

The generic name, from δύσκριτος, *hard to determine*, and δάμνος, *shrub*, seems to be justifiable.

Should anyone find further material of this plant, either in field or herbarium, the writer would welcome information of the fact.

EXPLANATION OF PLATE.

Figs. 1-10: *Dyscritothamnus filifolius*. Fig. 1, habit, natural size. Fig. 2, leaf $\times 4$. Fig. 3, head $\times 4$. Fig. 4, receptacle, conical in form, the bases of the persistent pales shown $\times 6$. Fig. 5, corolla $\times 6$. Fig. 6, limb of the opened corolla, showing irregularity $\times 12$. Fig. 7, bases and tips of anthers $\times 12$. Fig. 8, upper portion of style $\times 12$. Fig. 9, achene $\times 6$. Fig. 10, pappus-bristle $\times 12$.

IV. A REVISION OF ASTRAGALUS, SUBGENUS HOMALOBUS, IN THE ROCKY MOUNTAINS.

By J. FRANCIS MACBRIDE.

THE desire to place in the Gray Herbarium under the name *Astragalus*, an excellent specimen received from Mr. I. W. Clokey of Denver, referred by him to *Homalobus decurrens* Rydb., resulted in the following revision. This includes the species known to Dr. Rydberg to grow in the area covered by his Flora of the Rocky Mountains and Adjacent Plains—broadly speaking, the central Rocky Mountain states—and I acknowledge with appreciation my indebtedness to his treatment, with which, however, I cannot agree, either in the generic delimitation of the group or in the specific lines.

For instance he "keys," l. c. 455, *Homalobus* Nutt. under the characterization "Pods 1-celled, the partition if any rudimentary." This describes the pods of all species included by him in *Homalobus*, but in *Atelophragma* Rydb., "keyed" under the same heading and distinguished by Rydberg, l. c., from the former genus by "Partial partition present," is placed *A. Arthuri* Jones, described by Rydberg himself, l. c. 507, as having pods with "Partial partition broad, making the pod almost 2-celled!" This single discrepancy is cited as one of many that seem to show the futility, recognized by Gray, Proc. Am. Acad. vi. 188-190 (1864), Nelson, Coulter & Nelson, New Man. Ry. Mt. Bot. 280 (1909) and Bot. Gaz. liii. 222 (1912), Wootton & Standley, Contrib. Nat. Herb. xix. 357 (1915), Jones, Proc. Cal. Acad. Sci. Ser. 2. v. 633 (1895), and others of segregating

the on the whole homogeneous group *Astragalus* L., notwithstanding the fact that a few species suggest the genus *Trifolium*—an interesting phenomenon but to my mind not an argument at all for the further disassociation generically of either group.

In considering the specific limitations of the plants referred by Rydberg to *Homalobus* I have reached the conclusion that nearly all the members of this subgenus are extremely plastic, responding quickly to various ecological conditions. Therefore, I have been constrained to recognize only as varieties (or to reduce entirely) many of the forms assigned by Rydberg to specific rank. However, some of the species apparently not capable of sharp definition nevertheless merit recognition, notably *A. hylophilus* which in some forms approaches very closely *A. serotinus*, var. *Palliseri* and yet for the most part is reasonably well-marked. In spite of the existence of perplexing forms, therefore, I think the species should be retained.

I have omitted *A. grallator* Wats. Zoe, iii. 52 (1892), which Rydberg has allied to *A. wingatanus* Wats. Jones, Proc. Cal. Acad. Sci. Ser. 2. v. 646 (1895), however, considers it an aberrant state of *A. Haydenianus* Gray. To this disposition I am not inclined to agree, but on the other hand, the species is surely more out of place in the neighborhood of *A. wingatanus*, etc., for the pods certainly are not "decidedly flattened laterally."

Excluding *A. grallator* I think that twenty-six species, instead of forty-five as recognized by Rydberg, may be distinguished as follows:

KEY TO SPECIES AND VARIETIES.

- a. Pods evidently flattened laterally.
 - b. Leaves simple, or rarely some of them 3-foliolate; densely caespitose plants.
 - c. Pods ovate-oblong, 5–10 mm. long, the sutures rather prominent; peduncles often scarcely exceeding the leaves.....1 *A. simplicifolius*.
 - c. Pods oblong-linear, 8–15 mm. long, the sutures thinner; peduncles often elongate.....1a. var. *caespitosus*.
 - b. Leaves pinnate; if the leaflets reduced to phyllodia, the plants not densely caespitose.
 - d. Pods sessile, or if stipitate, the stipe never much exceeding the calyx.
 - e. Pods distinctly broader than oblong-linear or obviously stipitate.
 - f. Leaflets linear-filiform or not developed.
 - g. Calyx-teeth minute; flowers less than 10 mm. long; pods membranous.....3. *A. lancearius*
 - g. Calyx-teeth 1.5 mm long; flowers about 12 mm. long; pods subcoriaceous.....4 *A. episcopus*.
 - f. Leaflets broader, always well-developed.

