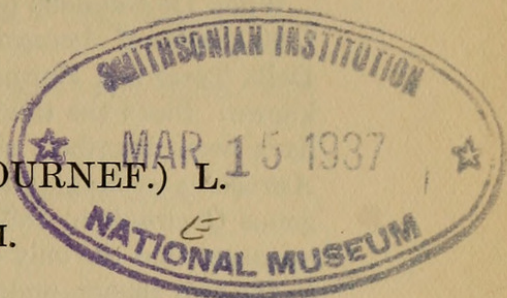


PROCEEDINGS
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BIOLOGICAL SOCIETY OF WASHINGTON

NOTES ON ASTRAGALUS (TOURNEF.) L.

BY IVAR TIDESTROM.



In his *Institutiones Rei Herbariae*, Tournefort enumerated a number of species under this large genus. He had these species distributed under the genera *Astragaloides* (page 399), *Astragalus* (p. 415), *Tragacantha* (p. 417), and perhaps in other places. In all Tournefort enumerated about 30 species.

Linnaeus had 36 species, distributed under *Astragalus* and *Phaca*, in his first edition of *Species Plantarum* (1753), and 42 in his second edition of 1763. In the fourth edition (Willdenow) the number of known species had been augmented to 174 of *Astragalus* and 11 of *Phaca*. The Willdenowian enumeration includes species now referred to *Oxytropis*. The latter genus was established by De Candolle in 1802. Since the fourth edition of *Species Plantarum* (vol. 3) was published in 1800 (at least the first part), Willdenow probably had no knowledge of the new Candollean genus. Willdenow, however, knew of the keel character upon which *Oxytropis* was based; for under *Astragalus campestris* (p. 1318) he notes this: "*Corollae flavae carina acuminata basi purpurascens*." With the appearance of Sprengel's *Systema Vegetabilium* (3 : 291-309. 1826), the number of species of *Phaca* had grown to 56 and that of *Astragalus* proper to 219. Since that time the genus *Oxytropis* seems to have been well established until Hegi published his *Flora von Mittel-Europa* in 1906. The latter author rejects the genus *Oxytropis* and refers all the species under *Astragalus*.

According to Dr. Greene, Michel Angelo Tilli described his genus *Astragaloides* as early as 1723. Later in that century Necker published *Spiesia* and *Aragallus*. Dr. Greene has discussed the cases of *Spiesia* and *Aragallus* in *Pittonia* (3 : 208-212. 1897). Thus we have witnessed the shifting of our "*Oxytropis* species" first to *Spiesia*, then to *Aragallus* and after the

adoption of the International Code back to *Oxytropis*. It should be stated that Necker characterized the fruit of his *Aragallus* as being 2-celled. In our American species the pod may be either completely 2-celled or partially so.

When De Candolle published his genus *Oxytropis* only a fraction of the 1500 species of *Astragalus* now known had been described. According to Dalla Torre and Harms (*Genera Siphonog.* 235) about 150 *Oxytropis* are known. Since the time of De Candolle a number of disturbing elements have been described, so much so that the late M. E. Jones transferred *Astragalus nothoxys* Gray and *Astragalus acutirostris* Wats., first to the genus *Oxytropis* in 1891 and later to *Spiesia* in 1895. Thus it becomes apparent that the only character upon which *Oxytropis* is based is common to the two genera, and that these should be merged into one genus as has been done by Hegi. If *Oxytropis* included only species with an acaulescent habit, the genus might well stand as it is, but with caulescent elements like *O. splendens*, *O. deflexus* and others, these species are better referred to *Astragalus*.

Rydberg in *North American Flora* (24 : 251-462. 1929) has given us an excellent view of our Astragali. He, however, splits up the accepted genus into its component parts and gives these generic standing. In so doing, Rydberg is consistent in maintaining *Oxytropis* as a distinct genus. Rydberg proceeds from the species with 1-celled pods and prominent sutures (*Kentrophyta* and *Homalobus*) through his various genera ending with *Geoprimum*, species with indehiscent fleshy 2-celled pods. His treatment of *Oxytropis* has not yet appeared. However, it seems that the logical position of *Oxytropis* as a section of *Astragalus* would be between *Atelophragma* with imperfectly 2-celled pods and *Diphysus* of the Rydbergian sequence. I have placed it here in an unpublished revision of the genus.

