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Distribution and taxonomy of some *Synapsis* species, with description of *S. strnadi* sp. n. from Vietnam (Coleoptera: Scarabaeidae)

David KRÁL

Department of Zoology, Charles University, Viničná 7, CZ–128 44 Praha 2, Czech Republic;
e–mail: kraldavid@centrum.cz

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Abstract. *Synapsis strnadi* sp. n., discovered in primary forest of northern Vietnam, is described and illustrated. The new species belongs to the *S. ovalis* Boucomont, 1920 species aggregate. It can be separated from the three so far known species of this species aggregate mainly by the pronotum outline obliquelly cut off anterolaterally and the rugopunctate ventral surface of metafemur. The *S. ovalis* species aggregate is keyed. *S. yunnanus* is removed from synonymy with *S. tridens*, considered a valid species, and separated from closely related *S. brahminus* (Hope in Gray, 1831), *S. davidis* and *S. tridens*. Lectotype designation is provided for *S. batesi* Sharp, 1875; *S. davidis* Fairmaire in Deyrolle et Fairmaire, 1878; *S. ovalis* Boucomont, 1920; *S. tridens* Sharp, 1881 and *S. yunnanus* Arrow, 1933. Known distribution areas of several species are extended.

Taxonomy, new species, revalidized status, lectotype designation, key, distribution, Scarabaeoidea, Scarabaeinae, Coprini, *Synapsis ovalis* species aggregate, Palaearctic region, Oriental region

INDROTUCTION

During last years alpha taxonomy of the coprine genus *Synapsis* Bates, 1868 has been quite more intensively studied. Fifteen years ago Krikken (1987) knew only 12 species. Currently the genus comprises surprisingly 20 species (Ochi 1992, Masumoto 1996, Hanboonsong & Masumoto 1999, Král & Rejsek 2000) including one newly described and one revalidized species in this paper. Recently, first attempts at classification within the genus were suggested by Hanboonsong & Masumoto (1999). They have proposed the following three species aggregates: *Synapsis birmanicus* Gillet, 1907; *S. ovalis* and *S. simplex* Sharp, 1875 species aggregate. However, this classification does not cover all described representatives. Distribution areas of majority of predominantly oriental species remain still very poorly known. This is probably caused by lack of material from large regions and by highly secretive way of life of some species.

MATERIAL AND METHODS

The following codes (after Arnett et al. 1993) identify the collections housing the material examined:
BMNH – United Kingdom, London, Natural History Museum (Martin Brendell, Malcolm Kerley);
DKCP – Czech Republic, Praha, Charles University, David Král collection;
ISNB – Belgique, Bruxelles, Institut Royal des Sciences naturelles de Belgique (Didier Drugmand);
JSCP – Czech Republic, Praha, Jan Schneider collection;
MNHN – France, Paris, Muséum national d'Histoire naturelle (Yves Cambefort, Olivier Montreuil);
NMPC – Czech Republic, Praha, National Museum, Natural History (Josef Jelínek);
SJCP – Czech Republic, Praha, Stanley Jakl collection;
SMTD – Germany, Dresden, Staatliches Museum für Tierkunde (Dirk Ahrens, Olaf Jäger);

ZMAS – Russia, St. Petersburg, Zoological Museum, Russian Academy of Sciences (Boris M. Kataev, Mark G. Volkovich);
ZMHB – Germany, Berlin, Museum für Naturkunde der Humboldt Universität (Fritz Hieke, Manfred Uhlig).

Specimens of the newly described species are provided with one red printed label: "Synapsis strnadi sp. n., HOLOTYPUS or PARATYPUS with No., and sex symbol for female, David Král det. 2002". In the case of lectotype and/or paralectotype designations, each specimen bears a red printed label: "Name of the taxon in original combination, LECTOTYPUS or PARALECTOTYPUS with No., and sex symbol for male or female, David Král des. 2002".

Exact label data are cited for the type material only. Authors' remarks and addenda are found in square brackets, [p] – the preceding data within a quotation are printed, [hw] - the same, but handwritten, separate labels are indicated by double slash "//".

The lectotype and paralectotypes are designated in order to preserve stability of nomenclature in this group, according to the Article 74.7.3 of the Code (ICZN 1999).