- h. Pods ridged on the sides, acuminate, black-hairy.....5. *A. Bourgovii*.
- h. Pods not ridged, merely acute, rarely black-hairy.
- i. Plants 1-2 dm. high, rather densely cespitose; racemes short; pods only about 8 mm. long.
- j. Peduncles 2-3 cm. long, mostly shorter than the leaves; pods white-hairy.....6. *A. pauciflorus*.
- j. Peduncles mostly longer and exceeding the leaves; pods black-hairy.....7. *A. debilis*.
- i. Plants not densely cespitose, usually taller; racemes more or less elongate; pods rarely less than 1 cm. long.
- k. Pods sessile or very nearly so.
- l. Oblong-elliptic, about 4 mm. wide, strictly sessile.....8. *A. wingatanus*.
- l. Oblong, about 3 mm. wide, very shortly stipitate.
- m. Flowers and leaflets remote, mostly 1 cm. or more apart; stems flexuose, widely branched.....9. *A. Dodgeanus*.
- m. Flowers and leaflets crowded, usually only a few mm. apart; stems strict or bushy-branched.
- 10a. *A. tenellus*, var. *Clementis*.
- k. Pods stipitate, the stipe at least as long as the calyx-tube.....10. *A. tenellus*.
- e. Pods of a linear or oblong-linear type, or somewhat oblanceolate, sessile and usually more than 1.5 cm. long.
- n. Rush-like plants seemingly leafless (the leaves reduced to phyllodia), or the terminal leaflet greatly prolonged, as a continuation of the rhachis.
- o. Stems 2-6 dm. high; pods 2.5-3 cm. long.
- p. Calyx 4-5 mm. long, the teeth usually little if at all longer than broad; leaves often all reduced to phyllodia.....11. *A. campestris*.
- p. Calyx 5-6 mm. long, the teeth usually longer than broad; lower leaves, at least, more or less strongly developed..11a. var. *diversifolius*.
- o. Stems 1-2 dm. high; pods 12-15 mm. long. 12. *A. Garrettii*.
- n. Leafy plants, the lateral leaflets of even the upper leaves well-developed.
- q. Stems densely tufted, 1-1.5 dm. high; leaflets .5-1.5 cm. long; racemes dense, usually 2-4 cm. long.
- r. Leaflets mostly 5, aristately tipped.....2. *A. detritalis*.
- r. Leaflets 7-15, not aristately tipped.
- s. Pods 1.5 cm. or less long; leaves grayish-strigose, at least beneath.
- t. Pods linear-oblong, 2-3 mm. wide; leaves strigose on both surfaces... 13. *A. divergens*.
- t. Pods widened above the middle to about 3.5 mm.; leaves glabrous or nearly so above.....14. *A. Carltonii*.

- s. Pods 1.5–2.5 cm. long; leaves greenish, the pubescence sparse.....15. *A. decumbens*.
- q. Stems taller, not densely tufted or the racemes lax, 5–12 cm. long; leaflets 1–4 cm. long.
- n. Leaflets lanceolate to elliptic-oval, acutish or obtuse; pods 2–2.5 cm. long.
- v. Terminal leaflet little if any longer than the lateral leaflets and with evident articulation to the rhachis.
- w. Pods glabrous.....16. *A. hylophilus*.
- w. Pods pubescent.....16a. var. *oblongifolius*
- v. Terminal leaflets distinctly longer than the lateral and tapering into the rhachis without evident articulation.....17. *A. Rydbergii*.
- u. Leaflets oblong, or linear to lance-linear, or if broader the pods only 1.5 cm. long.
- x. Pods about 2 cm. long; racemes often 1 dm. long.
- y. Pods glabrous or nearly so; leaves usually glabrous above.....18. *A. serotinus*.
- y. Pods pubescent; leaves strigose on both surfaces.....18a. var. *strigosus*.
- x. Pods about 1.5 cm. long; racemes usually shorter.....18b. var. *Palliseri*.
- d. Pods long-stipitate, the stipe distinctly exerted from the calyx.
- z. Pods membranous, strongly flattened; calyx-tube 3–4 mm. long
- aa. Flowers yellowish; pedicels about 3 mm. long. 19. *A. stenophyllus*.
- aa. Flowers red-purple; pedicels about 2 mm. long...20. *A. Coltoni*.
- z. Pods membranous-coriaceous, not strongly flattened; calyx-tube 7–8 mm. long.
- bb. Pods straight.....21. *A. collinus*.
- bb. Pods curved.....22. *A. curvicaupus*.
- a. Pods terete or nearly so.
- cc. Pods sessile or the stipe shorter than the calyx.
- dd. Pods 5 mm. or more in diameter; flowers 1 cm. or more long.
- ee. Pods glabrous; flowers about 1.5 cm. long.....23. *A. Hallii*.
- ee. Pods pubescent; flowers about 1 cm. long.....24. *A. Fendleri*.
- dd. Pods 4 mm. or less in diameter; flowers usually about 7 mm. long.....25. *A. flexuosus*.
- cc. Pods long-stipitate.....26. *A. lonchocarpus*.

