and appeared much pinker than those of other sparrows. The song and call were normal.

This bird was observed always in the company of other sparrows. It seemed more attentive than the others to disturbing elements of the environment. It moved about nervously, and was the first to take flight when the flock was disturbed. Although allowed to travel with the flock, it was apparently low in the social order, being chased by the other birds and always giving ground under such circumstances.

On several occasions during the summer of 1951, I saw the bird at a distance, but was not able to determine whether it had been able to obtain a mate and nest. I did not see it again after the spring of 1952.

—William B. Stallcup.

## The Bluebonnets (Lupinus) of Texas

Lloyd H. Shinnery

By act of the legislature, *Lupinus subcarnosus* was designated the official state flower of Texas. Most of the bluebonnets in the state are thereby excluded from recognition as state flowers, a consequence of lack of sufficient taxonomic study. When the conservative opinions of a Sereno Watson and the exceedingly liberal ones of a Charles Piper Smith agree in treating our two most widespread annual species as a single one, it may seem ultra-Rafinesquian to resurrect any names from synonymy. Nevertheless there are several

distinct (albeit closely related) species in Texas, as indicated in the key and notes below. Surprisingly, there are large portions of the state with no native bluebonnets. The northeasternmost record of *Lupinus texensis* (in Titus County) represents an obvious escape from cultivation.

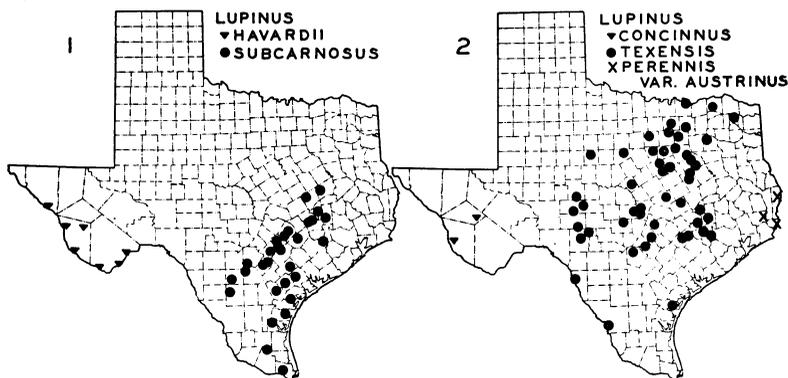
In addition to field observations, this synopsis is based on collections in the Herbarium of Southern Methodist University, the Tracy Herbarium of Texas A. & M. College, and the Herbarium of the University of Texas. I am indebted to Dr. F. W. Gould for the loan of material from the Tracy Herbarium; and to Dr. B. C. Tharp for courtesies shown on several visits to Austin, and especially for helpful suggestions on the field recognition of *Lupinus subcarnosus* and *L. texensis*.

#### KEY TO SPECIES

- 1a. Pubescence of stem and petioles spreading at right angles; leaflets long-hairy on both surfaces (*Concinni*).....1. *L. concinnus*
- 1b. Pubescence of stem and petioles mainly or all ascending or appressed; leaflets sparsely hairy or glabrous on upper surface
  - 2a. Winter annual from a taproot; pedicel equalling or exceeding calyx in fully opened flowers (*Subcarnosi*)
    - 3a. Racemes (including peduncle) 18-45 cm. long, plant 25-70 cm. high or more; seeds nearly square, maximum diameter 3.0-3.5 mm.; eye spot of banner creamy white with greenish to brownish yellow dots, changing through yellow with red dots to dark red; Trans-Pecos Texas.....2. *L. Havarði*
    - 3b. Racemes (including peduncle) 8-25 cm. long, plant 12-40 cm. high; seeds ovoid or rhombic-ovoid to reniform, 4-5 mm. long; eye spot of banner bright white with greenish yellow dots, changing through yellowish to red; Edwards Plateau eastward and southward
      - 4a. Calyx 5.0-6.5 mm. long; pubescence on axis of inflorescence and pedicels mixed, partly widely spreading; pubescence of flower buds yellowish gray, dull, tip of incompletely expanded raceme not very conspicuous from a distance; longer hairs on underside of leaflets 1.5-2.5 mm. long; leaflets mostly obtuse or rounded or even indented at apex; loose sandy or sandy clay soils, oak and pine areas, south-central Texas, rarely in cultivation.....3. *L. subcarnosus*
      - 4b. Calyx 6-8 mm. long; pubescence of axis of inflorescence and pedicels all or nearly all closely ascending or loosely appressed; pubescence of flower buds silvery or white, tip of incompletely expanded raceme conspicuous from a distance; longer hairs on underside of leaflets 0.5-1.75 mm. long; leaflets obtuse to acute or apiculate at apex; calcareous gravelly or clayey or sandy clay soils, central Texas from the Red River to the Gulf, also commonly planted and established along roadsides, railroads, and in yards.....4. *L. texensis*
  - 2b. Perennial forming clumps from branched oblique or creeping rootstocks; pedicel  $\frac{1}{3}$ - $\frac{2}{3}$  as long as calyx in fully opened flowers (*Perennes*)
    - 5a. Petioles with appressed silvery or gray hairs; Panhandle area  
—5. *L. plattensis*
    - 5b. Petioles with spreading or ascending reddish or brown hairs; Big Thicket area, southeastern Texas  
—6. *L. perennis* var. *austrinus*

1. *L. CONCINNUS* Agardh, Syn. Gen. Lup. 6. 1835. (*Fide* C. P. Smith, 1921; original reference not seen.) Davis and Chinati Mountains; early April. Keel red-tipped, wings lavender-tipped, standard centrally white with lavender sides and an inverted "V" of yellow spots. (Color notes from one collection, *McVaugh 7853*, SMU.)

