

DESCRIPTIONS OF SEVEN NEW SPECIES OF
PILOPHORUS (Hemiptera, Miridae).¹

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Pilophorus nasicus n. sp.

General coloration and the silvery bands of the hemelytra suggestive of *hendemanni* Popp., but distinguished at once by the conically produced anterior half of head; eyes large, concave behind and set so they cover the anterior angles of pronotum.

♂. Length 2.9 mm., width 1.2 mm. Head: width .81 mm., vertex .31 mm.; overlapping strongly on pronotum, eyes completely covering anterior angles of pronotum. Rostrum, apparently reaching upon middle coxae (imbedded in glue). Antennae: segment I, length .19 mm., thickness .10 mm., dark reddish brown to blackish, yellowish brown on basal one-third, finely yellowish pubescent; III, .34 mm., slender, brownish black, pale at base; IV, .28 mm., blackish, narrowly pale at base. Pronotum: length .48 mm., width at base .97 mm.; lateral margins of disk moderately concave, basal angles sharply rounded. Scutellum rather strongly convex, nearly as in *buenoi* Popp., with tufts of silvery scales on basal angles and apex. Hemelytra with embolar margins only very slightly sulcate, nearly parallel; clothed with very fine, golden to dusky soft pubescence; color yellow brown, apical area of corium and embolium dark fusco-brownish, shining; cuneus uniformly dark fusco-brownish, a tuft of silvery scales on inner basal angle; corium and embolium bearing two interrupted transverse silvery bands, first band one-third of the way back from base of corium, a disconnected tuft set slightly nearer base of embolium, posterior band set slightly behind middle of corium, composed of four silvery tufts, one on embolium, two on corium, and one on clavus set slightly out of line distad, all the silvery scale-like tufts set on dark brown spots. Membrane and veins uniformly fusco-brownish. Epimeron of the mesothorax bearing two tufts of silvery scale-like pubescence, a third tuft on meta-episternum above ostiolar peritreme. Legs yellowish brown, anterior coxae pale in front; tarsi pale, apical segment fuscous. Venter dark brown, shining, two basal segments more or less pale.

¹ Contribution from the Department of Zoology and Entomology, Iowa State College, Ames, Iowa.

Holotype: ♂, Nov., 1911, Newberry, Florida (Wm. T. Davis); author's collection.

***Pilophorus strobicola* n. sp.**

† *Pilophorus crassipes* Knight, Hemiptera, Conn., 1923, p. 542.

Pilophorus crassipes Poppius was described from Colorado specimens and is a different species from the one that breeds on white pine (*Pinus strobus*) in the eastern states, and that I re-described (1923) as *crassipes* Popp. In the original description of *crassipes* Poppius, the first specimen mentioned is from Manitou, Colorado, and judging by the description of the pubescence on the hemelytra this specimen must be regarded as the type from which the description was drawn. The specimens listed from New Jersey and Washington, D. C., belong to a different species, *vanduzeei* Knight, as I have found after examining type material from all the localities mentioned. I have specimens of *crassipes* Poppius from Manitou and Salida, Colorado, and collected it at Trinidad and Ft. Garland, Colorado, and Grand Canyon, Arizona. *Vanduzeei* Kngt. and *uhleri* Kngt. are distinguished from *crassipes* Popp. and *strobicola* n. sp. by the erect, short, black bristles which beset the hemelytra, while the latter two species are clothed only with fine, recumbent, soft pubescence. *Strobicola* is distinguished from *crassipes* Popp. by the more slender and pale antennal segment III and the more sharply clavate segment II.

Holotype: ♂, June 30, 1920, Ithaca, New York (H. H. Knight); author's collection. *Allotype*: same date as the type. *Paratypes*: 24 ♂ ♀, taken with the types on *Pinus strobus*. New York—4 ♂ ♀, July 26, 1916, Ithaca; 18 ♂ ♀, July 13, 1920, Ringwood near Ithaca; 16 ♂ ♀, Sept. 1, 1918, Madison Barracks; 25 ♂ ♀, Aug. 22, 1916, Whiteface Mt. (H. H. Knight). 3 ♂ ♀, Aug. 1-8, 1917, Cranberry Lake (C. J. Drake). 3 ♂ ♀, July 4, 1924, White Plains (J. R. de la Torre-Bueno). Minnesota—10 ♂ ♀, Aug. 18, 1920, Elkhorn Creek, Carlton County (H. H. Knight).