1. *A. SIMPLICIFOLIUS* (Nutt.) Gray, Proc. Am. Acad. vi. 231 (1866). *Phaca simplicifolia* Nutt. ex T. & G. Fl. N. Am. i. 350 (1838). *Homalobus simplicifolius* (Nutt.) Rydb. Bull. Torr. Club, xl. 52 (1913). *A. lingulatus* Sheld. Minn. Bot. Stud. i. 118 (1894). *H. lingulatus* (Sheld.) Rydb. l. c. *A. exilifolius* A. Nels. Bull. Torr. Club, xxvi. 10 (1899). *H. exilifolius* (A. Nels.) Rydb. l. c. *H. uniflorus* Rydb. l. c. xxxiv. 49 (1907).—Wyoming and adjacent Idaho to northern Utah and Colorado.—WYOMING: Freezeout Hills, *E. Nelson*, 4493; Carter, June 25, 1896, *M. E. Jones*; Laramie Hills, *A. Nelson*, 31;

Alcova, Goodding, 142; Hanna, E. B. & L. B. Payson, 1694; Laramie, A. Nelson, 7289; northwestern Wyoming, Parry, 68 & 69. COLORADO: north of La Porte, Crandall, 758; Cañon City, June, 1877, Brandegee. UTAH: Brush Creek Cañon, Goodding, 1285; Wasatch Station, Watson, 289.

1a. *A. SIMPLICIFOLIUS* (Nutt.) Gray, var. *CAESPITOSUS* (Nutt.) Jones, Proc. Cal. Acad. Sci. Ser. 2. v. 647 (1895). *Homalobus caespitosus* Nutt. ex T. & G. Fl. N. Am. i. 352 (1838). *A. caespitosus* (Nutt.) Gray, Proc. Am. Acad. vi. 230 (1864). *H. brachycarpus* Nutt. l. c. *H. canescens* Nutt. l. c. *A. spatulatus* Sheld. Minn. Bot. Stud. i. 119 (1894). *A. simplicifolius* (Nutt.) Gray, var. *spatulatus* (Sheld.) Jones, Contrib. W. Bot. x. 65 (1902).—The Central Rocky Mountain States east to Saskatchewan and Nebraska.—SOUTH DAKOTA: Newell, Carr, 15; Black Hills, 1887, Dr. W. H. Forwood; Crook Mountain Ranger Station, John Murdoch, Jr., 3561. ASSINIBOIA: Medicine Hat, Macoun, 4211; Cypress Hills, Macoun, 4210, and 28. NEBRASKA: Harrison, June 4, 1891, Bates. WYOMING: Newcastle, June 17, 1896, Bates; Yellowstone, 1878, Havard; Cheyenne, Greene, 27.

All of Nuttall's species named above are represented in the Gray Herbarium by material labeled in his own writing. It is a study of this material in conjunction with the specimens cited that has convinced me of the futility of Rydberg's attempt to recognize six species in this group, typified by *A. simplicifolius*. That there is but one variable species concerned seems evident from the fact that the characters relied upon by Rydberg to distinguish the forms are seen to be never concomitant nor constant when more than one collection is observed. Moreover, the Nuttallian specimens seen by me do not agree with Rydberg's characterization. For instance, he describes *A. simplicifolius*, Fl. Ry. Mts. 509, as having leaves "not pungent." Those of Nuttall's specimen are distinctly so. Similarly, the bracts of *H. brachycarpus* are quite as slender and scarious as those of *A. caespitosus*. Curiously enough, Rydberg makes no mention of *H. canescens* Nutt. which was published with *H. caespitosus* and *H. brachycarpus*.

2. *A. DETRITALIS* Jones, Contrib. W. Bot. xiii. 9 (1910). *Homalobus detritalis* (Jones) Rydb. Fl. Ry. Mts. 511 (1917).—UTAH.—Not seen by me.

3. *A. LANCEARIUS* Gray, Proc. Am. Acad. xiii. 370 (1878).—Northern Arizona to Utah and probably Colorado.—ARIZONA: Beaver Dam, 1877, Palmer, 114.

Jones, Contrib. W. Bot. x. 64 (1902), reduces this species to the next. Both are represented in the Gray Herbarium by the type material only, from which they appear to be distinct by the characters indicated, although closely related.