The following species grow within the limits of United States and Canada :

1. ***Astragalus splendens*** (Dougl.).
Oxytropis splendens Dougl.; Hook. Fl. Bor. Amer. 1 : 147. 1834.
- 1a. ***Astragalus splendens Richardsonii*** (Hook.).
Oxytropis splendens Richardsonii Hook. op. cit. 148. 1834.
2. ***Astragalus Belli*** (Britton).
Spiesia Belli Britton; J. M. Macoun, Can. Rec. Sci. 1894 : 148. 1894.
3. **ASTRAGALUS DEFLEXUS** Pallas, Act. Acad. Petrop. 32 : 268, pl. 15. 1779.
Oxytropis deflexa DC. Astrag. 96. 1802.
- 3a. ***Astragalus deflexus foliolosus*** (Hook.).
Oxytropis foliolosa Hook. op. cit. 146. 1834.
4. ***Astragalus Bisontum***.
Oxytropis multiceps Nutt.; T. & G. Fl. N. Amer. 1 : 341. 1838. Not
Astragalus multiceps Wall; Bunge, Astrag. 2 : 69. 1869.
- 4a. ***Astragalus Bisontum minor*** (Gray).
Oxytropis multiceps minor Gray, Proc. Amer. Acad. 20 : 2. 1885.
5. ***Astragalus Blankinshipii*** (A. Nels.).
Aragallus Blankinshipii A. Nels. Erythea 7 : 58. 1899.

6. **Astragalus Tomae.**
Oxytropis nana Nutt.; T. & G. Fl. N. Amer. 1 : 340. 1838. Not
Astragalus nanus DC. 1802.
7. **Astragalus Lagopus** (Nutt.).
Oxytropis Lagopus Nutt. Journ. Acad. Phila. 7 : 17. 1834.
8. **Astragalus septentrionalis.**
Oxytropis podocarpa Gray, Proc. Acad. Phila. 6 : 234. 1864. Not
Astragalus podocarpus C. A. Meyer.
9. **Astragalus oreophilus** (Gray).
Oxytropis oreophila Gray, Proc. Amer. Acad. 20 : 3. 1885.
10. **Astragalus parryanus.**
Oxytropis Parryi Gray, op. cit. 1885.
11. **ASTRAGALUS NIGRESCENS** Pallas, Astrag. 65. pl. 53. 1800.
- 11a. **Astragalus nigrescens arctobia** (Bunge).
Oxytropis arctobia Bunge, Mem. Acad. Imp. Sci. St. Petersb.
22 : 114. 1874.
12. **ASTRAGALUS LEUCANTHUS** Pallas, Astrag. 59. pl. 47. 1800.
13. **Astragalus viscidus** (Nutt.).
Oxytropis viscida Nutt; T. & G. Fl. N. Amer. 1 : 341. 1838.
14. **ASTRAGALUS CAMPESTRIS** L. Sp. Pl. 761. 1753.
Oxytropis campestris DC. Astrag. 74. 1802.
- 14a. **Astragalus campestris johannensis** (Fernald).
Oxytropis campestris johannensis Fernald, Rhodora 1 : 88. 1899.
15. **Astragalus gaspensis** (Fernald et Kelsey).
Oxytropis gaspensis Fernald & Kelsey, Rhodora 30 : 141. pl. 171.
1928.
16. **ASTRAGALUS SORDIDUS** Willd. Sp. Pl. 3 : 1313. 1800.
17. **Astragalus albertinus** (Greene).
Aragallus albertinus Greene, Proc. Biol. Soc. Washington 18 : 15.
1905.
18. **Astragalus alpicola** (Rydb.).
Aragallus alpicola Rydb. Mem. N. Y. Bot. Gard. 1 : 252. 1900.
19. **Astragalus Rydbergianus.**
Aragallus villosus Rydb. Bull. Torrey Club 28 : 36. 1901. Not
Astragalus villosus Michx. 1803.
20. **ASTRAGALUS LAMBERTII** (Pursh) Spreng. Syst. 3 : 308. 1826.
Oxytropis Lambertii Pursh, Fl. Amer. Sept. 740. 1814.
- 20a. **Astragalus Lambertii Bigelovii** (Gray).
Oxytropis Lambertii Bigelovii Gray, Proc. Amer. Acad. 20 : 7.
1884.
21. **Astragalus albiflorus** (A. Nels.).
Aragallus albiflorus A. Nels. Erythea 7 : 62. 1899.
22. **Astragalus coronaminis** (Fernald).
Oxytropis coronaminis Fernald, Rhodora 30 : 151. 1928.

A number of synonyms have been omitted.

Astragalus Gilmani Tidestrom, sp. nov.

Annuus (vel perennis) caespitosus, caulibus 10–20 cm. longis strigosis; foliis 4–5 cm. longis; foliolis 5–6-jugis, oblongis vel obovato-oblongis, obtusis vel retusis, 5–10 mm. longis, strigosis; pedunculo folio brevior; calyce campanulato, 4 mm. longo, hirsutulo, dentibus triangulari-subulatis 1 mm. longis; corolla atropurpurea parte inferiore alba, 7–8 mm. longa, vexillo albo-lineato; legumine uni-loculari, inflato, ovato-acuto, strigoso, sessili, 2 cm. longo.

