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Volkovitshilus sg.n. and Bilyilus sg.n., two new subgenera of Indo-Pacific Agrilus Curt. (Coleoptera: Buprestidae)

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Introduction

This paper is a continuation of my attempts (HOŁYŃSKI 2003, 2018a-c) to initiate the clarification of subgeneric classification of the enormous (*ca.* 4000 described species) genus *Agrilus Curt*. Like in the earlier contributions, I follow the convention of naming new subgenera after eminent students of the theory (basic principles of evolution and systematics) and practice of buprestid (esp. Indo-Pacific) taxonomy: the two subgenera established here are dedicated to my former friends, now unfortunately malicious enemies, but anyway unquestionably leading experts in the field, Mark G. VOLKOVITSH and Svatopluk BÍLÝ.

Conventions

Like in my other publications (unless "corrected" by editors...), I follow the very useful conventions of applying (of course, except wordly citations, where the original form must be retained) SMALL CAPS to *all* [irrespective of context and full *vs.* abbreviated version: inconsistent use deprives the display of any sense!] personal family- (*not* given-) names, *italicizing* species- and genus-group names (as well as citations and words in languages different from that of the main text), and writing the suprageneric taxon-names in **Bold** [the latter is not a generally accepted custom, but is often important, as some of such names (*e.g.* of the subtribes **Buprestina LEACH**, **Melobasina BÍLÝ** or **Coraebina BED.**) are (or may easily become) "homonymous" (but valid!) with generic or subgeneric ones (*Buprestina OBB.*, *Melobasina KERR.*, *Coraebina KERR.*)]: we must make possibly unequivocal what we have in mind, and possibly easy for the reader to "optically" spot the "wanted" name in the (especially longer) text!

Labels of type-specimens are quoted as exactly as possible, including *italics* and *handwriting* (both represented in my text by *italics*), CAPITAL LETTERS, SMALLCAPS and framing. Determination- and type-designation labels added by me are not cited: the former are white, in the form like "Agrilus accentifer HOL., det. R. HOLYŃSKI" with year of determination written vertically on the left side; the latter red [for primary types, *e.g.* "Agrilus accentifer HOLYŃSKI, HOLOTYPE"] or green [for paratypes; in some museums visited long ago (*e.g.* BMNH) "my" paratypes may still bear *red* labels "PARATYPE" (without taxon name)].

Abbreviations:

L = lengthW = width

H = width of head with eyesV = width of vertex between eyes

 \emptyset = sex unknown

 $BP_{***} = (e.g. BPlma)$: specimen-identifying signature

Collection acronyms:

BMNH = Natural History Museum, London, GREAT BRITAIN

KBIN = Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, BELGIUM

RBH = Roman B. HOŁYŃSKI, Milanówek, POLAND

Volkovitshilus sg.n.

Type species: Agrilus livens KERREMANS 1892a: 825

General characteristics: Body small to medium-sized (4-11 mm.), usually rather robust; dorsal side mostly brown but sometimes black, blue, dark green, or elytra bicolorous; pubescence white or grey, sparse, recumbent, condensated (often indistinctly) on elytra in form of more or less irregular marbling and/or one or two larger spots or undulating fasciae. Head large, not or but slightly narrower than pronotum; epistome moderately wide, separated from front by distinct carinula; front usually wider than long, sides converging downwards, shallow but broad median sulcus forms usually - with pair of less conspicuous foveae on sides – a cross-like pattern or extensive almost unstructured all-inclusive depression; surface densely punctulate, punctures often partly coalescent into arcuate strigae; vertex wide (V:W>0.5), eyes moderately protruding. Pronotum robust-looking, ca. as wide or wider than elytra, sides slightly irregularly arcuate, apical margin not or but slightly narrower than base, anterior lobe usually prominent, basal angles almost always obtuse; median sulcus more or less clearly divided into broad prescutellar and often less distinct preapical foveae, both frequently overlain with transverse prebasal and preapical sulci; prehumeral carinula on pronotum more or less distinct, S-shaped, usually extending to or beyond midlength; marginal and submarginal carinae widely separated in anterior half, rather abruptly approached behind midlength, confluent or almost so before hind angles. Elytra sinuately subparallelsided to or beyond midlength, arcuately or cuneately tapering to separately rounded or subtruncate very finely serrulate apices; perisutural depressions indistinct or totally indiscernible; surface very finely granular, mat. Gular lobe prominent, anterior margin arcuate, truncated or broadly emarginated, sometimes with minute incision at middle; prosternal process broad, sides parallel or somewhat divergent to straightly or somewhat roundedly truncated (median apical denticle being usually bent upwards and thence practically indiscernible) apex; first sternite regularly convex in both sexes; pygidium not mucronate. 1. metatarsomere subequal to or longer than three following combined. Sexual differences appreciable only in somewhat longer pubescence of prosternal process and sometimes flatter and greener front in male.