4. *A. EPISCOPUS* Wats., Proc. Am. Acad. x. 346 (1875). *Homalobus episcopus* (Wats.) Rydb. Bull. Torr. Club, xl. 53 (1913).—SOUTHERN UTAH: 1873. *F. M. Bishop*.

5. *A. BOURGOVII* Gray, Proc. Am. Acad. vi. 227 (1864). *Homalobus Bourgovii* (Gray) Rydb. Mem. N. Y. Bot. Gard. i. 247 (1900).—Alberta to British Columbia and south to northern Idaho, Montana and South Dakota.—ALBERTA: Sheep Mountain, *John Macoun*, 10,190; head of Lake Louise, *John Macoun*, 65,084; Mount Paget, *John Macoun*, 65,082. MONTANA: McDonald's Peak, *Canby*, 87; Summit, July 24, 1894, *Williams*; Belt Mts., *Williams*, 747. IDAHO: Stevens Peak, *Leiberg*, 1470. BRITISH COLUMBIA: Kootenay Pass, Aug. 15, 1881, *Dawson*; Summit of Rocky Mts., *John Macoun*, 26. "Rocky Mountains on the British Boundary," 1858, *E. Bourgeau*.

6. *A. PAUCIFLORUS* Hook. Fl. Bor. Am. i. 149 (1838). *A. vexilliflexus* Sheld. Minn. Bot. Stud. i. 121 (1894). *Homalobus vexilliflexus* (Sheld.) Rydb. Mem. N. Y. Bot. Gard. i. 249 (1900). *A. amphidoxus* Blank. Mont. Agric. Col. Sci. Stud. i. 72 (1905). *Homalobus miser* Rydb. Fl. Ry. Mts. 511 (1917), not Dougl.—Northern Wyoming to Saskatchewan and British Columbia.—ALBERTA: Belly River, *John Macoun*, 10,202; Pipestone Pass, *John Macoun*, 65,083. MONTANA: Skyhigh, Unionville, July 10, 1898, *E. N. Brandegee*; Shield's River, *Scribner*, 27; Bozeman, *Canby*, 82; Bridger Mts., *Rydberg & Bessey*, 4486. WYOMING: Soda Butte, *A. & E. Nelson*, 5873. BRITISH COLUMBIA: heights above Carbonate Draw, *Hancock*, 351.

A. miser Dougl., Hook. Fl. Bor. Am. i. 153 (1838), is the earlier name for *A. microcystis* Gray, Proc. Am. Acad. vi. 220 (1864), as indicated by Jones, Contrib. W. Bot. viii. 9 (1898), and by Piper, Contrib. U. S. Nat. Herb. xi. 373 (1906). *Homalobus miser* Rydb., Bull. Torr. Club, xl. 52 (1913) and Fl. Ry. Mts., is apparently a state of *A. pauciflorus* Hook., at least in large part.

7. *A. DÉBILIS* (Nutt.) Gray, Proc. Acad. Phil. 2. vii. 60 (1863). *Phaca debilis* Nutt. in T. & G. Fl. N. Am. i. 345 (1838). *Homalobus debilis* (Nutt.) Rydb. Bull. Torr. Club, xl. 53 (1913).—Northern Colorado to Wyoming, Idaho and northern Canada.—COLORADO: North Park, *Osterhout*, 3; Upper Platte, *Geyer*, 3.

8. *A. WINGATANUS* Wats. Proc. Am. Acad. xviii. 192 (1883).

Homalobus wingatanus (Wats.) Heller, Muhl. i. 145 (1906). *H. wingatensis* Rydb. Bull. Torr. Club, xxxi. 563 (1904).—Western New Mexico and adjacent Arizona to Colorado and Utah.—COLORADO: Naturita, Payson, 304; Mancos, Baker, Earle & Tracy, 78. NEW MEXICO: Fort Wingate, Matthews, 7 & 15; "New Mexico," Palmer, 14 & 61.

9. A. DODGEANUS Jones, Zoe, iii. 289 (1893). *Homalobus Dodgeanus* (Jones) Rydb. Bull. Torr. Club, xl. 52 (1913).—Utah and southwestern Colorado.—COLORADO: Grand Junction, May 22, 1895, Jones. UTAH: Thompson's Springs, June 17, 1913, Jones.