Cespitose annual or perennial; stems strigose, 10–20 cm. long; leaves 4–5 cm. long; leaflets 11–13, oblong or obovate-oblong, obtuse or retuse, 5–10 mm. long, strigose; peduncles shorter than the leaves; calyx campanulate, 4 mm. long, hirsutulous, the teeth triangular-subulate, 1 mm. long; corolla dark-purple, white below, 7–8 mm. long, banner with white striae; pod 1-celled, inflated, ovate-acute, strigose, sessile, 2 cm. long.

Type specimen in the United States National Herbarium, no. 1,630,909, collected in Death Valley Canyon, Panamint Mountains, California, July 2, 1935, by M. French Gilman (no. 1861); also collected at the head of Hanaupah Canyon, Panamint Mountains, alt. 9,350 feet, no. 44, *Coville and Gilman*, Sept. 16, 1931.

Astragalus spatulatus simplex.

Astragalus simplex Tidestrom, Contr. U. S. Nat. Herb. 25 : 330. 1925.

Astragalus visigothicus.

Homalobus retusus Rydb. Bull. Torrey Club 50 : 186. 1923. Not *Astragalus retusus* Willd. 1794–95.

Astragalus Gynophoraria.

Gynophoraria falcata Rydb. N. Amer. Fl. 24 : 280. 1929. Not *Astragalus falcatus* Lam. 1783.

Astragalus convallarius diversifolius (Gray).

Astragalus diversifolius Gray, Proc. Amer. Acad. 6 : 230. 1864.

Astragalus campestris diversifolius Macbr. Contr. Gray Herb. 65 : 35. 1922.

Astragalus convallarius hylophilus (Rydb.).

Homalobus hylophilus Rydb. Mem. N. Y. Bot. Gard. 1 : 247. 1900.

Astragalus stenophyllus filipes (Torr.).

A. filipes Torr.; Gray, Proc. Amer. Acad. 6 : 226. 1864.

Astragalus Macgregorii (Rydb.).

Homalobus Macgregorii Rydb. Bull. Torrey Club 50 : 270. 1923.

Astragalus Diholcos.

Diholcos micranthus Rydb. Fl. Rocky Mount. 500. 1917. Not *Astragalus micranthus* Desv. 1814.

Astragalus chloridae (Jones).

Astragalus remulcus chloridae Jones, Rev. Astrag. 210. 1923.

Astragalus curtilobus.

Astragalus shortianus brachylobus Gray, Proc. Amer. Acad. 13 : 367. 1878.
Not *A. brachylobus* DC. 1825.

Xylophacos brachylobus Rydb. Bull. Torrey Club 52 : 154. 1925.

Astragalus Blyae (Rose).

Xylophacos Blyae Rose, N. Amer. Fl. 24 : 303. 1929.

***Astragalus cinerascens* (Rydb.).**

Pterophacos cinerascens Rydb. N. Amer. Fl. 24 : 309. 1929.

***Astragalus datilensis* (Rydb.).**

Pisophaca datilensis Rydb. N. Amer. Fl. 24 : 328. 1929.

***Astragalus stictocarpus* (Rydb.).**

Pisophaca stictocarpa Rydb. N. Amer. Fl. 24 : 328. 1929.

***Astragalus lenophyllus* (Rydb.).**

Phaca lenophylla Rydb. N. Amer. Fl. 24 : 341. 1929.

***Astragalus tularensis* (Rydb.).**

Phaca tularensis Rydb. N. Amer. Fl. 24 : 358. 1929.

***Astragalus Prebblei* (Rydb.).**

Phaca Prebblei Rydb. N. Amer. Fl. 24 : 361. 1929.

***Astragalus Merrillii* (Rydb.).**

Cystium Merrillii Rydb. N. Amer. Fl. 24 : 410. 1929.

***Astragalus sierrae* (Jones).**

Astragalus lentiginosus sierrae Jones, Contr. West. Bot. 10 : 63. 1902.

***Astragalus tehachapiensis* (Rydb.).**

Cystium tehachapiense Rydb. N. Amer. Fl. 24 : 414. 1929.

***Astragalus Gooddingii* (Rydb.).**

Hamosa Gooddingii Rydb. Bull. Torrey Club 54 : 20. 1927.

***Astragalus mollissimus Earlei* (Greene).**

Astragalus Earlei Greene; Rydb. N. Amer. Fl. 24 : 444. 1929.

***Astragalus mollissimus Coryi*.**

Astragalus argillophilus Cory, Rhodora 32 : 5. 1930.

***Astragalus dispermus obispensis* (Rydb.).**

Hesperastragalus obispensis Rydb. Bull. Torrey Club 53 : 167. 1926.

A number of synonyms have been omitted.



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