Included species: A. ambiguus KERR., A. inamoenus KERR., A. tonkineus KERR., A. auriventris SND., A. livens KERR., A. occipitalis ESCH., A. citri sp.n., A. mediocris KERR., A. olivaceidorsis OBB., A. angulatus (F.), A. grisator KERR., A. nubilus KERR., A. accentifer sp.n. [JENDEK & GREBENNIKOV (2011) consider A. grisator KERR. a synonym of A. nubilus KERR., but specimens from S-India seem to rather consistently differ (e.g. in form of vertex or hind angles of pronotum) from those of Indochina, so deserve at least subspecific distinction].

Geographical distribution: Very widely distributed throughout the Indo-Pacific Region, although it is not always easy or even possible to differentiate between the native occurrence and results of anthropogenic introductions (almost all representatives of *Volkovitshilus sg.n.* develop in *Citrus* trees).

Remarks: Highly distinctive subgenus: robust head and pronotum, peculiar pattern of elytral pubescence, in combination with prominent gular lobe, apparently widely truncated prosternal process, &c., make it easily recognizable. Here belong most of the species forming Jendek's (2013, Jendek & Nakládal 2019) A. occipitalis and A. angulatus "speciesgroups" (by the way, I have no idea as to how he discriminates between them: no distinguishing [sets of] characters are specified, nor can any be found in the respective diagnoses). Named after eminent specialist of, especially, the tribe **Acmaeoderini Kerr.**, Mark G. Volkovitsh.

Agrilus (Volkovitshilus) citri sp.n.

Material examined:

Holotype: "Mandalay, Myco; Coll, 26. 4. 34" "Ex B.M. [N.H.] Duplicates" "C.S. No:1549, On Citrus" "Agrilus citri Thery, Det. Thery" [♂ (BMNH)]

Paratypes: "On Citrus, Mandalay" "Ex B.M. [N.H.] Duplicates" "A. Ba Te Coll, 15 4. 34" "Agrilus citri Thery, Det. Thery" 1 ♂ [damaged] [RBH: BPlmb]; "Mandalay, Myco; Coll, 26. 4. 34" "Ex B.M. [N.H.] Duplicates" "On Citrus" "citri Thery, THERY det." 1 ♀ [RBH: BPlmc]

Additional material: 7 ø

Holotype: Male, 6.7×1.8 mm. Brown with cupreous front, some reflexions on pronotum, dense irregular (except somewhat better defined broad zigzaggy band at ca. apical fourth) elytral spots, and ventral side. Pubescence golden-cupreous, very short, moderately dense, recumbent on elevated part of front and on elytral markings; similar but paler and sparser on metasternum and abdomen; definitely longer, very dense, whitish semierect on supraepistomal depression of front and on prosternum (especially prosternal process); practically unappreciable otherwise.

Antennae rather long (reaching to basal fourth of pronotum) but moderately thick, serrate from 4. joint, which is ca. as long as 2. and slightly longer than 3. Epistome separated from front only by inconspicuous transverse elevation, not quite twice wider than at middle long, distinctly depressed along midline, apex shallowly emarginated. Front ca. as wide as long, but slightly narrowed downwards, sides shallowly S-shaped; surface strikingly subdivided into two rather sharply demarcated parts: transverse supraepistomal (very finely and densely punctulate and covered with dense whitish pubescence) depression occupying apical $\frac{1}{4}$ (extended to midlength on median third), and coarsely punctured, sparsely recumbently pubescent, broadly but shallowly longitudinally depressed (looking flat in dorsal aspect) upper portion. Vertex broadly and rather deeply impressed at middle, longitudinally strigose, V:H \approx 0.5. Eyes strongly convex but not distinctly protruding from head outline.