10. A. TENELLUS Pursh, Fl. Am. Sept. ii. 473 (1814). *Homalobus tenellus* (Pursh) Britton, Britton & Brown, Illus. Fl. ii. 305 (1897). *Orobis dispar* Nutt. Gen. ii. 95 (1818). *H. dispar* Nutt. in T. & G. Fl. N. Am. i. 350 (1838). *H. stipitatus* Rydb. Bull. Torr. Club, xxxiv. 419 (1907).—From New Mexico and Nevada to northern Canada and east to Nebraska and Minnesota.—NORTH DAKOTA: Devil's Lake, June 29, 1902, Lunell. SOUTH DAKOTA: Bull Springs, Rydberg, 632. ASSINIBOIA: Medicine Hat, John Macoun, 4200. SASKATCHEWAN: Herzel, Macoun & Herriot, 70,486. ALBERTA: Red Deer Valley, Moodie, 960. MONTANA: valley of Blackfoot River, Canby, 83. IDAHO: Clyde, Macbride & Payson, 3112. WYOMING: Dubois, Nelson, 751; C. Y. Horse Ranch, Goodding, 244. COLORADO: near Empire, Patterson, 182; Idaho Springs, Jones, 687. UTAH: P. V. Junction, Aug., 1883, Jones. NEW MEXICO: Santa Fé, Rothrock, 40.

Only a few representative collections of this somewhat variable species have been cited. I am unable to distinguish even varietally *H. dispar* Nutt. and *H. stipitatus* Rydb. recognized by Rydberg, Fl. Ry. Mts. 509 and 512. He maintains the former because of the short stipe and "oblong to oval" leaflets. Nuttall's specimen in the Gray Herbarium has narrowly linear leaflets and the stipe of even very immature pods is quite as long as the calyx. *H. stipitatus*, characterized as having "narrowly linear" leaflets and a stipe exceeding the calyx, is limited as to range to "Sask.-Mina.-S. D." The material seen by me from this territory has broadly oblong leaves and exhibits great variation in the development of the stipe. Furthermore, the pods of a Wyoming specimen are borne on stipes that somewhat exceed the calyx. A form of the species with pubescent pods occurs in Utah and Nevada which may be known as *A. TENELLUS* Pursh, forma **strigulosus** (Rydb.), comb. nov. *Homalobus strigulosus* Rydb. Bull. Torr. Club, xxxiv. 420 (1907).—Utah and Nevada.—NEVADA: E. Humboldt Mts., Watson, 285.

10a. *A. TENELLUS* Pursh, var. **Clementis** (Rydb.), comb. nov. *Homalobus Clementis* Rydb. Bull. Torr. Club, xxxi. 563 (1904).—Colorado and New Mexico.—COLORADO: Marshall Pass, *Baker*, 489. NEW MEXICO: Ponchuelo Creek, *Standley*, 4181.

Rydberg contrasts this plant with *A. wingatanus*. The pods however are distinctly though shortly stipitate, and accordingly, notwithstanding the purplish flowers, the plant is allied to *A. tenellus*, which it resembles closely in habit. Besides the difference in the color of the corolla the variety *Clementis* can be distinguished from the typical form of *A. tenellus* by the pubescent and very shortly stipitate pods. The specimen cited from New Mexico has pods on longer stipes than exhibited on cotype material from Colorado which suggests that this plant is better treated as a variety than as a distinct species. Furthermore, specimens of *A. tenellus* with glabrous pods on well-developed stipes occasionally have purple instead of yellowish corollas. This color form may be known as *A. TENELLUS* Pursh, forma **acerbus** (Sheld.), comb. nov. *A. acerbus* Sheld. Minn. Bot. Stud. i. 123 (1894). *Homalobus acerbus* (Sheld.) Rydb. Bull. Torr. Club, xxxii. 666 (1906).

11. *A. CAMPESTRIS* (Nutt.) Gray, Proc. Am. Acad. vi. 229 (1864). *Homalobus campestris* Nutt. in T. & G. Fl. N. Am. i. 351 (1838). *H. junceus* Nutt. l. c. *A. junceus* (Nutt.) Gray, l. c. 230. *A. junciformis* A. Nels. Bull. Torr. Club, xxvi. 9 (1899). *H. junciformis* (A. Nels.) Rydb. Bull. Torr. Club, xxxii. 666 (1906). *A. diversifolius* Gray, var. *roborum* Jones, Contrib. W. Bot. x. 61 (1902).—Wyoming to Colorado, Utah and Arizona.—WYOMING: Fort Steele, *Nelson*, 4839; Leucite Hills, *Merrill & Wilcox*, 468; Gros Ventre River, *Nelson*, 1086; northwestern Wyoming, *Parry*, 80. COLORADO: White River, 1878, *Mrs. Danfurth*. UTAH: Parley's Peak, *Watson*, 288; southern Utah, *Mrs. Thompson*; Salt Lake City, *Garrett*, 984. NEVADA: Cave Creek P. O., *Heller*, 9500.