TAXONOMY AND DISTRIBUTION

Synapsis boonlongi Hanboonsong et Masumoto, 1999

Synapsis boonlongi Hanboonsong et Masumoto, 1999: 460, 461, figs 6, 9.

TYPE LOCALITY. Phukieo, 800 m alt., Chaiyaphum prov., NE Thailand.

MATERIAL EXAMINED. **Thailand**: Thaïlande, Khao Yai, viii. 1986, Dr. F. Garnier lgt., 1 male in DKCP; Thaïlande, Chiang Mai, viii.1986, Dr. F. Garnier lgt., 2 spec. in SJCP.

DISTRIBUTION. Thailand.

Synapsis brahminus (Hope in Gray, 1831)

Copris brahminus Hope in Gray, 1831: 22.
Synapsis brahminus: Bates, 1868: 89 (note); Sharp, 1875: 45 (note, distribution); Gillet, 1911b: 63 (catalogue); Arrow, 1931: 81, 82, pl. 7: fig. 9 (diagnosis, key); Balthasar, 1963: 290, 292 (diagnosis, key).
Synapsis Batesi Sharp, 1875: 43 (type locality: India bor.); Gillet, 1911b: 63 (catalogue); (syn. by Arrow, 1931: 82); Balthasar, 1963: 292 (as syn. to *S. brahminus*).

TYPE LOCALITY. India or.

TYPE MATERIAL EXAMINED (5 specimens). **India**: lectotype (male), by present designation, labelled: North India [hw] Synapsis Batesi Type D. S. [David Sharp] [Sharp's hand] // Ex. Musaeo D. Sharp 1890 [p] // G.J. Arrow vidit 1928 [p]; paralectotypes Nos 1–4 (not sexed), labelled: North India [hw] Synapsis Batesi Sharp [probably Sharp's hand] // Ex. Musaeo D. Sharp 1892 [p]; all in MNHN.
ADDITIONAL MATERIAL EXAMINED (62 specimens). **Bhutan**: British Bootang, Maria Basti, 1899, 1 spec. in MNHN; Bootan Indep., Native Collect., 1913, 39 spec. in MNHN, 1 spec. in NMPC; British Bootan, Padong, L. Durel 1914, 8 spec. in MNHN; Pedong, Desgodins, Muséum Paris 1936 A. Boucomont, 1 spec. in MNHN; **India, Assam**: India or., Assam, 1 spec. in MNHN; **India, Meghalaya**: Shillong, Assam // Ex Musaeo D. Sharp 1890, 2 spec. in MNHN; Khasi Hills, 2 spec. in MNHN; **India, West Bengal (district Darjeeling)**: Kurseong, Inde, Verschraegen, 1904, 1 spec. in MNHN; Darjeeling, A. Desgodins, 2 spec. in MNHN; Kurseong, 1 spec. in MNHN; **Nepal**: E – Nepal, Koshi, Gorza, 2100m, 5.–6.vi.1985, C. Holzschuh lgt. // coll. Jan Schneider (Praha), 1 male in JSCP; Nepal, Bagmati, Ganjwal, 2700 m, 6.[19]87, coll. Tietze, 1 spec. in DKCP; East Nepal, 1.VI.1992, Jiri – Dolakha D., 2200 m, (Janakpur), leg. J. Limbu, 1 spec. in DKCP.

DISTRIBUTION. A relatively rarely collected Himalayan species, so far known from Bhutan, Nepal and Sikkim (Arrow 1931, Balthasar 1963). First records from India: Assam, Darjeeling and Meghalaya.

Synapsis cambeforti Krikken, 1987

Synapsis cambeforti Krikken, 1987: 321, figs 1–3.

Type locality. Brunei: 5 km E Telisai / 4°44'N–114°36'E, + 20 m.

Type material examined. **Brunei**: 5 km E Telisai / (4°44'N – 114°36'E, + 20 m) / 12–30.XI.1980 / forest: human feces W.D. Edmonds., col. [p] // Paratype [p, red] // Synapsis cambeforti / J. Krikken 1986 [Krikken's hand], 1 spec. in MNHN.
Additional material examined. **Indonesia, Kalimantan**: Indonesia, S Kalimantan, Kandangan district, 17 km NE Loksado, 15. 11. 1997 – 15.1.1998, St. Jakl lgt., 4 spec. in DKCP, 9 spec. in SJCP.

