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## AN UNDESCRIBED *ASTRAGALUS* (LEGUMINOSAE) FROM SOUTHERN UTAH, A NEW SUBSECTION OF THE GENUS, AND VALIDATION OF THE COMBINATION *SPHAERALCEA JANEAE* (WELSH) WELSH

Stanley L. Welsh<sup>1</sup>

**ABSTRACT.**—One new species, *Astragalus concordius* Welsh, sp. nov., is described from Washington and Iron counties, Utah, and section *Argophylli*, subsection *Concordi* Welsh, subsect. nov., is proposed. A complete bibliographic citation is supplied to validate the nomenclatural combination *Sphaeralcea janeae* (Welsh) Welsh, *Memoirs Great Basin Naturalist* 9: 423. 1987.

*Key words:* taxonomy, *Astragalus*, new species, nomenclature.

While I was preparing keys to the species of *Astragalus* for the Flora North America project, my attention was drawn again to some peculiar plants from the Pine Valley and Kolob portions of Washington County and adjacent Iron County, Utah. Because of the peculiar leaf pubescence contrasting sharply with that of the pod, the plants will not key to any species known for Utah or Nevada in either of the previous treatments by Barneby (1964, 1989) or Welsh et al. (1987, 1993). The plants superficially resemble *A. piutensis* Barneby & Mabberley (*A. marianus* Rydberg) of section *Argophylli*, subsection *Argophylli*, and most have been identified as such. The main similarity, apart from habit, involves the long-hairy pods. However, the plants in question are appressed strigose with definitely malpighian or dolabriliform pubescence, a feature not known from subsection *Argophylli* but typical of subsection *Missourienses*. Only *A. amphioxys* of subsection *Missourienses* occurs within the range of the plants in question, and that plant has merely strigose pods. Barneby (1964:697) states:

The subsect. *Missourienses* is neatly circumscribed and defined by the presence of dolabriliform hairs, but it would be hazardous to assume that it is a truly natural monophyletic group. On the contrary, it seems possible that the species have arisen independently, either singly or in pairs, from already existing *Argophylli* with basifixed vestiture or from precursors of these at some remote period in the past.

Barneby (1964) then indicates examples of potential species pairs between those with basifixed and those with malpighian pubescence. Possibly this is the situation between *A. piutensis* and the new proposal. The species is, nevertheless, anomalous in any of the previously proposed subsections of section *Argophylli*.

Section *Argophylli* A. Gray

Subsection *Concordi* Welsh,  
subsection nov.

Similis sectione *Argophylli* subsectione *Argophylli* in legumini pubescenti sed aliter differet et similis subsectione *Missourienses* in pilis dolabriliformis sed in legumini pubescenti differt.

**TYPE SPECIES.**—*Astragalus concordius* Welsh, sp. nov.

Subsection *Concordi* is clearly allied to section *Argophylli*, subsection *Argophylli*, with which it shares caudex features, shaggy, long-hairy pods, and general habit, but differs in the malpighian pubescence of the herbage. It shares the feature of herbage pubescence with members of subsection *Missourienses*, but not the pod pubescence.

This proposed new species has long passed under *A. piutensis* Barneby & Mabberley. Although placed in a different subsection of *Argophylli* because of contrasting pubescence types, it appears to be most closely allied to *A.*

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*piutensis*. The long-hairy pods of *A. concordius* are not shared by other species of subsection *Missourienses* but are known in some species in subsection *Newberryani*. In that subsection the most similar species, so far as pod pubescence is concerned, is the strictly acaulescent (not subacaulescent) *A. welshii* Barneby, which has only incipiently malpighian hairs on the herbage and differs in other regards. Welshes' milkvetch, an endemic of south central Utah (mainly on igneous grav-

els), is disjunct by many kilometers from the present proposal, with the nearest approach in the Black Mountain vicinity in northeastern Iron County. Relationship of subsection *Concordi* to subsection *Newberryani* appears to be tenuous.

*Astragalus concordius* Welsh, sp. nov.