***Pilophorus piceicola* n. sp.**

Suggestive of *strobicola* but distinguished at once by the recumbent black pubescent hairs on the hemelytra and the shorter and more strongly incrassated antennal segment II.

♂. Length 4.2 mm., width 1.5 mm. Head: width 1.06 mm., vertex .51 mm. Rostrum: length 1.7 mm., barely at-

taining posterior margins of hind coxae (missing in type). Antennae: segment I, length .31 mm., fusco-brownish; II, 1.52 mm., gradually thickened from base toward apex, thickness .17 mm. on apical half, rather thickly clothed with black pubescent hairs; III, .53 mm., pale, slender (.057 mm. thick), white, narrowly darkened at tip; IV, .54 mm., pale, fuscous on apical one-third. Pronotum: length .80 mm., width at base 1.28 mm.

Coloration suggestive of *strobicola* but hemelytra yellowish brown except behind the posterior silvery line, being clothed with recumbent, black pubescent hairs and sparsely intermixed with a few golden scale-like hairs; posterior silvery line transverse as in *strobicola*, but more thickly set with silvery scale-like hairs; also the apical area somewhat more strongly shining.

♀. Length 3.8 mm., width 1.5 mm. Head: width 1.09 mm., vertex .57 mm. Antennae: segment I, length .32 mm.; II, 1.58 mm., thickness of clavate portion .17 mm.; III, .60 mm.; IV, broken; coloration as in the male. Pronotum: length .74 mm., width at base 1.20 mm. Very similar to the male in form, pubescence, and coloration.

Holotype: ♂, July 5, 1924, Hartsdale, New York (J. R. de la Torre-Bueno); author's collection. *Allotype*: ♀, July 31, 1920, Cold Spring Harbor, New York (J. R. de la Torre-Bueno). *Paratypes*: 2 ♂ taken with the type on *Picea excelsa*. ♀, July 25, 1922, White Plains, New York (J. R. de la Torre-Bueno).

Pilophorus walshii Uhler, Ent. Amer., iii, p. 30, 1887.

This species is best distinguished from allied forms by the short rostrum which scarcely reaches posterior margin of mesosternum. For purposes of comparison with other species described I am giving some accurate measurements of *walshii* Uhler.

♂. Length 3.3 mm., width 1.22 mm. Head: width .83 mm., vertex .42 mm. Rostrum, length .97 mm., scarcely attaining hind margin of mesosternum. Antennae: segment I, length .23 mm.; II, .98 mm.; III, .34 mm.; IV, .32 mm. Pronotum: length .66 mm., width at base 1.06 mm.

I have found this species breeding only on honey locust (*Gleditsia triacanthos* L.) to which plant it seems to be restricted in its breeding habits. I have collected it at Ames, Iowa, July 2 to September 28, 1925, and Springfield, Missouri, July 18, 1915, always on honey locust. Specimens are at hand from Urbana,

Illinois, September 8, 1916, also collected on honey locust. The type locality of the species is Rock Island, Illinois, where it was collected by B. D. Walsh.

Professor B. B. Fulton published an article (Ann. Ent. Soc. Am., XI, 1918, pp. 93-96) on the habits of a species which he called *walshii* Uhler, on the authority of a determination by Heidemmann. After an examination of his original drawings, as well as judging by the habits of the species which I have also collected on apple and *Crataegus*, we are able to place the species he worked with as *Pilophorus perplexus* D. & S. I have seen specimens of *walshii* Uhler only from the states herewith mentioned, yet its range may well extend into those states where the honey locust thrives in its native habitat.

***Pilophorus australis* n. sp.**

This species runs to *walshii* Uhler in my key to the species of *Pilophorus* (Hemip. Conn., 1923, p. 538) but is distinguished by the longer rostrum which attains posterior margins of intermediate coxae, and in general by the somewhat larger size and reddish brown coloration; from *brunneus* Popp. it is distinguished by the shorter antennal segment II which is not equal to the distance from tip of tylus to basal margin of pronotum, and likewise by the more reddish brown coloration.