2. *L. HAVARDII* S. Wats., Proc. Amer. Acad. 17: 369. 1882. (As *Havardi*.) "Hills near Presidio, W. Texas; Dr. V. Havard, U.S.A., May, 1881." (Type not seen.) Sandy and gravelly soils at low elevations, Trans-Pecos Texas, chiefly near the Rio Grande; flowering mainly late February-April. Petals deep blue or purplish blue, banner with creamy eye spot and greenish or brownish yellow dots, changing through yellow with red dots to dark red.



3. *L. SUBCARNOSUS* Hook., Bot. Mag. 63; t. 3467. 1836. "Specimens exist in my Herbarium, which were collected at Bejar [San Antonio, Bexar County] in Texas, by M. BERENDIER [Berlandier] in 1828. It has been gathered most abundantly by Mr. DRUMMOND, between Brazoria [Brazoria County] and San Felipe [Austin County], particularly about the latter place." Described as having retuse leaflets, but pictured with subacute ones. It is possible that Hooker had more than one species among the collections mentioned, but his description leaves no doubt as to the application of the name *subcarneus*, despite the inaccurate illustration. South-central and southernmost Texas, north locally to Leon County, rarely in cultivation; March-April. Strictly speaking, this is the sole official state flower, though it is of more restricted range than *L. texensis*, and is not the species most commonly cultivated, or planted by the State Highway

Department, railroad companies, and other groups.

4. *L. TEXENSIS* HOOK., Bot. Mag. 63; t. 3492. "Texas; . . . at San Felipe [Austin County] in the interior." Rocky or clayey prairie soils, principally in the Blackland and Grand Prairies and Edwards Plateau, locally on small areas of similar soils in the central and outer Coastal Plain, and extending into adjoining sandy clay areas; also very commonly cultivated and escaped. Flowering late March (southern part of range) or April-May. Flowers larger than in *L. subcarnosus*, with white eye spot of banner slightly smaller in proportion.

5. *L. PLATTENSIS* S. Wats., Proc. Amer. Acad. 17: 369. 1882. Based on *L. ornatus* var. ?*glabratus* S. Wats., l.c. 8: 528. 1873. "Common in the Rocky Mountains of Colorado." In Watson's Bibliographic Index (Smithsonian Misc. Coll. 15), p. 240, 1878, reference is made to "Porter, Fl. Colo. 10." Porter & Coulter, Fl. Colo. p. 19, 1874, give a short description and cite *Hall & Harbour 95*, which therefore must be regarded as the type (not seen). This species has not so far been collected in Texas, but has been found in an adjoining county in the Oklahoma Panhandle: 7 miles southeast of Boise City, Cimarron Co., *Beryl & Holger Jespersen 2717*, 24 June, 1945 (SMU). The specimen shows both flowers and fruit, the former described as "pale blue."

6. *L. PERENNIS* L. var. *austrinus* Shinnery, var. nov. A specie differt pedicellis brevioribus 1-4 mm. longis, pilis pedicellorum petiolorumque longioribus. TYPE: Orange, Orange County, Texas, *Curtis School No. 21*, April 25, 1931 (in Herb. University of Texas). Known from two other collections, both in the Tracy Herbarium. HARDIN Co.: 7 miles southeast of Silsbee, Lost Lake, *Parks & Cory 22326-27*, May 15, 1937. NEWTON Co.: Newton, *Vines & Winkler*, May 6, 1934. In var. *perennis* the pedicels are 4-6 mm. long, with short ascending hairs, and the petioles are short-hairy; in var. *occidentalis* S. Watts. the pedicels are of the same length, with widely spreading long hairs, and the petioles are long-hairy; in the variety here described the pedicels are 1-4 mm. long, with long ascending hairs, and the petioles are long-hairy. According to Fassett (1939), neither of the previously named varieties occurs nearer to Texas than Illinois or Georgia, but the species has been reported from Tangipahoa, southeastern Louisiana (Cocks, 1910). Records

of "occasional clumps" of *Lupinus texensis* in western Louisiana (Dormon, 1934) may have been based on plants of *L. perennis* var. *austrinus*.

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Synopsis of the Genus *Brazoria* (Labiatae)

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Little detailed and precise information is available about the many endemic flowering plants of Texas. Certain distribution patterns appear repeatedly among them, as may be seen in the maps of the species of *Lupinus* and those of *Brazoria*. Much more collecting must be done before a general account of Texas endemics can be given, but some of the more showy and easily collected ones are well enough represented by available specimens so that some account of them can be given now. Such information may offer some suggestions about future field work; it is hoped that it may also be an inducement to more such. The maps are based on specimens at the Missouri Botanical Garden, Southern Methodist University, and the University of Texas. Grateful acknowledgment is made the various curators for their courtesies.

BRAZORIA Engelm. & Gray, Boston Journ. Nat. Hist. 5: 255-256. 1845. Reprinted in *Plantae Lindheimerianae* part I, pp. 47-48. TYPE SPECIES: *B. truncata* (Benth.) Engelm. & Gray, the only one assigned to Subgenus *Eubrazoria* by the authors of the new genus. Closely related to *Physostegia*; differing in having a calyx that becomes inflated and 2-lipped in fruit.

## KEY TO SPECIES

- 1a. Stem glabrous toward base; corolla 9-14 mm. long; plant of calcareous rocky or clayey soils.....1. *B. scutellarioides*
- 1b. Stem pubescent or hispidulous to base; corolla 13-28 mm. long; plant of sandy or sandy clay soils
- 2a. Stems rather evenly leafy, with 5-8 pairs of stem leaves below the inflorescence; basal leaves withering early; lower stem