11a. *A. CAMPESTRIS* (Nutt.) Gray, var. **diversifolius** (Gray), comb. nov. *A. diversifolius* Gray, Proc. Am. Acad. vi. 230 (1864).—Montana to Colorado, west to Utah and Idaho.—MONTANA: Helena, *Canby*, 84. IDAHO: Tikura, *Nelson & Macbride*, 1292; Clyde, *Macbride & Payson*, 3183; Beaver Cañon, *Watson*, 92; Picabo, *Macbride & Payson*, 2993. WYOMING: sources of the Platte, *Nuttall*. COLORADO: South Fork of Platte, *Geyer*, 2; Middle Park, 1864, *Parry*; Cedar Edge, *Baker*, 242. UTAH: Uintah, *Jones*, 1831; Salt Lake City, *Garrett*, 1776; Magna, *W. W. Jones*, 166.

I have reached the conclusion that *H. junceus* Nutt. and *H. cam-*

pestris Nutt. are phases of but one species by examination of Nuttall's material in the Gray Herbarium in conjunction with the specimens cited above. The relative length of the calyx-lobes, and the presence or absence of black pubescence seem to me to be trivial variations not concomitant with other characters and of no practical taxonomic value.

12. **A. Garrettii**, nom. nov. *Homalobus paucijugus* Rydb. Bull. Torr. Club, xxxiv. 418 (1907), not *A. paucijugus* Schrenk, Bull. Phys.—Math. Acad. Petersb. ii. 196 (1844).—Utah.—Big Cottonwood Canyon, *Garrett*, 1580, in part.

13. **A. DIVERGENS** Blank. Mont. Agric. Col. Sci. Stud. i. 73 (1905). *Homalobus tenuifolius* Nutt. in T. & G. Fl. N. Am. i. 351 (1838), not *A. tenuifolius* Desf. Fl. Atl. ii. 186 (1800). *H. camporum* Rydb. Bull. Torr. Club, xxxii. 666 (1906).—Wyoming to Idaho, Utah and Colorado.—IDAHO: Howe, *Macbride & Payson*, 3106; Beaver Cañon, *Watson*, 91. COLORADO: Dry Sandy, June 22, 1873, *Parry*. WYOMING: "Colorado of the West," *Nuttall*; north-western Wyoming, *Parry*, 81; Medicine Bow, *Nelson*, 9648; Bush Ranch, *Nelson*, 7085; Laramie Hills, *Nelson*, 198; Birds Eye, *Nelson*, 9359; Leckie, *Merrill & Wilcox*, 537 & 585; Alcova, *Goodding*, 146; Mammoth Hot Springs, *A. & E. Nelson*, 5649. UTAH: Big Cottonwood Canyon, *Garrett*, 1580, in part.

14. **A. Carltonii**, nom. nov. *Homalobus humilis* Rydb. Bull. Torr. Club, xxxiv. 417 (1907), not *A. humilis* Bieb. Fl. Taur. Cauc. ii. 203 (1808).—Utah.—near Marysvale, *Rydberg & Carlton*, 7147; Delano Peak, *Rydberg & Carlton*, 7219; Alta, *Jones*, 1210.

15. **A. DECUMBENS** (Nutt.) Gray, Proc. Am. Acad. vi. 229 (1864). *Homalobus decumbens* Nutt. in T. & G. Fl. N. Am. i. 352 (1838). *H. microcarpus* Rydb. Bull. Torr. Club, xxxiv. 417 (1907)?—Colorado and Wyoming.—WYOMING: Wood's Creek, *Goodding*, 1429; Platte, *Nuttall*. COLORADO: 1862, *Hall & Harbour*, 142 in part; 1862, *Parry*, 435; Como, *Crandall & Cowen*, 131.

Nuttall's material of this species in the Gray Herbarium consists of a single stem and one mature legume. The specimen is not exactly duplicated by any others I have seen, but the material cited cannot be referred to another species, unless to *H. microcarpus* Rydb. which I know only from description.

16. **A. HYLOPHILUS** (Rydb.) A. Nels. in Coult. & Nels. New Man. Ry. Mt. Bot. 291 (1909). *Homalobus hylophilus* Rydb. Mem. N. Y. Bot. Gard. i. 247 (1900).—Montana to Utah.—MONTANA: Bridger Mts., *Rydberg & Bessey*, 4490; Bozeman, *W. W. Jones*. WYOMING:

Yellowstone Lake, *A. & E. Nelson*, 6627. UTAH. Dyer Mine, *Goodding*, 1321.

16a. *A. HYLOPHILUS* (Rydb.) *A. Nels.*, var. **oblongifolius** (Rydb.), comb. nov. *Homalobus oblongifolius* Rydb. Bull. Torr. Club, xxxiv. 50 (1907).—Wyoming and Colorado.—WYOMING: Union Pass, *Nelson*, 869; Teton Pass Mts., *E. B. & L. B. Payson*, 2068. COLORADO: Leadville, July, 1884, *Jones*; Cerro Summit, *Baker*, 409; Pinkham Creek, *Goodding*, 1472.

