

1987

## Astralagus ertterae (Fabaceae), a New Species from the Southern Sierra Nevada

Rupert C. Barneby  
*New York Botanic Garden*

James R. Shevock  
*California Academy of Sciences*

Follow this and additional works at: <http://scholarship.claremont.edu/aliso>



Part of the [Botany Commons](#)

---

### Recommended Citation

Barneby, Rupert C. and Shevock, James R. (1987) "Astralagus ertterae (Fabaceae), a New Species from the Southern Sierra Nevada," *Aliso: A Journal of Systematic and Evolutionary Botany*: Vol. 11: Iss. 4, Article 13.  
Available at: <http://scholarship.claremont.edu/aliso/vol11/iss4/13>

*ASTRAGALUS ERTTERAE* (FABACEAE), A NEW SPECIES FROM  
THE SOUTHERN SIERRA NEVADA

RUPERT C. BARNEBY  
*New York Botanic Garden  
Bronx, New York 10458-9980*

AND

JAMES R. SHEVOCK  
*Department of Botany  
California Academy of Sciences  
San Francisco, California 94118-9961*

ABSTRACT

*Astragalus ertterae*, a new species from pinyon pine woodlands, southern Sierra Nevada, Kern County, California, is described and illustrated. This remarkable new species is morphologically closest to *A. bicristatus* in sect. *Bicristati* but differs in its dwarf stature, pilose indumentum, short peduncles, somewhat smaller flowers, and especially in a pod only half as long and proportionately twice as plump.

Key words: *Astragalus*, Fabaceae, Sierra Nevada, taxonomy, plant systematics.

---

INTRODUCTION

The exceedingly rare *Astragalus* being described here was first encountered on 14 May 1982 by the second author along a newly constructed section of the Pacific Crest Trail south of Walker Pass, Scodie Mountains, Sequoia National Forest. At that time the plants were just beginning to break dormancy and no collection was made. The species was seen again on 21 April 1986 by the second author and Barbara Ertter along the Pacific Crest Trail north of Walker Pass during a plant collecting expedition along the crest of the southern Sierra to Mt. Jenkins.

TAXONOMY

***Astragalus ertterae* Barneby & Shevock, sp. nov.**

Fig. 1

Affinis ut videtur *A. bicristato*, a quo pube pilosula (nec subapresse strigulosa), caulibus nanis 3.5-9 (nec 20-40) cm longis, foliis omnibus petiolatis (nec superioribus sessilibus), pedunculis plerumque 3-5 (nec 5-12) cm longis, floribus minoribus (calyce 5.5-6, nec 8-10 mm, carina  $\pm$ 8-9, nec 12-13 mm longis) et praesertim legumine subdimidio breviori pro rata latiore, 16-22  $\times$  7-9 (nec 20-43  $\times$  5-6) mm basi in stipitem multo breviorum 1-2 (nec 6-12) mm longum contracto et dorso ad medium versus depresso (nec alte carinato) diversissima.

Small cryptophytic perennial herbs with woody taproot and very short buried caudex, the 2-6 stems 3.5-9 cm long, pallid and leafless through 1.5-6 cm, above ground procumbent reddish and bearing at or beyond middle  $\pm$ 4-5 crowded leaves and 1-2(-3) peduncles, the aerial parts, except for glabrous petals and pod, pilose with fine erect basifixed hairs up to 0.4-0.8 mm long, the foliage greenish-cinereous, the leaflets sometimes medially glabrescent above, the inflorescence