Distribution. Species restricted probably only to Borneo, known so far from Brunei, Indonesia (Kalimantan) and Malaysia (Sabah) (Krikken 1987).

Synapsis davidis Fairmaire in Deyrolle et Fairmaire, 1878

Synapsis Davidis Fairmaire in Deyrolle et Fairmaire, 1878: 96, tab. 4, fig. 5; Gillet, 1907: 600; 1911b: 63 (catalogue);
Synapsis davidi: Boucomont, 1929: 762 (distribution), Balthasar, 1935: 58 (key, distribution); 1942: 115 (distribution); 1963: 290, 293 (diagnosis, key).

Type locality. Chine centrale [= Central China].

Type material examined (3 specimens). **China, Sichuan**: lectotype (male) and paralectotype No. 1 (not sexed), both by present designation, labelled: Muséum Paris Moupin A. David 1870 [p] // Synapsis Davidis Frm. China [Fairmaire's hand] // Synapsis Davidi (forma typica) [h] J. Gillet det. 1907 [p]; paralectotype No. 2 (not sexed), labelled: China A. David [p] // Synapsis Davidii nsp. [Fairmaire's hand, black ink]; all in MNHN.
Additional material examined (57 specimens). **China, Fujian**: Kuatun [= Huaqiao], Fukien [= Fujian], China, 14. 5. [19]46, leg. Tschung-Sen [lgt.], 1 spec. in NMPC; **China, Gansu**: China, S Gansu, Tochizi, S Wudu, 21.–24.5.[19]97, h–2400m, leg. S. Murzin, 3 spec. in DKCP, 1 spec. in SJCP; **China, Shaanxi**: China – Shaanxi, 1600m, 15/8–15/10.1999, Qinling mts., S. Taibai mts., Houzhenzi vill. env., 35°53'N / 107°49'E, loc. coll., 2 spec., DKCP, SJCP; **China, Sichuan**: Thibet, Sé-Pin [28 km S of Kangding], Chasseurs indigénes, Éte 1892, 2 spec. in MNHN; Se Pin – Lou Chan, Ya Tscheou [not identified], Chasseurs indigènes, 1893, 15 spec. in MNHN, 1 spec. in NMPC; Thibet, Chasseurs de Ta-tsien-lou [= Kangding], 1895, 2 spec. in MNHN; Thibet, Ta-Ho [Dadu He river], Chasseurs indigenès, Printemps 1895, 1 spec. in MNHN; Siao-Lou-Lou-Chan [probably "small way" between Ya'an and Kangding], 1896, 1 spec. in MNHN; Su Tchuen [= Sichuan], Siao Lou, 1897, 6 spec. in MNHN; Chasseurs Indigènes des Missionaires de Ta-tsien-Lou, R.P. Dejean, 1901, 6 spec. in MNHN; Siao Lou, Chasseurs du P. Dejean 1904, 1 spec. in MNHN; Chasseurs Indigènes des Missionaires de Ta-tsien-Lou, 1906, 1 spec. in MNHN; C Sichuan (Kangding), Gongga Shan massive, ca 1000 m, Moxi village (SSW of Luding), 29°40'N 102°06'E, 24.5.–7.6.1993, B. Březina lgt., 1 spec. in DKCP; W Sichuan, 2, 6.VII.1984, 29.36N 102.06E, Gonggashan – Hailuogou [valley], lgt. D. Král & J. Farkač, 1 spec. in cow dung, DKCP; China: Sichuan, Moxi [village], 29°13'N 102°10'E, 1600 m, 2.VII.1998, D. Král lgt. // 1998 China Expedition J. Farkač, D. Král, J. Schneider & A. Smetana, 1 spec. attracted at light in the village, DKCP; C China, N-Sichuan, Venchuan env., 2000m, v – 1999, leg. Dr. M. Häckel, 2 spec.in SJCP; China – Sechuan, Wenchuan, 18.6.–19.6.2001, 3 spec. in DKCP; China, N Sichuan, Shangliang, 24.–29.5.2002, legt. E. Kučera, 2 spec. in DKCP; Szechuan [= Sichuan], China, 400m, E. Reitter, 2 spec. in NMPC; Chine, A. David, Ex. Musaeo Mniszech, 1 spec. in MNHN.

Distribution. So far recorded from the Chinese provinces of Sichuan and Fujian only (Boucomont 1929, Balthasar 1942, 1963), first records from Gansu and Shaanxi.