17. **A. Rydbergii**, nom. nov. *Homalobus decurrens* Rydb. Bull. Torr. Club, xxxi. 563 (1904), not *A. decurrens* Boiss. Diagn. Ser. 1. vi. 40 (1845).—Colorado.—Jefferson Co., *Clokey*, 3808; 1862, *Hall & Harbour*, 142, in part; Golden City, 1870, *Greene*.

18. *A. SEROTINUS* Gray, Pac. R. Rep. xii. 51 (1860). *Homalobus serotinus* (Gray) Rydb. Mem. N. Y. Bot. Gard. i. 248 (1900).—Washington, British Columbia and Montana (?).—WASHINGTON: on the Okanagan, *Cooper*; Peshastin, *Sandberg & Leiberg*, 473; 1889, *Vasey*, 273. BRITISH COLUMBIA: Armstrong, *Wilson*, 133; between Kettle and Columbia River, *J. M. Macoun*, 63,752.

18a. *A. SEROTINUS* Gray, var. **strigosus** (Coult. & Fish.), comb. nov. *A. strigosus* Coult. & Fish. Bot. Gaz. xviii. 299 (1893). *Homalobus strigosus* (Coult. & Fish.) Rydb. Bull. Torr. Club, xl. 53 (1913). *A. griseopubescens* Sheld. Minn. Bot. Stud. i. 126 (1894).—Montana and Washington.—MONTANA: Columbia Falls, July 12, 1894, *Williams*. WASHINGTON: near Spokane and Columbia Rivers, *Geyer*, 475; 1860, *Lyall*.

18b. *A. SEROTINUS* Gray, var. **Palliseri** (Gray), comb. nov. *A. Palliseri* Gray, Proc. Am. Acad. vi. 227 (1864). *Homalobus Palliseri* (Gray) Rydb. Mem. N. Y. Bot. Gard. i. 248 (1900).—Montana, Washington, Alberta, British Columbia and apparently Utah.—MONTANA: Old Sentinel, *MacDougal*, 168. WASHINGTON: Walla Walla, *Brandeggee*, 733. ALBERTA: Squaw Mt., *Barber*, 279; Banff, *Butters & Holway*, 12. BRITISH COLUMBIA: Columbia Valley, *John Macoun*, 1; Selkirk, *Shaw*, 241; Sophie Mt., *J. M. Macoun*, 63,756. UTAH: Uinta, *Watson*, 287?

This species is closely related indeed to the more southern *A. hylophilus* to which it may pass through the var. *Palliseri*, but the typical forms are clearly distinct.

19. *A. STENOPHYLLUS* T. & G. Fl. N. Am. i. 329 (1838). *Homalobus stenophyllus* (T. & G.) Rydb. Mem. N. Y. Bot. Gard. i. 249 (1900).—Nevada to Montana and British Columbia.—Specimens of this common and characteristic species need not be noted.

20. A. COLTONI Jones, Zoe, ii. 237 (1891). *Homalobus episcopus* Rydb. Fl. Ry. Mts. 514 (1917), not *A. episcopus* Wats.—Utah, Colorado and New Mexico.—COLORADO: Naturita, Payson, 336. NEW MEXICO: Carrizo Mts., May & June, 1892, Matthews.

Rydberg's reduction, l. c., of this species to *A. episcopus*, a plant with strictly sessile pods, is not understandable.

21. A. COLLINUS Dougl. in G. Don, Gen. Syst. ii. 256 (1832).—Oregon to western Idaho and British Columbia.—Collections of this rather common species are regularly determined correctly.

22. **A. curvicaupus** (Sheld.) comb. nov. *A. speiroparpus* Gray, var. *curvicaupus* Sheld. Minn. Bot. Stud. i. 125 (1894). *Homalobus curvicaupus* (Sheld.) Heller, Muhl. ii. 86 (1905). *A. speiroparpus* Gray, var. *falciformis* Gray, Bot. Calif. i. 152 (1880), not *A. falciformis* Desf. ex DC. Astrag. 176 (1802). *A. Gibbsii* Kell., var. *falciformis* (Gray) Jones, Contrib. W. Bot. viii. 23 (1898).—Washington to California and Idaho.—IDAHO: New Plymouth, Macbride, 75; Shoshone Falls, Nelson & Macbride, 1839. NEVADA: Toyabe Mts., Watson, 282. CALIFORNIA: Fall River Mills, Hall & Babcock, 4252; Sierra Co., Lemmon, 621; Grenada Station, Heller, 8066; west of Amedee, June 24, 1897, Jones. OREGON: Barren Valley, Leiberg, 2187; Rock Creek, Leiberg, 66; Otis Creek, Leiberg, 2332; eastern Oregon, May 20, 1898, Cusick, 1878; Antelope, Howell, 387; Steins Mt., Howell, 381; Narrows, Peck, 3020.