(Fig. 1)

Similis *Astragalo piutensi* (sectione *Argophylli*, subsectione *Argophylli*) in aspectem

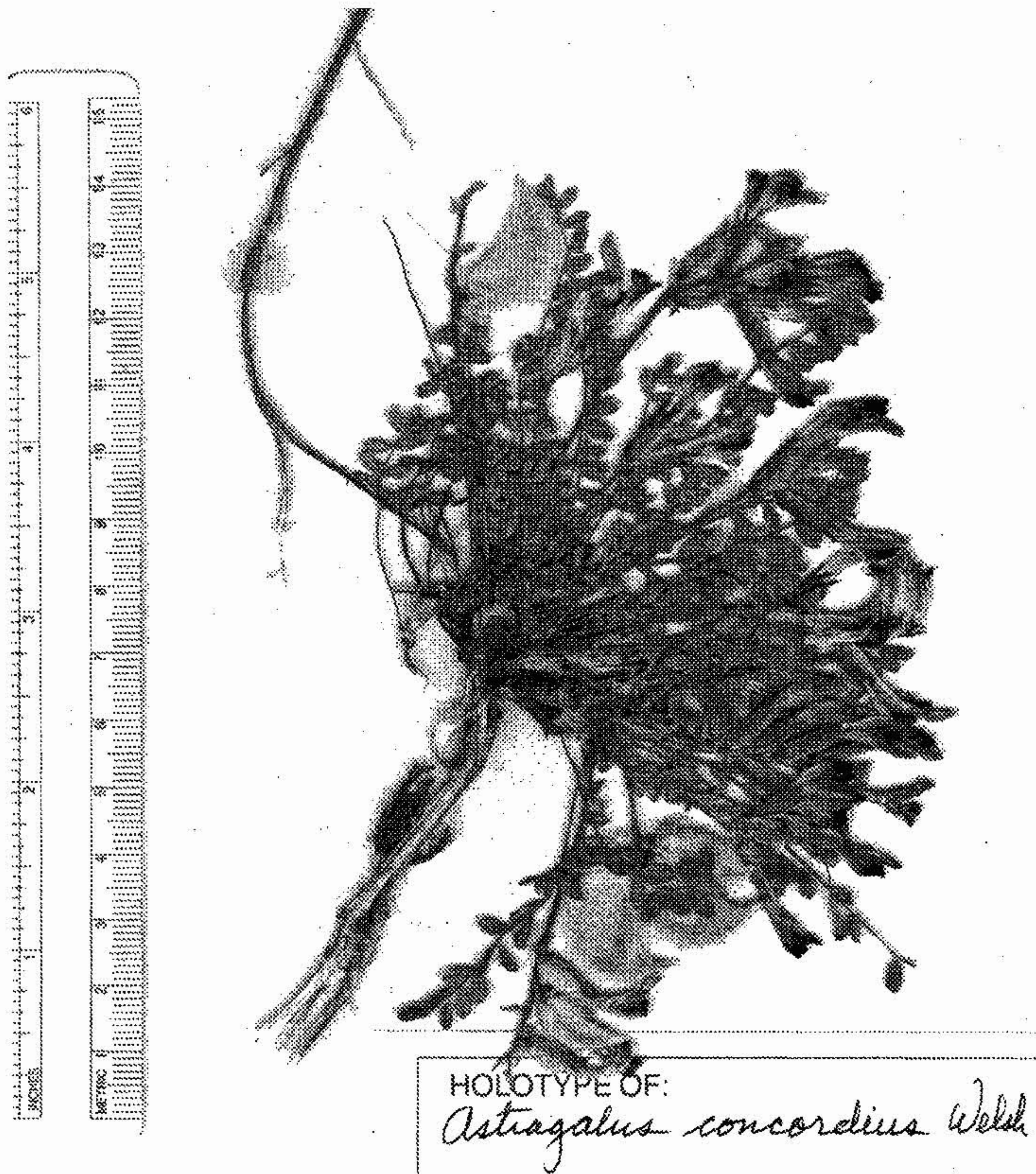


Fig. 1. Photograph of type specimen of *Astragalus concordius* Welsh.



generalem, sed pubescentis dolabriformis (nec basifixis) foliolis saepe rotundatis vel apiculatis et calyce tantum strigulosis differt.

Perennial, subcaulescent, 9–15 cm tall, from a branching caudex. **Pubescence** malpighian. **Stems** 0–6 cm long, the internodes mostly concealed by stipules, these 3.5–9 mm long, all distinct. **Leaves** 3–9 mm long; leaflets 11–17, 3.5–13 mm long, 1.2–5 mm broad, obovate to oblanceolate or elliptic, rounded to apiculate or acute, appressed strigose on both sides. **Peduncles** 1–10 cm long; racemes 2- to 8-flowered, the flowers ascending at anthesis, the axis 0.5–5 cm long in fruit; bracts 2.5–4.5 mm long; pedicels 1.5–2.5 mm long; bracteoles 0. **Calyx** 10.5–12 mm long, the tube 8.5–9.5 mm long, cylindric, strigulose, the teeth 2–3 mm long, subulate. **Flowers** 21–25 mm long, pink-purple or whitish to lilac-tinged. **Pods** spreading-ascending, sessile or nearly so, the body 15–40 mm long, 9–13 mm thick, ovoid to lance-acuminate, obcompressed, almost straight to incurved, densely shaggy-hirsute, unilocular. **Ovules** ca 30.