Synapsis gilleti Arrow, 1931
(Fig. 6)

Synapsis gilleti Arrow, 1931: 81, 83, pl. 7: fig. 10; Balthasar, 1963: 291, 297 (diagnosis, key); Bacchus, 1978: 103 (lectotype designation).

Type locality. Bengal: Darjeeling District, 1500 ft.

Type material examined. **India, West Bengal (Darjeeling district)**: lectotype (female), labelled: Singla Darjiling Bengal 1,500 ft – June B.M. [= British Museum] 1930–1 [p] // Synapsis Gilleti Arrow Type [Arrow's hand, black ink] // Lectotype [p, circle label with blue margin] // Synapsis gilleti Arrow [Bacchus's hand, black ink] // M.E. Bacchus det 1976. Lectotype [p], in BMNH; paralectotype (female), labelled: India [p] // Paraectotype [p, circle label with blue margin] // Synapsis gilleti Arrow [Bacchus's hand, black ink] // M.E. Bacchus det 1976. Paralectotype [p], in ISNB.
Additional material examined. **Bhutan**: Bhutan, 17.–20.VI.1988, Paro Distr., Gedu, 2100m, leg. Carolus Holzschuh, 1 female in DKCP; **India, Sikkim**: Sikkim, März – April, H. Fruhstorfer, 1 female in ZMHB.

Distribution. Very rarely collected species (probably only 4 specimens, all females, known so far); India, West Bengal: Darjeeling (Arrow 1931, Balthasar 1963); first records from Bhutan and Sikkim.

Synapsis masumotoi Ochi, 1992

Synapsis masumotoi Ochi, 1992: 10; Král & Rejsek, 2000: 270 (list).
Synapsis davidi: Miwa, 1931: 278 (list); Masumoto, 1973: 60, figs 1–6 (breeding habits).

Type locality. Taiwan.

Material examined. **China, Taiwan**: Formosa, Chip Chip, H. Sauter, '09 // 1911 14// Staatl. Museum für Tierkunde Dresden, 1 spec. in SMTD.

Distribution. Restricted to Taiwan (Miwa 1931, Masumoto 1973, Ochi 1992).

Synapsis ovalis Boucomont, 1920
(Fig. 3)

Synapsis ovalis Boucomont, 1920: 307; Paulian, 1945: 65, fig. 45 (diagnosis, key); Balthasar, 1963: 291, 296 (diagnosis, key); Kabakov & Napolov, 1999: 65 (distribution).

Type locality. Laos, Tran Ninh.

Type material examined. **Laos**: Lectotype (male), by present designation, labelled: LAOS prov. / Tran Ninh / VITALIS 1917 [p] // TYPUS [p, red] // Boucomont det. [p] 1920 Synapsis ovalis B. [Boucomont's hand], in MNHN.
Additional material examined. **Vietnam**: Museum Paris, Annam Sept., Keng Trap près Cuarao, Vitalis de Salvaza, M^{me} A. Vuillet 1920, 1 spec. in MNHN.

Distribution. Laos, Vietnam (Paulian 1945, Kabakov & Napolov 1999).

Synapsis ritsemae Lansberge, 1874

Synapsis Ritsemae Lansberge, 1874: 143; Ritsema, 1875: 211 (note); Sharp, 1875: 211 (note); Gillet, 1911b: 63 (catalogue).
Synapsis ritsemae: Balthasar, 1963: 291, 296 (diagnosis, key); Krikken, 1987: 321 (key, lectotype designation).

Type locality. Sumatra.

Material examined. **Indonesia, Sumatra**: Bindjey-Estate, Deli, Ost Sumatra, V. Burchard leg., ded. 28.IV. 1894 / / Coll. C. Felsche, Kauf 20, 1918 // Thoas Sharp // sumatrensis Frm., 1 spec. in SMTD; Palenbang, Sumatra // Coll. C. Felsche, Kauf 20, 1918 // sumatrensis Fairm., 1 spec. in SMTD; Indonesia, Sumatra, March 1992, Mts Leuser Nat. Park, Ketambe, local collector lgt., 1 spec. in DKCP; Indonesia, 10–14/ii.1999, West Sumatra prov., 600m, Mt. Singgalang – Annai vall., fish trap, Stanley Jakl lgt., 1 spec. in DKCP, 1 spec in SJCP; Sumatra occ., Fort Su Kok // sumatrensis Frm., 1 spec. in ZMHB.