Pronotum distinctly cordiform (sides strongly S-shaped, anterior margin wider than base, maximum width at apical third), moderately transverse (L:W≈0.7); apical lobe broad, basal angles slightly acute. Prehumeral carinula almost straight to near midlength, then abruptly turning outwards and again forwards, and running parallel to lateral margin (close to it but not joining) up to *ca.* apical fifth. Broadly rounded prescutellar, shallow transverse at middle of apical margin, and pair of deep S-shaped (inside of prehumeral carinulae) depressions leave not much space for elevated parts. Surface transversely punctatorugose. Marginal and submarginal carinae S-shaped, rather widely separated in apical part, strongly approachad at midlength and confluent before base. Scutellum (not counting rather prominent median denticle) *ca.* 3× wider than long; scutellar carina sharp, conspicuous.

Elytral sides very shallowly sinuately parallel to midlength, then cuneately tapering to subangularly rounded, finely serrulate apices; sides of abdomen visible from above. Disk convex, without apparent costa, somewhat flattened on basal half, shallowly sulcate on both sides of stutre on apical fourth; surface very finely and densely granular.

Gular lobe prominent, broadly rounded; prosternal process rather broad, sides divergent to roundedly truncated apex, medioapical denticle inapparent. Abdomen regularly convex, last ventral segment rounded, minutely incised at apex. Pygidium without projecting carina. First metatarsomere subequal to the next three together.

Variability: Female paratype larger, more robustly built (7.9×2.0 mm.), and having shorter pubescence on prosternal process, but otherwise almost identical to the holotype.

Geographical distribution: Known only from the type locality: Mandalay in Upper Burmah, where also 7 additional specimens seen in BMNH were collected.

Remarks: A. citri sp.n. was marked as a new species in collections by Thérry but has apparently never been described — I retain here the name selected by him. It is easily recognizable within the subgenus by squat body, cordiform pronotum and peculiar, micropunctulated and densely pubescent supraepistomal depression on otherwise unusually (for the subgenus) flat front.

Agrilus (Volkovitshilus) accentifer sp.n.

Material examined:

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Holotype: "Hoa-Binh" "accentifer Théry, THERY det." "collection, Dr. LOTTE" [ø (KBIN)]
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Paratype: "U.Burmah, N-Shan St., Möng-Mit" [ø (RBH: BPlma)]

Additional material: none

Holotype: Sex unknown. 7.5×1.7 mm. Head, pronotum and ventral side bright darkblue, anterior ½ (at suture) to ¼ (laterally) of elytra dark violaceous, remaining (blurredly demarcated) surface light purplish-cupreous [unfortunately not apparent on picture...]. Pubescence whitish, recumbent on front, three (small indistinct just behind scutellum, obliquely transverse at midlength, and cuneate at apices) pairs of condensed elytral spots, and uniformly short and sparse on undersurface, otherwise hardly appreciable.

Antennae short (not extending beyond vertex), thin, serrate from 4. (subequal to 2., much longer than 3.) joint. Epistome between antennal grooves ca. as wide as long, separated from front by sharp carinula. Front above ca. as wide as long, sides strongly, almost straightly convergent downwards; broadly but not very deeply depressed along midline; frontal puncturation moderately coarse, evenly spaced. Vertex rather broadly impressed, on both sides (separately) circularly punctatostrigose, rather wide (V:H \approx 0.6). Eyes not prominent.

Pronotum moderately transverse, *ca.* 1.5× wider than long, widest at apical fourth; sides very shallowly arcuately convergent to base and shortly rounded to apex; apical margin *ca.* as wide as base, anteromedian lobe shallow; basal angles sharp, right. Prescutellar depression deep, broadly ovate, extending to midlength; lateral sulci broad at base but narrowing anterad, vanishing at anterior fourth; anterior part of disk regularly convex. Surface finely densely transversely punctatorugose. Prehumeral carinula sharp, well developed, very shallowly S-shaped, running close to lateral margin but vanishing at apical third without joining it. Marginal and submarginal carinae shallowly S-shaped, rather widely separated in apical half but confluent in basal third. Scutellum short but very wide, *ca.* 5× wider than long (not counting small posteromedian denticle), sharply transversely carinulate.

Elytra widest at humeri, parallelsided in *ca*. basal ½7, then sides sinuately convergent to midlength and cuneately tapering to rather broadly rounded very finely serrulate apices; sides of abdomen narrowly visible from above. Disk convex, without distinct costa, basal depressions moderately deep, perisutural sulci indistinct in basal fourth, rather deep and narrow in apical fourth, broad but shallow in between; surface very finely and densely granular, mat.

Gular lobe prominent, broadly but shallowly arcuately emarginated; prosternal process delimited just before procoxae by shallow transverse depression, flat, very broad, wider than long, sides slightly divergent to somewhat tuberculately prominent lateroapical angles, apex

straightly truncated. First abdominal segment regularly convex; anal sternite apically rounded with shallow median emargination. Pygidium without projecting carina. First metatarsomere somewhat longer than next three together.

