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Rupert C. Barneby  
New York Botanic Garden

James R. Shevock  
California Academy of Sciences

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

RUPERT C. BARNEY
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 subappresse strigulosa), caulibus nanis 3.5–9 (nec 20–40) cm longis, foliis omnibus petiolatis (nec superioribus subsessilibus), pedunculis plerumque 3–5 (nec 5–12) cm longis, floribus minoribus (calyce 5.5–6, nec 8–10 mm, carina ±8–9, nec 12–13 mm longis) et praesertim legumine subdimidio breviore pro rata latiore, 16–22 × 7–9 (nec 20–43 × 5–6) mm basi in stipitem multo breviorem 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 ±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
black-pilosulous. 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-delicate 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, subdecrescent distally, the terminal one a little longer than its immediate neighbors, the loosely conduplicate blades elliptic-oblanceolate or narrowly obovate-cuneate, obtuse or subemarginate, 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, disjonting 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 ob lanceolate 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 sub stipitate 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 ob lance-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; 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 SW1/4 SE1/4, 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 SW1/4 NW1/4, 5800 ft (1768 m), 8 Jun. 1986 (fr), Shevock & Norris 11543 (CAS, NY, RSA, UC).

DISTRIBUTION, ECOLOGY, AND PHENOLOGY

Astragalus ertterae 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 umbel latum 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 (Coult. & Rose) Macbr.

Although suitable habitats for Astragalus ertterae 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 ertterae 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
Astragalus ertterae (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 circumsissile 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**