Distribution. Restricted to Sumatra and Java (Balthasar 1963, Krikken 1987).

Synapsis strnadi sp. n.
(Figs 1, 4, 7)

Type material. **Vietnam**: holotype and paratype No 1 (both females), labelled: VIETNAM N. TamDao – 900 m 16.–23.V.1991 Strnad Jan lgt. [p]; paratype No 2 (female), labelled: VIETNAM N. 1990 SaPa 11.–19.VI. 1800 m Hoang Lien Son prov. Strnad Jan lgt. Holotype and paratype No. 2 in DKCP, paratype No. 1 in JSCP.

Description of holotype. Body length 29 mm. Oval, dorsoventrally depressed; whole surface black, semialutaceous; setation reddish brown; habitus in dorsal aspect as in Fig. 1.

Head. Clypeus with apex sharply triangularly emarginate, lobe either side of emargination straight, then broadly sinuate and slightly notched between clypeus and gena. Frons feebly elevated, tubercle absent. Clypeogenal suture distinct. Gena almost rectangular laterally, not projecting posterolaterad. Clypeus and genae distinctly bordered, border of clypeus with row of long, dense setae. Surface of clypeus coarsely and densely rugopunctate; frons and gena distinctly, densely and evenly punctate, punctures separated by less than their diameter.

Pronotum moderately convex, transversal, broadest at level of anterior quarter of pronotal length, entirely bordered except of basal border distinctly interrupted laterally; anterior margin

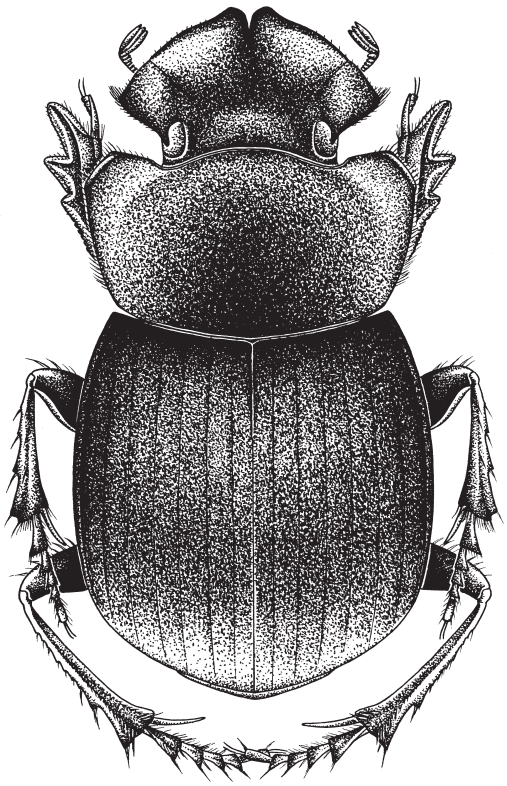


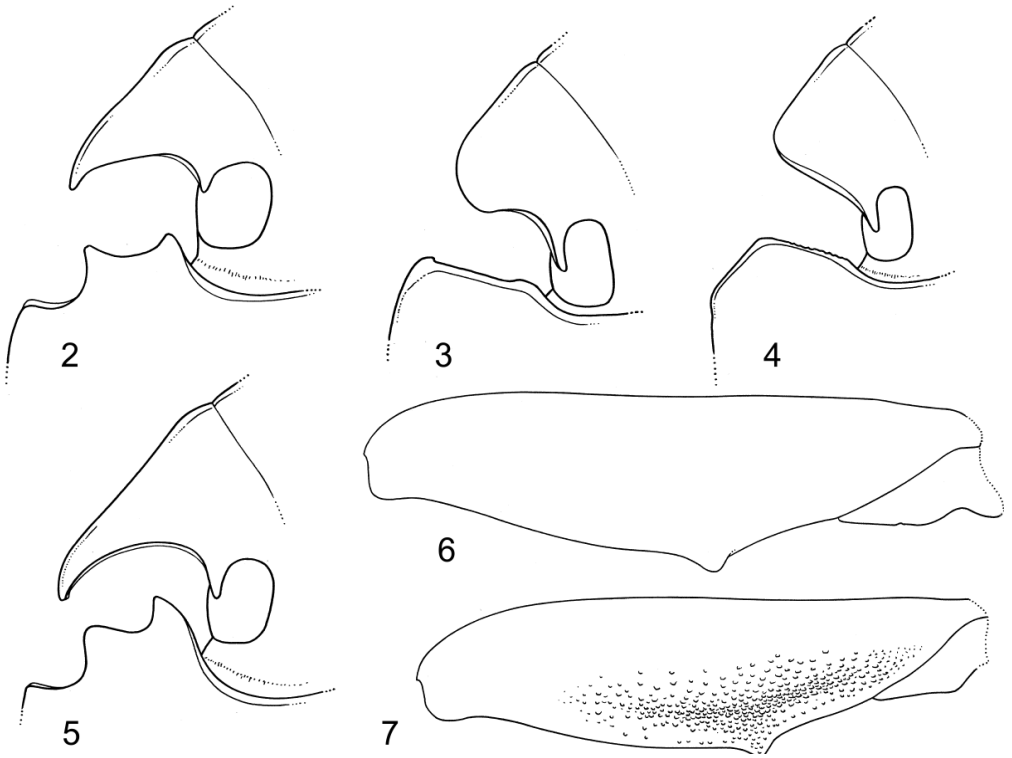
Fig. 1. Habitus of *Synapsis strnadi* sp. n., dorsal view of holotype.