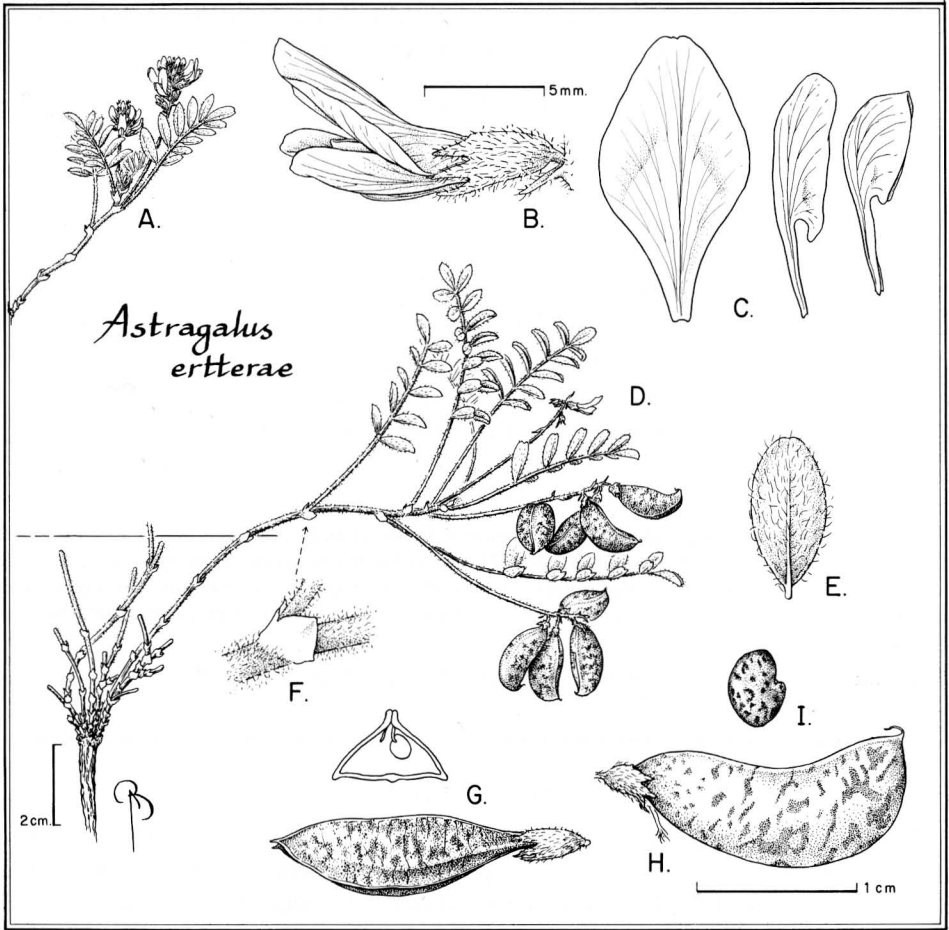


Fig. 1. *Astragalus ertterae*.—A. Flowering stem.—B. Flower.—C. Petals.—D. Fruiting plant.—E. Leaflet (dorsal view).—F. Stipules.—G. Ripe pod in profile and transverse section.—H. Fresh pod.—I. Seed. (A–C, from Shevock & Ertter 11454; D–I, from Shevock 11511.)

black-pilulous. *Stipules* dimorphic, those at subterranean nodes connate into a pallidly membranous cupular sheath 2–3 mm long, those subtending developed leaves subherbaceous often red-tinged, varying from depressed-deltate obtuse to triangular acute, and from fully amplexicaul (but not connate) to semiamplexicaul, the tips often recurved. *Leaves* when fully expanded 3–6.5 cm long, the petiole 15–21 mm long, the rachis commonly a little longer; leaflets 9–13(–14) seldom exactly opposite, subdecreascent distally, the terminal one a little longer than its immediate neighbors, the loosely conduplicate blades elliptic-oblancoelate or narrowly obovate-cuneate, obtuse or submarginate, the longer ones (6–)8–13 × (2–)2.5–5(–7) mm. *Peduncles* (2–)3–5 cm long, procumbent in fruit; racemes densely 7–17-flowered, the axis becoming (1–)1.5–4 cm; bracts membranous, narrowly ovate 1.5–2 mm, persistent; pedicels ascending and arched outward 1–1.5 mm, disjointing with the marcescent calyx and pod; bracteoles 0; calyx ±5.5–6 mm long, the hypanthium 1 mm deep, the campanulate tube 3.5–4.2 × 2–3 mm, the

rather broadly subulate teeth 1.6–2 mm long; petals ochroleucous immaculate; banner recurved through +45°, rhombic-obovate emarginate 10–11.5 × 5.6–7 mm; wings a trifle shorter, the oblanceolate or elliptic obtuse blade 2–2.5 mm wide; keel 8.5–9 mm long, the semiobovate blade incurved 80–90° to obtuse apex; ovary substipitate glabrous; ovules 18–21. *Pod* pendulous or humistrate, continuous with receptacle, shortly stipitate, the stipe 1–2 × 0.8 mm, concealed by marcescent calyx, the body obliquely ellipsoid or oblance-ellipsoid, gently incurved, 16–22 × 7–9 mm, abruptly contracted at each end, apiculate at apex, bluntly trigonous, the shallowly convex ventral suture becoming sharply prominent, the lateral faces low-convex, the lateral angles obtuse, the dorsal face depressed but carinate by the raised, sinuate dorsal suture, the fleshy valves becoming leathery, stramineous or brownish and red-speckled overall, in age sharply reticulate-nervulose, not inflexed; dehiscence apical, through the gaping beak, after falling; seeds in broad profile mitten-shaped 3–3.5 × 2.4–2.7 mm, the brown testa pitted and livid-speckled (Fig. 1).

*Type*.—USA, California, Kern Co.: SW slope of Morris Peak along the Pacific Crest Trail, ca. 3 km N of Walker Pass, crest of the southern Sierra Nevada, 6200 ft (1890 m) T26S, R37E, S9 SW¼ SE¼, 25 May 1986, *James R. Shevock 11511* (Holotype: NY; isotypes: CAS, MO, RSA, UC).