**TYPE.**—USA: Utah: Iron Co.: Flat Top Mt, ca 6 mi NE New Harmony, T37S, R12W, S31, 6200 ft elevation, 24 May 1976, S. Welsh, K. Taylor, and F. Peabody 13160a, holotype BRY (4 isotypes distributed previously as *A. marianus* Rydb.).

**OTHER COLLECTIONS (PARATYPES, ALL BRY).**—USA: Utah: Iron Co.: Spring Creek, SE Kanarraville, 16 May 1985, D. Atwood 11003; do, W Grants Ranch, T37S, R14W, S27, 30 May 1986, R.B. Warrick 1672; do, Upper Grants Ranch, T37S, R14W, S36, 3 June 1986, R.B. Warrick 1762. Washington Co.: along Santa Clara River, T41S, R17W, S17, 22 April 1961, A. Terril s.n.; do, E slope Pine Valley Mts, T39S, R13W, S19, 8 June 1981, D. Atwood 7901; do, 5 mi SW Enterprise Reservoir, T38S, R19W, S1, 10 June 1981, D. Atwood 9362a; do, S Kolob Reservoir, T39S, R11W, S27, 8 June 1983, L.C. Higgins & A.H. Barnum 13606; do, E slope Pine Valley Mts, T39S, R13W, 16 May 1984, D. Atwood 9652; do, Pine Spring Wash, T39S, R11W, S34, 23 April 1984, B. Franklin & G. Baird 462; do, Kolob Terrace, T39S, R11W, S34, 7 June 1948, S.L. Welsh, L. Higgins, & K. Thorne 22941; do, Pine Valley Mts, Main Canyon, T38S, R14W, S33, 2 June 1986, R.B. Warrick 1715; do, Pine Valley Mts, T38S, R13W, S9, 17 May 1986, R.B. Warrick 1379; do, Pine Spring

