

NEW SPECIES OF PSEUDOPSALLUS VAN D. WITH
AN ALLIED NEW GENUS DESCRIBED
(HEMIPTERA, MIRIDAE).¹

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Bifidungulus new genus.

General aspect much as in *Pseudopsallus* Van D. but the deeply cleft claws require generic separation. Arolia moderately slender and converging apically as in *Orthotylus*; claws sharply bent, deeply cleft much as in *Deraeocoris ruber* L., but basal part or tooth more prominent, the slender apical half of claw extending only one-fourth of its length beyond the top of basal tooth. Genital structures indicate a relationship with *Pseudopsallus*; postero-dorsal margin of the genital segment with chitinous hooks or prongs which appear to be accessory copulatory claspers; genital claspers highly developed and providing specific characters. Pubescence of two types; rather thickly clothed with fine, erect, simple hairs and sparsely intermixed with silvery sericeous pubescence. Refers to the subfamily Orthotylinae. Genotype: *Bifidungulus viridicans* n. sp.

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Suggestive of a small green *Pseudopsallus* but readily distinguished by the structure of the claws; genital structures distinctive.

♂. Length 3.7 mm., width 2.8 mm. Head: width .75 mm., vertex .39 mm.; vertex with slight ridge across base but not carinate, frons moderately convex, tylus visible from above and arcuate as viewed from the side, facial angle nearly a right angle. Rostrum, length 1.25 mm., reaching to middle

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

of hind coxae. Antennae: segment I, length .23 mm., thickness .086 mm.; II, .87 mm., equal in thickness to segment I but more slender at base, thickly clothed with fine yellowish pubescence; III, .60 mm., more slender; IV, .34 mm.; greenish yellow, last two segments dusky. Pronotum: length .65 mm., width at base 1.21 mm., basal margin broadly arcuate, sides nearly straight, disk moderately convex, calli only slightly swollen. Scutellum nearly triangular, slightly convex, mesoscutum moderately exposed.

General coloration green to yellowish, hemelytra semitranslucent, legs and ventral surface more yellowish; tibial spines pale yellowish, without spots at base, claws and tips of tarsi black. Membrane pale to dusky, veins green or yellowish. Clothed with prominent, erect, pale pubescence, intermixed with more sparsely placed, silvery sericeous pubescence. Genital structures distinctive; postero-dorsal margin of genital segment with three spine-like processes, two of these broadly joined at base, somewhat U-shaped but with tips incurved; the third process arises at the right side of the mesal line and points distad.

♀. Length 3.9 mm., width 1.4 mm. Head: width .78 mm., vertex .43 mm. Antennae: segment I, length .22 mm., thickness .10 mm.; II, .86 mm., more slender than segment I; III, .56 mm.; IV, .34 mm.; yellowish, last two segments dusky.

Holotype: ♂ August 4, 1925, Wray, Colorado (H. H. Knight).

Allotype: same data as the type. *Paratypes*: 2 ♀, taken with the types. ARIZONA—3 ♂ 1 ♀, "Ariz." (Gillette). KANSAS—2 ♂ June 27 (Marlatt); 16 ♂ ♀ Sept. Riley County (Popenoe). ♂, Hamilton County (F. H. Snow). TEXAS—18 ♂ ♀ June 9, 4 ♂ 1 ♀ Aug. 9, 1926, Port Lavaca (E. P. Ewing), taken on *Gauva parvifolia*.

Bifidungulus puberis (Uhler).

After examining a male cotype of *Oncotylus puberis* Uhler I find that it is congeneric with *Bifidungulus viridicans* n. sp. *Puberis* Uhler has the same type of claws and arolia as *viridicans*, but size larger and the genital structures different although of the same generic type. I have a male specimen taken April 19, 1924, Tucson, Arizona (A. A. Nichol).

Pseudopsallus artemisicola n. sp.

Color aspect and size of *sericatus* Uhler, but differs in structure of male genitalia, also more finely and sparsely pubescent, the dorsum clothed with white hairs only.

♂. Length 6.3 mm., width 2 mm. Head: width .96 mm., vertex .47 mm. Rostrum, length 1.52 mm., barely attaining hind margins of middle coxae, green to yellowish, apex black. Antennae: segment I, length .38 mm., green to yellowish; II, 1.73 mm., cylindrical, only slightly more slender than segment I, yellowish to brownish, sometimes becoming fuscous, thickly clothed with short brownish pubescence; III, .82 mm., more slender, fuscous; IV, .43 mm., fuscous. Pronotum: length .95 mm.; width at base 1.73 mm.