broadly bisinuate, straight and slightly crenate laterally; anterolateral angles obliquelly cut off (with two obtuse angles) (Fig. 4); sides broadly arcuate to broadly arcuate posterolateral angles; lateral supplementary carina and basal margin broadly arcuate. Surface finely and almost evenly punctate discally, punctures separated by approximately 2–3 their diamters, punctation becoming denser and coarser laterad and basad; microsculpture almost absent.

Scutellum absent.

Elytra moderately convex, broadly arcuate laterally, ten striate, seven striae between suture and humerus distinctly impressed, only very finely and irregularly punctate, strial margins not crenate; intervals flat, all of approximately same width discally, except of sutural interval distinctly angustate and slightly convex, interval 2 not swollen basally, surface impunctate, remarkably microsculptured.

Pygidium entirely bordered, finely transversally scabrous.



Figs 2–7. Left side of head and pronotum, dorsal aspect (2–5); right metafemur, ventral aspect (6, 7). *Synapsis tridens* Sharp (Thailand: Chiang Mai) (2); *S. ovalis* Boucomont (lectotype) (3); *S. strnadi* sp. n. (holotype) (4, 7); *S. yunnanus* Arrow (Yunnan: Yulong Mts: Ganhaizi) (5); *S. gilleti* Arrow (lectotype) (6).

Proepisternum coarsely and densely punctate, acarodomatia absent; mesosternum finely microsculptured, mesepisternal acarodomatia present; metasternal plate distinctly concave posteriorly, with longitudinal furrow in posterior half, surface almost glabrous, metepisternum slightly granulate.

Mesocoxae widely separated and parallel, glabrous; meso- and metatrochanter glabrous and with tuft of several setae posteriorly; profemur sparsely, irregularly punctate, with complete anterior transversal edge; mesofemur remarkably rugopunctate posteriorly; metafemur with slightly serrate and setose medial transversal edge, posterior edge with distinct sharp denticle situated in basal third of metafemur (Fig. 7), surface remarkably rugopunctate posteriorly (Fig. 7); protibia tridentate, meso- and metatibia slender basally, gradually slightly expanded apicad, metatibia not marketly thickened and curved.

Abdominal sternites slightly narrowed medially, finely microsculptured and finely, sparsely and irregularly punctate.

VARIABILITY. Body length of paratypes: No. 1 – 28 mm, No. 2 – 30 mm.

DIFFERENTIAL DIAGNOSIS. *Synapsis strnadi* sp. n. is classified to the *Synapsis ovalis* species-aggregate (Hanboonsong & Masumoto 1999) characterized by mesepisternum hollowed and setaceous (acarodomatia present), and lateral angles of clypeus not slendery produced. For differential diagnosis among species of the species aggregate refer to the key below.

COLLECTION CIRCUMSTANCES. All type specimens were found in human faeces in a forest habitat.

DISTRIBUTION. Vietnam (Hoang Lien Son and Vinh Phu provinces).