Variability: Paratype (9.2×2.1 mm.) similar in form and colouration (posterior part of elytra lighter, more contrastingly cupreous-bronzed), but transverse pubescent band wider and distinctly wavy, prosternal process shallowly depressed apically, and median emargination of anal sternite somewhat deeper; otherwise practically identical to holotype.

Geographical distribution: Widely disjunct: known only from the type locality (Hoa-Binh in Tonkin) and from Möng Mit in Upper Burma where the paratype has been collected.

Remarks: As evidenced by the label on the holotype, A. (V.) accentifer sp.n. was recognized long ago by Théry, but apparently has never been formally described; I decided to retain the name he had chosen. The species seems very close to A. (?V.) bonnottei BG. – know to me, unfortunately, only from BOURGOIN's (1925) rudimental "diagnose préliminaire", keys [partly contradictory, to the point that the Authors classify the species in different subdivisions: "III. Groupe de A. octonotatus" ("Elytres avec des dessins clairs en forme de mouchetures nettes subarrondies") vs. "F) – Groupe de A bonnotei BOURGOIN" ("Elytres recouverts d'une pubescence apparente, celle-ci régulièrement répartie, ou formant des fascies charactéristiques, ou disposées en bandes longitudinales")] in DESCARPENTRIES & VILLIERS (1963) and BAUDON (1968), one line long diagnosis in JENDEK & GREBENNIKOV (2011) and two photographs there – which seems to differ e.g. in elytral colouration (basal part and apices extensively blue, the rest violaceous), prescutellar depressions on pronotum "s'approfondissant et s'élargissant à la base", scutellum only twice as wide as long, and much broader pubescent spots near scutellum and at elytral midlength.







Fig. 1
A. (V.) citri sp.n. $[\subsetneq PT]$

Fig. 2 Fig. 3
A. (V.) accentifer sp.n. [HT] A. (B.) suzukii KUR. [BPdin]

Bilyilus sg.n. **Type species:** Agrilus suzukii KUROSAWA 1985: 158-160

General characteristics: According to my present knowledge monotypic taxon, thus subgeneric characters are those of the only included, small (4–6 mm.), bronzed type-species characterized by peculiar elytral pattern: two (just before midlength and at apical third) pairs of somewhat elongated spots on extensive seemingly glabrous (in fact sparsely covered with

dark setulae) middle of disk, surrounded by contrastingly conspicuous area of whitish pubescence on sides, behind base and before apex; pilosity of head, lateroapical area of pronotum, and underside similar to that of elytral sides; pronotal disk glabrous. Front barely longer than wide, subparallelsided, slightly convex, rather coarsely punctured, with small rounded supraepistomal fovea representing median depression; vertex rather narrow (V:H \approx 0.4), slightly depressed at middle; eyes large, strongly convex. Pronotum transverse (L:W \approx 0.7), widest near midlegth, sides shallowly S-shaped, basal angles acute in dorsal aspect; very indistinct prebasal and somewhat deeper lateral depressions leave disk regularly convex; prehumeral carinulae sharp, almost straight, reaching to near midlength; marginal and submarginal carinae confluent in basal third. Scutellum cordiform, slightly wider than long, transversely carinulate. Elytra slightly but distinctly "caudate", apices broadly separately rounded and finely serrulate; perisutural depressions very shallow, inconspicuous. Anterior margin of gular lobe somewhat emarginated; apical dent of prosternal process long and acute; 1. abdominal segment regularly convex; apex of anal sternite rounded. 1. metatarsomere ca. as long as 2.-5. together.

Included species: A. suzukii KUR.

Geographical distribution: Known only from Haha-jima, the second-largest island of the Bonin Archipelago.

Remarks: In peculiar pattern of elytral pubescence *Bilyilus sg.n.* remotely resembles *sg. Jendekilus HoŁ.* (which, however, clearly differs in apparently glabrous area restricted to the space between anterior and posterior spots, elytral apices laterally acute, &c.); it shows also some similarity to *Degeerilus HoŁ.*, in which, however, vertex occupies no less than 0.5 of the head width, prehumeral carinulae are either almost entire or practically lacking, and elytra (except 1-3 pair of small spots) almost evenly pubescent. Dedicated to the best connoisseur of the subtribe **Anthaxiini C.G.** and its relatives, Svatopluk BíLý.

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