New variety of *Astragalus conjuctus* S. Watson from Benton County, Washington

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NEW VARIETY OF ASTRAGALUS CONJUNCTUS S. WATSON
FROM BENTON COUNTY, WASHINGTON

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ABSTRACT.—Discussed are relationships of the species within Astragalus section Conjuncti; A. conjunctus var. rickardii Welsh, Beck, & Caplow var. nov. is proposed.

Key words: Astragalus conjunctus, Conjuncti, Washington.

In 1984 a collection of plants from the Hanford Atomic Energy Plant, taken by Cary Baird, arrived at the herbarium at BRY. Among the specimens were several collections of an Astragalus obviously belonging to the section Conjuncti as proposed by Barneby (1964). The section is characterized by having stipules connate at the lowermost nodes and greatly shortened lower internodes with the upper one or few elongating, the leaves thus disposed in a subbasal tuft (Barneby 1964, Isely 1996). Commonly, most of the plant height is attributable to elongated peduncles and racemes. The Hanford specimens have erect, sessile pods similar to those of all other members of the Conjuncti except for A. leibergii, in which the pods are stipitate.

However, the plants from Hanford have strigulose pods, merely strigose vesture otherwise, banner reflexed through about 45°, and rather short-cylindric calyces. Thus, they do not fit exactly within any of the species outlined in the Atlas of North American Species of Astragalus (Barneby 1964). Dr. Barneby graciously examined the plants and indicated their close relationship with A. conjunctus S. Watson. The present writers concur, though the collections by Baird from 1984 and more recent collections taken by Kathryn Beck and Florence Caplow in 1995 represent a slight northward extension of that species into Washington. Both the Baird and Beck and Caplow materials represent relatively uniform plants taken in 2 main localities in Benton County, Washington, one southwest of Kiona and the other north-northwest of Benton City, on Rattlesnake Ridge in the Hanford Reservation, U.S. Department of Energy (Fig. 1).

Rattlesnake Ridge is within an area established as the Fitzner-Eberhardt Arid Lands Ecology Reserve, a high-quality native shrub-steppe environment.

The Benton County plants were subsequently compared with materials obtained on loan from Oregon State University (OSC, including WILU) through the kindness of Dr. Aaron Liston. The OSC and WILU collections include specimens of all species of section Conjuncti and demonstrate the considerable range of variation within the individual species. Main variation within the species complex involves flower size, pod length/width ratio, and degree of elongation of the upper internodes. The stipe of A. leibergii easily distinguishes it from all other taxa within the Conjuncti, and from such look-alikes as A. sheldonii (Rydberg) Barneby and A. reventus A. Gray, both of which occur adjacent to the range of the Conjuncti phalanx. These latter, both relegated to section Reventi-arrecti (subsection Reventi-arrecti), have similar overall habit, but lowermost stipules are distinct.

A single specimen from OSC (Lawrence 99, 26 June 1917) is similar to the Benton County materials. It is from Wasco County, Oregon, 12 miles southeast of The Dalles, near Rice Station, in a bunchgrass prairie and transition scabland, with the notation “protected from grazing this season.” It is in fruit only. The pods are strigulose as in the Benton County plants and bear the notations A. reventus and A. hoodianus. The specimen’s features are mainly those of A.

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Moderate, subcaulescent or shortly caulescent perennial, 15–65 cm tall, from a superficial branching caudex. **Pubescence** strigulose, basifixed. **Stems** erect or ascending, several to numerous in bushy clumps. **Stipules** 3–10 (11) mm long, at least the lowermost connate-sheathing. **Leaves** (6) 10–30 cm long, mostly in a subbasal cluster; leaflets (9) 13–25 (31), 3–23 mm long, linear-oblong, -elliptic, lanceolate or suboblong, obtuse, acute, or retuse, the terminal one continuous with the rachis, pubescent below and above. **Peduncles** 10–33 cm long; racemes 7–17 (20)-flowered, the flowers ascending to spreading at anthesis, the axis (3) 4–12 (15) cm long in fruit; bracts 2–4.5 mm long; pedicels 1–4.5 mm long; bracteoles 2; calyx (7) 8.5–12 mm long, the tube (5.7) 6–9.2 mm long, 2.5–3.4 mm wide, cylindrical or subcylindric, strigulose-pilosulous, the teeth 1.3–3 (4) mm long, subulate. **Flowers** 16–25.5 mm long, whitish with keel tip and other petals tipped with purple, the banner recurved through ca 45°. **Pods** erect, sessile, oblong-ellipsoid to narrowly oblong-ovoid, straight or slightly incurved, 12–25 mm long, 5–8 mm thick, obt compressed, glabrous or strigulose, subbicondular, the septum to 1.4 mm wide; ovules 23–30.