General coloration pale bluish green, scutellum paler, mesoscutum yellowish, suture blackish. Legs yellowish green, femora with setigerous black points on distal half from which black bristles arise; tibial spines black, without black points at base except three or four basal spines; tarsi yellowish brown, distal segment and claws black. Membrane pale, veins green, cubitus bordered by a yellow calloused line. Clothed with prominent, erect, moderately abundant white hairs, intermixed with more thickly spread, recumbent, silver white sericeous pubescence. Genital structures distinctive, postero-dorsal margin of genital segment armed with three ventrally projecting, blade-like chitinous spines, much longer and more prominent than in *sericatus*, the middle blade widest and sinuate in form; left clasper with a dorsally projecting lobe, its sides nearly parallel, apex rather broadly rounded, summit armed with two short, inturned brown chitinous spines; right clasper distinctive also but not so easily described.

♀. Length 5.8 mm., width 2.12 mm. Head: width 1.01 mm., vertex .56 mm. Antennae: segment I, length .39 mm.; II, 1.73 mm., more slender than in the male, greenish yellow; III, 1.43 mm., yellowish to fuscous; IV, .46 mm. More robust than the male but very similar in pubescence and coloration. All specimens macropterous, with no indication of the brachypterous condition found in *sericatus* Uhler.

Holotype: ♂ August 25, 1925, Hudson, Colorado (H. H. Knight); author's collection. *Allotype*: same data as the type. *Paratypes*: 56 ♂♀, taken with the types on sage brush (*Artemisia filifolia*) where the species was breeding. Perhaps two hours were consumed in sweeping sage brush to obtain the above specimens, whereas at the same time several hundred specimens of *Paracalocoris deleticus* Reut. were taken in the net.

Labopidea sericata Uhler must be referred to the genus *Pseudopsallus* Van D., if the type of genital structures are given due consideration. The type of pubescence and the antennae also con-

firm this relationship. The blade-like chitinous projections on the postero-dorsal margin of the male genital segment appear to form one good character at least which all members of this genus possess.

***Pseudopsallus anograe* n. sp.**

Allied to *artemisiicola* but smaller, deeper bluish green in color; genital structures distinctive.

♂. Length 5.2 mm., width 1.8 mm. Head: width .88 mm., vertex .45 mm. Rostrum, length 1.23 mm., reaching to middle of intermediate coxae, greenish, apex black. Antennae: segment I, length .30 mm., bluish green; II, 1.12 mm., cylindrical, thickness nearly equal to segment I, more slender at base, greenish to dusky; III, .93 mm., fuscous; IV, .39 mm., fuscous. Pronotum: length .74 mm., width at base 1.47 mm.

General coloration deep bluish green, mesoscutum yellowish. Legs uniformly bluish green, tibial spines, tips of tarsi and claws, black. Membrane pale or slightly dusky, veins green; cubitus bordered by a yellowish calloused line. Dorsum clothed with prominent, erect, blackish hairs, also with pale ones on embolium and margins of pronotum, the whole intermixed with sericeous, silvery scale-like pubescence. Genital structures distinctive; postero-dorsal margin of genital segment with four chitinous processes, number one on the left side small and spine-like, the second arising near middle strongly sinuate, curving to the left side, apical half slender, needle-like and pointing distad; third process arising to right of median line, blade-like; fourth process arising to the right of and beneath the third, about the same length but more slender than the third. Dorsal lobe of left genital clasper terminating in a slender acuminate spine which in normal resting position points cephalad.

♀. Length 4.8 mm., width 1.8 mm. Head: width .91 mm., vertex .43 mm. Antennae: segment I, length .30 mm., yellowish; II, 1.01 mm., greenish yellow, becoming fuscous apically; III, .86 mm., fuscous; IV, .39 mm., fuscous. Pronotum: length .74 mm., width at base 1.44 mm.

Holotype: ♂ August 17, 1925, Gunnison, Colorado (H. H. Knight); author's collection. *Allotype*: August 25, 1925, Hudson, Colorado (H. H. Knight). *Paratypes*: 6 ♂, taken with the type on *Anogra coronopifolia* (T. & G.) where the species was breeding. ♀ August 26, 1925, Sterling, Colorado (H. H. Knight), taken on the same host plant as determined by Dr. L. H. Pammel. ♂ June 9, 1920, Fort Collins, Colorado.

Pseudopsallus abroniae n. sp.