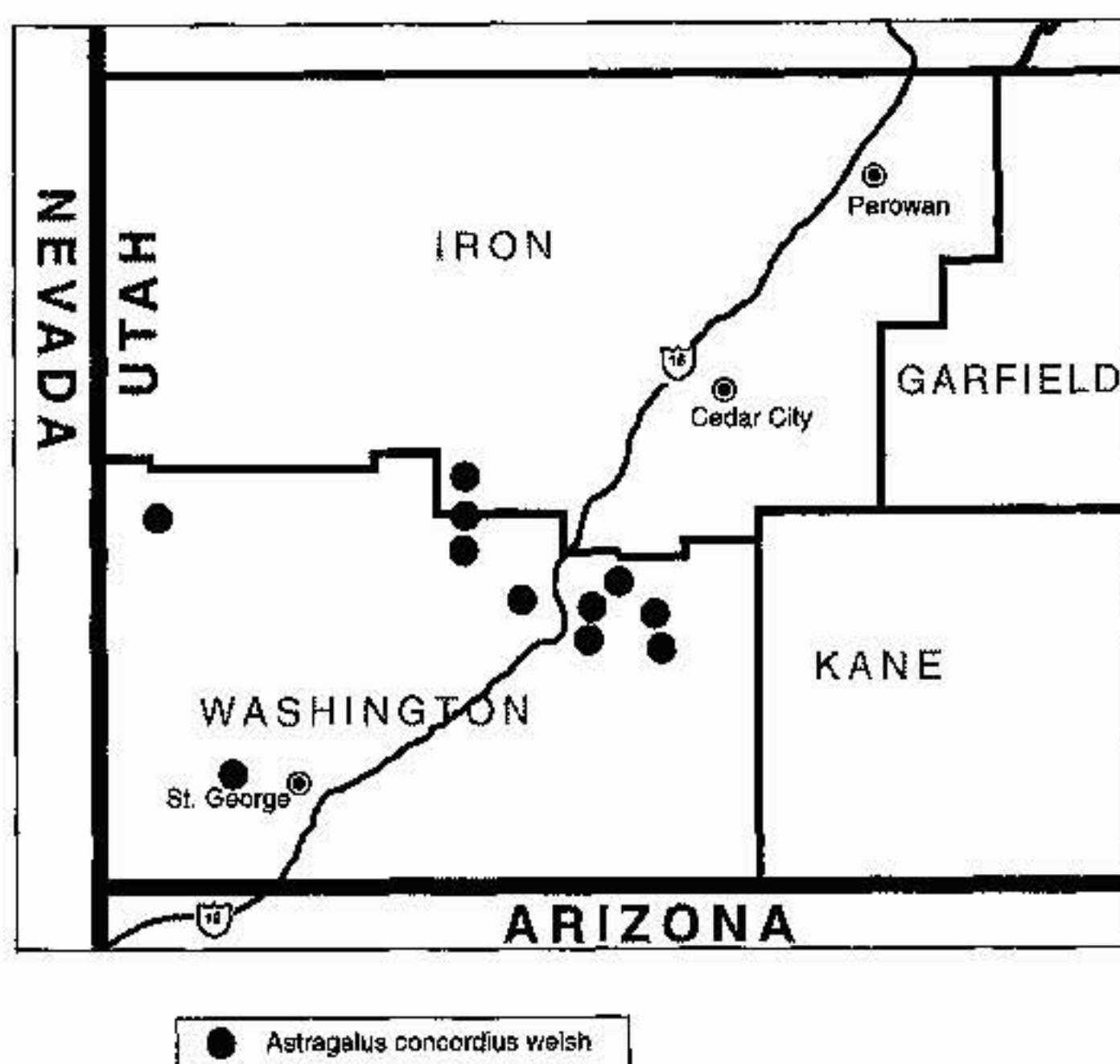


Fig. 2. Map of southwestern Utah showing distribution of *Astragalus concordius* Welsh in Washington and Iron counties.

Wash, T39S, R11W, S34, 28 May 1986, L.C. Higgins 16741; do, Horse Ranch Mt, T38S, R12W, S24, 9 July 1987, K. Thorne & S. Clark 5368; do, Kolob Plateau, T38S, R11W, S2&34, 2 July 1988, G.I. Baird 3021; do, North Creek, T40S, R11W, S34, 3 May 1988, K.H. Thorne & M.A. Franklin 6014; do, Kolob vicinity, T40S, R11W, S12, 29 April 1989, S.L. Welsh & S.L. Clark 24162; do, Hop Valley, T39S, R12W, S12, 23 May 1989, L.C. Higgins 18372.

Flowering occurs mainly during April and early May; hence most specimens are in fruit. The species occurs with ponderosa pine, manzanita, oak, aspen, mixed mountain brush, pinyon-juniper, and less commonly with Fremont poplar, willow, and ash, or rarely with creosote bush, at (1200) 1340–2600 m, mainly on sandstone or soils derived from sandstone.

Anomalous in any of the currently known subsections of *Argophylli*, *A. concordius* is most similar vegetatively, except for its malpighian hairs, with *A. piutensis*, from which it differs also in several less tangible features; i.e., leaflets are commonly rounded to apiculate, not obtuse to emarginate or acuminate; calyx is merely strigulose, not pilosulous; and at least some pods are much longer.

Distribution of the species (Fig. 2) centers in the Harmony Mountains, Iron County, Utah, and Pine Valley Mountains and Kolob Plateau regions of Washington County. The area occupied by most known collections is an oval approximately 40 km long and 20 km wide,



trending along a northwest-southeast axis. Only 2 collections are known to be remote from the main body of the species, one along the Santa Clara River, ca 10 km west of the town by that name, and the other from the Bull Valley Mountains southwest of Enterprise Reservoir. The Piute milkvetch is mainly a plant of the southeastern Great Basin with only a slight overlap of distribution in the Pine Valley Mountains.

Of the numerous specimens initially considered to be *A. piutensis*, only one is from the Pine Valley Mountains; the remainder are from other Utah and Nevada localities. Thus, the 2 species are evidently disjunct, though contiguous, as are other closely related species elsewhere in the genus.

A matter unrelated to the new species of *Astragalus* was called to my attention by Dr. K.N. Gandhi, Gray Herbarium card index bibliographer, concerning the lack of proper format in what turned out to be an incomplete citation (a lapsus calamus) of *Sphaeralcea janeae*

(Welsh) Welsh, published without citation of bibliographic reference of the basionym. The full citation should read, "*Sphaeralcea janeae* (Welsh) Welsh, *Memoirs, Great Basin Naturalist* 9: 423. 1987. [basionym: *Sphaeralcea leptophylla* var. *janeae* Welsh, *Great Basin Naturalist* 40: 27. 1980]." This information merely validates the earlier, intentional combination.

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