1. **Calyx** tube cylindrical to subcylindric, 4.9–9.2 mm long; pods glabrous, 5–8 mm thick; plants widespread

2. **Calyx** tube oblong-oblong-ovoid, straight or slightly incurved, 12–25 mm long, 5–8 mm thick; plants local in Benton Co., Washington, and Wasco Co., Oregon

**Astragalus conjunctus var. conjugatus**

A new variety of **Astragalus conjunctus**

[A. reventus var. conjugatus (S. Watson) M.E. Jones; Phaca conjuncta (S. Watson) Piper; Tium conjugatum (Watson) Rydberg.

**Peduncles** 10–33 cm long; racemes 7–17 (20)-flowered, the axis (3) 4–12 (15) cm long in fruit; pedicels 1–4.5 mm long; calyx (7) 8.5–12 mm long, the tube (5.7) 6–9.2 mm long, cylindrical or subcylindric, the teeth 1.3–3 (4) mm long. **Flowers** 16–25.5 mm long. **Pods** 12–25
mm long, 5–8 mm thick, glabrous; ovules 23–30. Type: "In John Day Valley, Oregon (J. Howell, in May, 1880) and on sterile rocky ridges in Baker County, by W. C. Cusick, 1881"; holotype GH!; isotypes ORE, WS; paratypes GH!, ORE.

Meadows, brushy slopes, grasslands, sagebrush desert, and pine forests, on basaltic bedrock, at 485 to 1555 m, from the Blue Mountains, Baker Co., west to the Deschutes River, and south to the Malheur Valley, Steens Mountain, Oregon, and east to Owyhee Co., Idaho.

Astragalus conjunctus var. rickardii
Welsh, Beck, & Caplow, var. nov.

Similis A. conjuncti var. conjuncti in habitu, sed in leguminibus pubescentibus et angustioribus, et floribus minoribus generaliter differit.

Peduncles 5–26 cm long; racemes 10- to 19-flowered, the axis 4–13 cm long in fruit; pedicels 1–2.5 mm long; calyx 7–9 mm long, the tube 4.9–6.2 mm long, campanulate, the teeth 1.5–3 mm long. Flowers (13.2) 14–20.7 mm long. Pods 13–20 mm long, 4.3–5 mm thick, strigulose; ovules 15–20.

Type.—Washington, Benton Co.; T11N, R26E, S30, NW/SW, on northeast-facing slopes of Rattlesnake Mountain, with sagebrush and Sandberg bluegrass, at ca 1036 m, 29 May 1995, Kathryn Beck & Florence Caplow 95083, holotype BRY!, isotypes NY!, US!, WTU!, WS!


Washington, Wasco Co. (see Lawrence 99, cited above).


Relationships within the Conjuncti are problematical, all taxa being closely alike. The taxon proposed here appears to share features of both A. conjunctus and A. reventiformis. The calyx tube proportions are similar to those of the only slightly disjunct A. reventiformis, but the calyx measurements are smaller than for that taxon. Furthermore, proportions of the calyx tube length-width ratio within A. conjunctus in a strict sense differ only in degree from those of var. rickardii. The presence of pubescence in pods within the genus rises and falls but is apparently uniform in the Benton County plants. Pod pubescence is herein considered diagnostic and seems to be correlated with relatively shorter calyces and narrower pods. Some specimens assigned to A. reventiformis from nearby Yakima County (Caplow & Beck 95075, 96003, and Baird 633) have pods absolutely and proportionately as narrow as those of the proposed new variety. The pods in those specimens are, however, glabrous.

The taxon is named in honor of Dr. Bill Rickard, one of those responsible for establishment of the Fitzner-Eberhardt Arid Lands Ecological Reserve.

LITERATURE CITED

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