A pale dusky form with antennae, calli, and arcuate marks on the frons fuscous; genital claspers distinctive.

♂. Length 5.7 mm., width 2.2 mm. Head: width .96 mm., vertex .39 mm.; eyes larger and tylus more prominent than in *sericatus* Uhler. Rostrum, length 2 mm., attaining posterior margins of hind coxae, dusky to fuscous, apical segment black. Antennae: segment I, length .35 mm., dusky, fuscous near base; II, 1.51 mm., cylindrical, nearly the thickness of segment I but more slender at base, dusky to fuscous, thickly clothed with rather short fuscous pubescence; III, .97 mm. more slender, blackish; IV, .32 mm., black. Pronotum: length .91 mm., width at base 1.77 mm.

General coloration dusky pale, with calli, arcuate mark each side of frons, sternum except side, tibial spines and tips of tarsi, fuscous to black. Legs dusky, femora with rows of obsolete fuscous dots. Mesoscutum moderately exposed, yellowish to orange colored. Membrane uniformly dusky or pale fuscous, veins paler. Clothed with prominent, erect, simple brownish hairs and rather sparsely intermixed with fine, recumbent, pale to yellowish sericeous pubescence, thicker on sides of abdomen. Genital structures distinctive, left clasper with dorsal lobe bluntly acuminate, apex armed with a pair of small spines; postero-dorsal margin of genital segment armed with three ventrally projecting chitinous spines, the right hand one blade-like, its apex widened and finely dentate.

♀. Length 5.9 mm., width 2.5 mm. Head: width .99 mm., vertex .48 mm. Antennae: segment I, length .38 mm.; II, 1.6 mm., cylindrical, more slender than segment I; III, .95 mm.; IV, .32 mm. Pronotum: length .97 mm., width at base 1.94 mm. More robust than the male but very similar in pubescence and coloration.

Holotype: ♂ August 25, 1925, Hudson, Colorado (H. H. Knight); author's collection. *Allotype*: same data as the type. *Paratypes*: 24 ♂♀, taken with the types on *Abronia elliptica* where the species was breeding. 2 ♂ 1 ♀ June 10, 1900, Ft. Lupton, Colorado (E. D. Ball). ♂ April 26, 1903, Phoenix, Arizona.

Pseudopsallus tanneri n. sp.

Allied to *sericatus* Uhler, but distinguished by the longer and more slender black antennae, and in structure of the male genital claspers.

♂. Length 5.9 mm., width 2.9 mm. Head: width 1.03 mm., vertex .59 mm.; frons and base of tylus more prominent

than in *sericatus*. Rostrum, length 1.2 mm., just attaining hind margin of sternum, green, last two segments black. Antennae: segment I, length .44 mm., fuscous to black, green at base; II, 1.66 mm., black, distinctly more slender than in *sericatus*; III, broken. Pronotum: length .78 mm., width at base 1.54 mm.

General coloration bluish green, basal line of scutellum, antennae, apical half of rostrum, tibial spines and tarsi, black. Membrane pale to dusky, veins bluish green. Clothed with prominent, erect, simple pale hairs and thickly intermixed with silvery white, sericeous to scale-like pubescence, being very much like *sericatus* in this respect. Genital claspers distinctive, left clasper with dorsal half vertical, sides parallel, not at all acuminate, dorsal edge curved slightly inward, broadly and rather deeply notched, leaving the dorsal angles acuminate and curved slightly cephalad; postero-dorsal margin of genital segment set with four prominent blade-like, chitinous projections, whereas *sericatus* has only two blades and a small spine.

♀. Length 5 mm., width 2 mm. Head: width 1.15 mm., vertex .74 mm. Antennae: segment I, length .44 mm.; II, 1.69 mm.; III, 1.35 mm.; IV, .47 mm.; greenish to fuscous, last two segments darker. Pronotum: length .80 mm., width at base 1.58 mm. More robust and hemelytra shorter than in the male, but very similar in pubescence and coloration.

Holotype: ♂ June, 1927, Mesa Verde National Park, Colorado (Vasco M. Tanner); author's collection. *Allotype*: June 11, 1915, beyond Jacumba, San Diego Co., California (Harold Morrison), from sage-brush; author's collection. *Paratypes*: 3 ♂ 2 ♀, taken with the allotype; unfortunately poorly preserved, but the male claspers are very distinctive and undoubtedly belong here. UTAH—2 ♂ June 23, 1913, Kanab (E. D. Ball). ♂, La Sal (Vasco M. Tanner). ♀ Aug. 4, 1921, Butte, Montana (F. M. Sallee). Named in honor of Dr. Vasco M. Tanner who collected and preserved the best male specimen.