♂. Length 3.4 mm., width 1.28 mm. Head: width .88 mm., vertex .39 mm.; a little more sharply produced and the eyes more prominent than in *walshii* Uhler. Rostrum: length 1.37 mm., reaching posterior margins of intermediate coxae. Antennae: segment I, length .26 mm.; II, 1.14 mm., reddish brown, fuscous apically; III, .56 mm., fuscous, basal one-third pale; IV, .48 mm., fuscous. Pronotum: length .63 mm., width at base 1.06 mm., width at anterior angles .64 mm.; appearing more narrow than *walshii* when compared with width of head. General coloration more of a red brown than in *walshii*, with apex of clavus darker and more shining, although the silvery bands and scutellum are very similar.

♀. Length 3.6 mm., width 1.28 mm. Head: width .88 mm., vertex .43 mm. Rostrum: length 1.5 mm., attaining posterior margins of intermediate coxae or to middle of hind coxae. Antennae: segment I, length .28 mm.; II, 1.23 mm.; III, broken. Pronotum: length .63 mm., width at base 1.06 mm. Very similar to the male in form and coloration.

Holotype: ♂, June 17, 1917, Donaldsonville, Louisiana (H. H. Knight); author's collection. *Allotype*: same data as type. *Paratypes*: 4 ♂, taken with the types; in Cornell University col-

lection and Iowa State College collection. My notes show that this species was collected only on *Salix*.

***Pilophorus geminus* n. sp.**

This species runs in the section with *perplexus* D. & S. and *walshii* Uhler in my key to the species of *Pilophorus* (Hemip. Conn., 1923, p. 538), but differs from both in having the posterior silvery band widely dislocated at the radial vein, the inner portion set forward and forming a transverse line with that on clavus.

♂. Length 3.2 mm., width 1.08 mm. Head: width .88 mm., vertex .45 mm. Rostrum: length 1.26 mm., reaching to middle of posterior coxae, brownish, apex blackish. Antennae: segment I, length .23 mm., thickness .085 mm., yellowish to dusky; II, .93 mm., nearly cylindrical, thickness .057 mm., yellowish brown, apical one-third fuscous; III, .40 mm., blackish, pale at base; IV, .38 mm., blackish. Pronotum: length .52 mm., width at base .97 mm.; disk moderately convex, slightly depressed between calli, basal margin of disk broadly sulcate on middle then rounding slightly forward to basal angles. Distance between tip of tylus and base of pronotum 1.06 mm. Head and thorax brownish black, juga and lora more yellowish; clothed with fine, recumbent, fuscous pubescence and intermixed with finer yellowish pubescence, surface scarcely shining. Scutellum nearly as in *walshii* but with fuscous pubescence on disk, the flat apical field set with silvery scale-like hairs as well as the basal angles. Sternum dark brownish, polished; ostiolar peritreme yellowish brown.

Hemelytra light cinnamon yellow, clothed with recumbent fuscous pubescence; base and apex of clavus, outer half of corium and embolium behind the outer piece of posterior silvery band, and the cuneus, dull blackish, scarcely shining when viewed in certain lights; inner basal angle of cuneus and point at apical margin of corium, set with silvery scale-like hairs; basal bands of corium set before middle and directed somewhat obliquely distad; posterior silvery band of corium widely disconnected at radial vein, the inner portion set cephalad and forming a transverse line with silvery scales on clavus. Membrane fuscous, veins and areoles tinged with yellowish. Legs yellowish brown, hind tibiae becoming fuscous, apical segment of tarsi black; coxae pale, fuscous on basal half, apex of front pair yellowish brown, trochanters pale except those of front legs; clothed only with soft fine pubescence.

Holotype: ♂, Aug. 7, 1924, St. Anthony Park, St. Paul, Minnesota (H. H. Knight), collected at light; author's collection.

Paratypes: 2 ♂, June 20, 1921, New Ulm, Minnesota (H. H. Knight); Minnesota University collection. ♀ (teneral), June 11, 1910, Wonewac, Wisconsin (J. G. Sanders).