A. Gibbsii Kell. is closely related to this species but I have seen no intermediate specimens. *A. Gibbsii*, furthermore, occurs only in extreme western Nevada and adjacent California. The species may be contrasted as follows:

Calyx-teeth 2.5–3.5 mm. long; pods turgid, coriaceous; stipes little exceeding the calyx; pubescence soft, spreading.....	<i>A. Gibbsii</i> .
Calyx-teeth 1–1.5 mm. long; pods little turgid, subcoriaceous; stipes long-exserted; pubescence strigillose, subappressed.....	<i>A. curvicaupus</i> .

23. A. HALLII Gray, Proc. Am. Acad. vi. 224 (1864). *Homalobus Hallii* (Gray) Rydb. Bull. Torr. Club, xxxii. 667 (1913).—Colorado.—Middle Park, 1875, Patterson; Como, Crandall & Cowen, 134; South Park, Hughes, 2; 1862, Hall & Harbour, 121; McCoy, Shear & Bessey, 1345.

24. A. FENDLERI Gray, Pl. Wright. ii. 44 (1853). *Phaca Fendleri* Gray, Pl. Fendl. 36 (1840). *Homalobus Fendleri* (Gray) Rydb. Bull. Torr. Club, xxxii. 667 (1906).—Colorado and New Mexico.—COLORADO: Black Cañon, Baker, 376; Apex, Wolf & Rothrock, 226; Los

Pinos, *Baker*, 425; Boulder City, 1862, *Parry*. NEW MEXICO: Los Pinos, *Baker*, 411; between Santa Fé and Canoncito, *A. A. & E. Gertrude Heller*, 3783; between Santa Fé and Pecos, *Fendler*, 157.

25. *A. FLEXUOSUS* Dougl. in *G. Don*, *Gen. Syst.* ii. 256 (1832). *Phaca flexuosa* Hook. *Fl. Bor. Am.* i. 140 (1833). *Homalobus flexuosus* (Dougl.) Rydb. *Bull. Torr. Club*, xxxii. 666 (1906). *H. proximus* Rydb. *Bull. Torr. Club*, xxxii. 667 (1906)? *H. Salidae* Rydb. l. c. ? *A. proximus* (Rydb.) Woot. & Standl. *Contrib. U. S. Nat. Herb.* xix. 366 (1915)?—Saskatchewan to New Mexico, Utah, and Alberta.

I have not seen authentic material of either *H. proximus* Rydb. or *H. Salidae* Rydb. but from description these segregates possess no characters that are not evident in varying degree in the large series of specimens I have seen of this common species.

26. *A. LONCHOCARPUS* Torr. *Pac. R. Rep.* iv. 80 (1857). *Phaca macrocarpa* Gray, *Pl. Fendl.* 36 (1849), not *A. macrocarpus* DC. *Astrag.* 143 (1802). *Homalobus macrocarpus* (Gray) Rydb. *Bull. Torr. Club*, xxxii. 667 (1906). *A. macer* A. Nels. *Bot. Gaz.* lvi. 65 (1913).—Utah and Colorado to New Mexico.—COLORADO: Paradox, *Walker*, 179; Durango, *Crandall*, 4; Pagosa Springs, *Baker*, 416; Naturita, *Payson*, 314. UTAH: 1874, *Parry*, 52. NEW MEXICO: Santa Fé, *A. A. & E. Gertrude Heller*, 3604; also *Fendler*, 160.

V. VARIOUS NORTH AMERICAN SPERMATOPHYTES, NEW OR TRANSFERRED.

By J. FRANCIS MACBRIDE.

✓*CLEOME LUTEA* Hook., var. *Jonesii*, var. nov., staminibus 6 didynimis, eorum 4 brevioribus 2 cm. longis sed 2 ceteris longioribus 3 cm. longis; siliqua lineari-fusiformi circa 4 cm. longa, medio circa 2 mm. lata vix haud torulosa, matura stipite circa 2.5 cm. longo praedita; corolla aurea.—ARIZONA. Verde Valley, July 24, 1920, *W. W. Jones*, 168 (TYPE, Gray Herb.).

In view of the considerable variation displayed in a series of specimens of *C. lutea* it seems best to regard this plant with extremely long filaments and pods as only a variety. The flowers, however, appear to be of a brighter yellow than those of the typical form. The specimen belongs to a small collection of plants, chiefly Arizonan,



Macbride, J. Francis. 1922. "A revision of *Astragalus*, subgenus *Homalobus*, in the Rocky Mountains." *Contributions from the Gray Herbarium of Harvard University* (65), 28–39. <https://doi.org/10.5962/p.336045>.

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