***Pseudopsallus davisii* n. sp.**

Distinguished from allied species by the prominent, erect, black hairs on the dorsum; probably more closely allied to *tanneri* as shown by form of left genital clasper, but the black bristle-like hairs and other characters separate it easily.

♂. Length 5.4 mm., width 1.7 mm. Head: width .93 mm., vertex .476 mm. Rostrum, length 1.17 mm., reaching to base of hind coxae, green, apex black. Antennae: segment I,

length .30 mm., green, set with four or five black setose hairs; II, 1.17 mm., distinctly more slender than segment I, green to dusky, set with rather prominent black hairs and intermixed with some finer, paler pubescence; III, .82 mm., fuscous; IV, broken. Pronotum: length .74 mm., width at base 1.38 mm.

Color rather uniformly deep bluish green; femora with many setigerous fuscous points from which black hairs arise, tibia with prominent black spines but not arising from distinct spots, base and apex of tarsi blackish. Membrane uniformly pale dusky, veins pale to green, a calloused line bordering larger areole. Clothed with erect, black, bristle-like hairs on dorsum, vertex and apical half of venter, also a few white hairs on pronotum, head and embolium, the whole closely intermixed with sericeous to scale-like, silvery white pubescence. Genital structure distinctive; left clasper much as in *tanneri*, the dorsal lobe broadly notched above; postero-dorsal margin of genital segment with a pair of chitinous processes on left of mesal line, much as in *tanneri*, but right side with a single, broad, flat process which terminates as a sharp spine at outer or ventral margin.

Holotype: ♂ July 15, 1929, Richfield, Utah (E. W. Davis), taken at light trap; author's collection. Named in honor of Mr. Edgar W. Davis who has favored the author with several interesting species of Miridae.

***Pseudopsallus nicholi* n. sp.**

Allied to *demensus* Van D., but genital structures show distinctions; smaller and more delicate than *demensus*, pale to bluish green; dorsal lobe of left clasper more rounded at apex, whereas in *demensus* the apex is acute.

♂. Length 4.4 mm., width 1.5 mm. Head: width .87 mm., vertex .41 mm. Rostrum, length .97 mm., scarcely attaining hind margin of sternum, yellowish, apex black. Antennae: segment I, length .30 mm., greenish yellow; II, 1.3 mm., cylindrical, scarcely equal to thickness of segment I, yellowish to green, becoming fuscous apically; III, 1.1 mm., fuscous; IV, .41 mm., fuscous. Pronotum: length .68 mm., width at base 1.3 mm.

Color pale to bluish green, legs yellowish, pronotum, hemelytra and venter more greenish. Membrane pale to slightly dusky, veins pale to greenish, an opaque calloused spot bordering apex of larger areole. Clothed with moderately prominent, simple, white pubescent hairs and intermixed with sil-

very white, sericeous to scale-like pubescence. Genital structures distinctive; dorsal lobe of left clasper with sides nearly parallel, dorsal extremity rounded off and not acute as viewed from the side, although viewed from above the inner edge with a slight projection; postero-dorsal margin of genital segment with two flat blade-like chitinous projections, one arising each side of mesal line, curving mesad, their tips nearly touching.

♀. Length 4.3 mm., width 1.6 mm. Head: width .87 mm., vertex .47 mm. Antennae: segment I, length .30 mm.; II, 1.34 mm., distinctly more slender than segment I; III, 1.08 mm.; IV, .39 mm.; yellowish green, last two segments becoming fuscous. Pronotum: length .69 mm., width at base 1.34 mm. Form slightly more robust than the male, but very similar in pubescence and coloration.

Holotype: ♂ June 14, 1928, alt. 6000 ft., Huachuca Mts. (A. A. Nichol). *Allotype*: same data as the type. *Paratype*: ♀, taken with the types.

Pseudopsallus demensus (Van D.).

I have a male paratype of *Orthotylus demensus* Van D. and find that the male claspers and other characters refer this species to the genus *Pseudopsallus*. I have taken the species on *Gaura coccinea* Pursh. where it was breeding July 31, 1927, Moorecroft, Wyoming, also July 30, Sundance, Wyo., and Aug. 19, 1927, Custer, South Dakota. Also have a specimen labeled June 24, 1920, Fort Collins, Colorado (G. M. List).