NAME DERIVATION. Patronymic, named in honour of my friend Jan Strnad (Emberiza, Praha), the collector of the new species, and an excellent expert of Vietnamese nature.

Key to the *Synapsis ovalis* species-aggregate

1 (4) Pronotum outline sharply angulate anterolaterally (Fig. 3).
2 (3) Lateral angles of clypeus almost not hooked posteriad (Fig. 3). Laos, Vietnam. ..... *S. ovalis* Boucomont
3 (2) Lateral angles of clypeus remarkably hooked posteriad. Thailand. ..... *S. boonlongi* Hanboonsong et Masumoto
4 (1) Pronotum outline obliquelly cut off (with two obtuse angles) anterolaterally (Fig. 4).
5 (6) Ventral surface of meso- and metafemur entirely smooth (Fig. 6); dorsal surface alutaceous, that of pronotum finely microsculptured. Bhutan, Darjeeling, Sikkim. ..... *S. gilleti* Arrow
6 (5) Ventral surface of meso- and metafemur densely and coarsely rugopunctate (Fig. 7); dorsal surface semialutaceous (Fig. 1), pronotum microreticulation almost absent. Northern Vietnam. ..... *S. strnadi* **sp. n.**

Synapsis thoas Sharp, 1875

Synapsis Thoas Sharp, 1875: 44; Gillet, 1907: 602; 1911b: 63 (catalogue).
Synapsis thoas: Balthasar, 1963: 291, 296 (diagnosis, key); Krikken, 1987: 321, fig. 5. (key).
Synapsis sumatranus Fairmaire, 1897a: 25; 1897b: 117 (type locality: Sumatra; syn by Gillet, 1907: 602).
Synapsis sumatrensis[sic!] Gillet, 1907: 602; 1911b: 63 (catalogue); Balthasar, 1963: 296 (as syn. to *S. thoas*).
Synapsis thoas ?ssp. *sumatranus*: Krikken, 1987: 321 (key).

TYPE LOCALITY. Java.

MATERIAL EXAMINED. **Indonesia, Java**: Java, Mt. Kawi, Reg. Pasuruan, V. M. Duchoň // Coll. C. Felsche, Kauf 20, 1918, 1 spec. in SMTD; Indonesia, East Java prov., 18.–23.ii.1996, Baluran N. P., 400m, St. Jakl lgt., 2 spec. in SJCP; Indonesia, S Java, Sukamade, 300–400m, i.1997, Stanley Jakl lgt.; 1 spec. in DKCP, 2 spec. in SJCP; E Java, Argopuro, 7.1998, native collector., 1 spec. SJCP; Java // Ritsemae Lansb., 1 spec. in ZMHB; Java // Synapsis Thoas H. 25, 1 spec. in ZMHB.

DISTRIBUTION. Restricted to Java and Sumatra (Balthasar 1963, Krikken 1987).

Synapsis tridens Sharp, 1881
(Fig. 2)

Synapsis tridens Sharp, 1881: 92; Gillet, 1907: 600 (distribution); 1911b: 63 (catalogue); Boucomont & Gillet, 1921: 6 (distribution); Boucomont, 1929: 762 (distribution); Arrow, 1931: 81, pl. 7: fig. 8; Balthasar, 1932: 97 (distribution) 1935: 58, 1963: 291, 294; Paulian, 1945: 66, fig. 44B (diagnosis, key, distribution); Masumoto, 1987: 128 (distribution); Hanboonsong & Masumoto, 1999: 461, fig. 1 (key, distribution); Kabakov & Napolov, 1999: 65 (distribution).

Type locality. India, Assam.

Type material examined (1 specimen). **India, Assam**: lectotype (male), by present designation, labelled: Assam [p] // Mus. A. Murray [p] // tridens Type D. S. [David Sharp] [Sharp's hand] // Ex. Musaeo D. Sharp 1890 [p] // G.J. Arrow vidit 1928 [p], in MNHN.
Additional material examined (19 specimens). **India, Meghalaya**: Khassia Hills // Ex Musaeo Fred. Moore, acq. 1891, 1 spec. in MNHN; N.E. India, W. Meghalaya, Garo Hills, Nokrek Nat. Park, 25°25'N 90°20'E, 13.–22.7.1997, 1150 m, T = 5–9°C, leg. V. Siniaev & V. & S. & M. Mursin, 4 spec. in DKCP; **India, Nagaland / Myanmar border**: Assam, Naga, Aout 1893, W. Doherty, 1 spec. in MNHN; **Myanmar**: Carin Ghecû [= Karen Hills], 1300–1400m, L. Fea, II.–III.[18]88 // Muséum Paris Collection Léon Fairmaire1906, 9 spec. in MNHN; **Thailand**: Thailand, Chiang Mai, 6.5.1985, 3 spec. in DKCP; Thaïlande, Doi Pui, Chiang Dao, 8.V.[19]85, Dr. F. Garnier, 1 spec. in SJCP.