*Paratypes*.—USA, California Kern Co.: type locality, 21 Apr. 1986 (fl), *Shevock & Ertter 11454* (NY); along the Pacific Crest Trail ca. 3 km S of Walker Pass Campground in the Jacks Creek watershed, Scodie Mts., Sequoia Natl. Forest, T26S, R37E, S19 SW¼ NW¼, 5800 ft (1768 m), 8 Jun. 1986 (fr), *Shevock & Norris 11543* (CAS, NY, RSA, UC).

#### DISTRIBUTION, ECOLOGY, AND PHENOLOGY

*Astragalus erterrae* occurs on sandy-loamy, granitic soils, openings in pinyon pine woodlands associated with canyon live oak. Populations are primarily on w-facing slopes between 1768 and 1890 m in the vicinity of Walker Pass, Kern County, California. Flowers are produced in late April to early May shortly after plants break dormancy from overwintering rootcrown. Pods are well developed by late May to early June. Associated species include: *Artemisia tridentata* Nutt., *Balsamorhiza deltoidea* Nutt., *Castilleja martinii* Abrams, *Collinsia callosa* Parish, *Erigeron foliosus* Nutt. var. *covillei* (Greene) Compton, *Eriogonum saxatile* Wats., *Eriogonum umbellatum* Torr. (sensu lato), *Eriogonum wrightii* Torr. ex Benth. subsp. *subscaposum* (Wats.) Stokes, *Erysimum capitatum* (Dougl.) Greene, *Galium* sp., *Lomatium dissectum* (Nutt.) Math. & Const. var. *multifidum* (Nutt.) Math. & Const., *Machaeranthera canescens* (Pursh) Gray, *Monardella linoides* Gray, *Phacelia suffrutescens* Parry, *Purshia tridentata* (Pursh) DC., and *Tauschia parishii* (Coul. & Rose) Macbr.

Although suitable habitats for *Astragalus erterrae* appear to be fairly common in the pinyon pine woodland community along the west slope of the crest, southern Sierra Nevada, field work by the second author since 1982 has documented only two populations. Thus *Astragalus erterrae* appears to be a highly restricted and relatively rare endemic within the southern Sierra Nevada. The distinct features of the pod readily separate this species from other *Astragalus* taxa known for this

area (Twisselmann 1967). *Astragalus ertterae* occurs on federal lands administered by the Bakersfield District, Bureau of Land Management and Sequoia National Forest, USDA-Forest Service.

*Astragalus ertterae* can be compared with *A. bicristatus* A. Gray (sect. *Bicristati* [Barneby 1964]), a species of local dispersal in southern California's transverse ranges in Los Angeles and San Bernardino counties and in the Santa Rosa Mts. in Riverside County. At first sight the resemblance is not a close one, but both species share these technical characters: a subterranean caudex, cupular stipules at the efoliate subterranean nodes, and fleshy pods, leathery when ripe, which are contracted at the base into a true stipe and fall with the disjointing pedicel. In both, the dorsal suture is prominent externally, but not introverted into the pod's cavity. *Astragalus ertterae* differs from *A. bicristatus* in dwarf stature, pilose indumentum, short peduncles, somewhat smaller flowers, and especially in having a pod only half as long and proportionately twice as plump, and depressed on the dorsal face. Consequently, the pod is bluntly trigonous rather than equally carinate by both sutures. Furthermore the ovules are fewer, about 18–21, not 26–34. The less closely related *A. webberi* A. Gray, endemic to the upper Feather River basin in the northern Sierra Nevada, differs not only in greater stature but also in fine satiny indumentum of the leaflets, calyx circumscissile as the fruit matures, and strictly sessile pod. In superficial aspect the pod of *A. ertterae* resembles that of *A. beckwithii* T. & G., but differs fundamentally in being continuous with the receptacle, not jointed to a gynophore. The pod of *A. cimae* M. E. Jones is externally similar, but has a narrow but obvious septum within. In neither of these are the lower stipules connate into a cup, and the resemblances in the fruit, so far as they go, are probably fortuitous.

This species is dedicated, with respect and affection, to Dr. Barbara Ertter, Collections Manager of the University of California (UC) and Jepson Herbaria (JEPS) Berkeley, who participated in its discovery. She is a student of Potentilleae, *Juncus*, Eriogoneae, and a dedicated collector of plants in the western United States.

#### LITERATURE CITED

- Barneby, R. C. 1964. Atlas of North American *Astragalus*. Part 1, Sectio *Bicristati*. Mem. New York Bot. Gard. 13:560–565.
- Twisselmann, E. C. 1967. A flora of Kern County, California. *Astragalus*. Wasmann J. Biol. 25:260–263.