***Pilophorus fuscipennis* n. sp.**

In the key of Poppius (*Ann. Soc. Ent. Belg.*, 58 (1914) p. 237) to the species of *Pilophorus*, this form runs to *exiguus* Popp. but is easily distinguished by the fuscous hemelytra which are scarcely tinged with brownish, and the somewhat differently formed posterior silvery band; also distinguished by the longer and more sharply produced head.

♂. Length 3.4 mm., width 1.14 mm. Head: width .88 mm., vertex .43 mm.; from tip of tylus to base of vertex .86 mm. Rostrum: length 1.51 mm., reaching to middle of posterior coxae, fusco-brownish, blackish on apical half. Antennae: segment I, length .23 mm., pale fuscous; II, 1 mm., slender, slightly thicker on apical half but scarcely exceeding thickness of segment I, fuscous, darker on apical half; III, .43 mm., blackish, pale at base; IV, .41 mm., black, narrowly pale at base. Pronotum: length .57 mm., width at base .91 mm.; lateral margins strongly sulcate, surface of disk dull, opaque, basal half finely alutaceous; distance from tip of tylus to base of pronotum 1.31 mm. Head and thorax fuscous to black, lower half of face more brownish; clothed with very fine recumbent, yellowish pubescence. Scutellum nearly as in *exiguus* although black in color, with tufts of silvery scales on basal angles and on apex. Sternum dark brownish black, polished.

Hemelytra fuscous although frequently tinged with brownish, clothed with very fine simple, recumbent, fuscous pubescence; basal silvery band nearly as in *exiguus*, posterior band partially interrupted at radial vein, and from inner field of clavus it turns very slightly, obliquely distad, continuing the same direction across clavus to the commissure; the usual shining areas on apex of clavus, the cuneus, and outer half of corium behind the posterior silvery line, are here rather dull or with wax-like sheen; apical margin of corium with about six small points of silvery scales; membrane pale fuscous, but with central area distinctly darker. Legs dark fuscous to black, tibiae more yellowish brown except hind pair, the trochanters and apical half of coxae pale except on front legs, the fore coxae white with only base and apex somewhat darkened. Venter black, moderately shining, with the usual oblique band of silvery scales on sides.

♀. Length 3.3 mm., width 1.24 mm. Head: width .93 mm., vertex .48 mm. Antennae: segment I, length .23 mm.; II, 1.03 mm.; III, .46 mm.; IV, .43 mm. Slightly more robust than the male but very similar in coloration and pubescence.

Holotype: ♂, Aug. 7, 1925, Stonewall, alt. 8,500 ft., near Trinidad, Colorado (H. H. Knight); author's collection. *Allotype*: same data as type. *Paratypes*: 12 ♂ ♀, taken with types on the limber pine (*Pinus edulis*). ♂ ♀, Aug. 10, 1925, Ft. Garland, Colorado (H. H. Knight), taken on *Pinus edulis*. ♂ ♀, Aug. 3, 1917, Grand View, Grand Canyon, Arizona (H. H. Knight). Paratypes in collections of Iowa State College and Colorado Agricultural College.

***Pilophorus opacus* n. sp.**

In the key of Poppius (1914) to the species of *Pilophorus* this form runs to *walshii* Uhler, but it is very different in several respects; in general aspect more nearly that of *clavatus* Linn. but the rostrum and antennal segment II shorter, the dorsal surface darker and more opaque.

♂. Length 4.2 mm., width 1.54 mm. Head: width 1.08 mm., vertex .60 mm.; black, the juga and margins of tylus and lora brownish. Rostrum: length 1.54 mm., just attaining posterior margins of intermediate coxae, piceous. Antennae: segment I, length .28 mm., fusco-brownish, paler beneath; II, 1.38 mm., gradually enlarged toward apex to a thickness of .10 mm., black, reddish brown on basal half; III, .57 mm., rather slender, pale and tinged with reddish, apical half blackish; IV, .46 mm., blackish, pale at base. Pronotum: length .74 mm., width at base 1.28 mm.; black, scarcely shining; distance between tip of tylus and base of disk 1.56 mm. Scutellum nearly as in *clavatus*. Dorsum clothed with simple, recumbent, golden yellow pubescence, the margins of pronotum, scutellum, and the hemelytra sparsely set with erect, stiff, brownish hairs. Clavus black, opaque, with velvety sheen, slender sutural margin and the corium dark chocolate brown, the inner apical field of clavus nearly black, although apical margin paler; posterior silvery band transverse on corium, but dislocated at the claval suture, the band on clavus disconnected and set forward for a space equal to thickness of band. The usual shining areas are here frosted over with a wax-like sheen. Membrane fusco-brownish, slightly darker on central area. Legs black, apical one-third of tibiae more brownish; coxae deep black, apices pale, tro-

chanters pale except on fore legs, fore coxae with paler area across middle. Venter black, moderately shining.

♀. Length 3.7 mm., width 1.4 mm. Head: width 1.11 mm., vertex .63 mm. Antennae: segment I, length .28 mm.; II, 1.31 mm.; III, .48 mm.; IV, .40 mm. Pronotum: length .74 mm., width at base 1.17 mm. Very similar to the male in coloration and pubescence.

Holotype: ♂, Aug. 17, 1925, Gunnison, Colorado (H. H. Knight); author's collection. *Allotype*: same data as the type. *Paratypes*: 3 ♂, taken with the types on *Chrysothamnus*, the largest member of the genus growing in that locality. 4 ♂ 2 ♀, Aug. 15, 1925, Dolores, Colorado (H. H. Knight), on *Chrysothamnus*. ♂, July 31, 1900, Ridgway; ♀, Aug. 2-3, 1900, Dolores, Colorado (E. D. Ball). Paratypes in collections of Iowa State College and Colorado Agricultural College.

Alepidia gracilis (Uhler).

This species was originally described as a *Pilophorus*, but Reuter (1909) made it the type of a new genus, *Alepidia*. Uhler (1895) described *gracilis* as having the hemelytra "not banded." The genus *Alepidia* was described as differing from *Pilophorus* largely in having the hemelytra destitute of silvery, scale-like bands. I have collected specimens in New York and Alabama which bear silvery scale-like patches on the hemelytra which suggest the scale-like bands found in the genus *Pilophorus*. More recently I have received from Mr. W. S. Blatchley a specimen from Florida and one from Indiana which bear the same scale-like pubescence on the hemelytra. The question now arises whether or not *gracilis* Uhler described from Colorado will not prove to have the silvery scale-like patches on the hemelytra when fresh material is carefully collected. The scale-like pubescence found on many species of Mirids is very delicate and requires careful handling to preserve specimens in perfect condition, yet the character of the pubescence furnishes some of the most distinctive characters for separating closely related species.

Since considerable time may elapse before new and perfect specimens of *gracilis* Uhler are collected from the type locality for settling the question of pubescent characters, I take this occasion to propose a varietal name for the eastern form which bears scale-like pubescence. If it is found that perfect specimens of *gracilis* Uhler do not bear scale-like pubescence, which is according to the original description of the species and the founding of the genus *Alepidia* Reuter, then the variety herewith described

would probably prove to be a good species. If *gracilis* Uhler and *Alepidia* Reuter were founded on imperfect specimens then the present varietal name would fall into synonymy.

Alepidia gracilis var. *squamosa* new variety.

Having the same body form as *gracilis* Uhler, but the hemelytra bearing patches of silvery, scale-like pubescence; one such patch near base of corium and two such patches near middle of corium forming a dislocated band, the inner portion connected posteriorly with a scale-like patch on clavus near apex.

Type: ♀, June 9, 1917, Tuskegee, Alabama (H. H. Knight); author's collection. *Paratypes*: ♂ 3 ♀, taken with the type on *Pinus glabra*. 2 ♀, June 11, 1917, Thomasville, Alabama (H. H. Knight). ♂ 3 ♀, July 11, 1920, Taghanic, New York (H. H. Knight), found breeding on *Pinus resinosa*. ♀, Feb. 16, 1913, Kissine, Florida (W. S. Blatchley). ♂, June 14, 1909, Lake County, Indiana (W. S. Blatchley).

While the present form is described with silvery, scale-like bands on the hemelytra as is true of species in the genus *Pilophorus*, the genus *Alepidia* may still be separated by the broad head and parallel-sided hemelytra.