Synapsis yama Gillet, 1911

Synapsis Yama Gillet, 1911a: 313, fig. 10; 1911b: 63 (catalogue); Boucomont & Gillet, 1921: 5; Paulian, 1945: 65 (diagnosis, key, distribution);
Synapsis yama: Balthasar, 1963: 291, 295; Kabakov & Napolov, 1999: 65 (distribution); Král & Rejsek, 2000: 270 (list).

Type locality. Tonkin central, environs de Tuyen-Quan.

Type material examined. **Vietnam**: holotype (male), labelled: Museum Paris / Tonkin centr. / Env. de Tuyen-Quan / A. Weiss, 1906 [p] // TYPE [red, p] // Juill. – Sept. [h] // Synapsis " / Yama Gillet, n. sp. [Gillet's hand], in MNHN.
Additional material examined. **Vietnam**: N. Vietnam, Vinh Phu Distr., 6.–10.5.1990, Tam Dao, 900 m, Jan Horák leg., 1 male in DKCP; Vietnam N., TamDao, 900m, 14.–23.5.1991, Strnad Jan lgt., 1 male in SJCP.

Distribution. Hitherto recorded from Vietnam and Laos only (Paulian 1945, Balthasar 1963, Kabakov & Napolov 1999).

Synapsis yunnanus Arrow, 1933 (stat. rev.)
(Fig. 5)

Synapsis yunnanus Arrow, 1933: 428; Bacchus, 1978: 108 (lectotype designation);
Synapsis yunnanus: Balthasar, 1935: 22; 1963: 294; Paulian, 1945: 66 (all as syn. to *S. tridens*).

Type locality. Yunnan, Tengyueh [= Tengchong].

Type material examined (7 specimens). **China, Yunnan**: lectotype (male) and paralectotypes (3 males, 1 female), labelled: Yunnan Tengyueh, J. C. Brown [p] // Synapsis Yunnanus Arrow Type [Arrow's hand, black ink] // Lectotype, resp. Paralectotype [p, circle label with blue margin] // Synapsis yunnanus Arrow [Bacchus's hand, black ink] // M.E. Bacchus det 1976; paralectotypes (2 males, 1 female), labelled: Tali [= Dali] H^{L} [= Haute] Yunnan // Paralectotype [p, circle label with blue margin] // Synapsis yunnanus Arrow [Bacchus's hand, black ink] // M.E. Bacchus det 1976; all in BMNH.
Additional material examined (192 specimens). **China, Guizhou**: Kouy-Tchéou [= Guizhou], R.P.J.R. Chaffanjou, 1903, 3 spec. in MNHN; Kouy-Tchéou, R. Marchand, 1904, 1 spec. in MNHN; Muséum Paris, Kouy-Tchéou // Père Cavalaire 1905, 24 spec. in MNHN; Muséum Paris, Kouy-Tchéou, Kouytang [= Guiyang] // Père Cavalaire 1906, 1 spec. in MNHN; Kouy-Tchéou, Abbé Largeteau, 2 spec. in MNHN; **China, Sichuan**: Lou-tse-Kiang [=

not identified], 1901, R.P. Genestier // Muséum Paris Collection Léon Fairmaire 1906, 31 spec. in MNHN; Sutchuen [= Sichuan], Ouy-Sy [not identified], R.P. Mombelg, 12 spec. in MNHN; **China, Yunnan**: Tse Kou [= Yanmen], R.P. Dubenard, 1895, 6 spec. in MNHN; Yunnan-Sen [= Kunming], Mgr. Excoffier, 1896, 4 spec. in MNHN; N. Yunnan, Tsékou [= Yanmen], 1896, 7 spec. in MNHN; N. Yunnan, Tsékou, 1897, 13 spec. in MNHN; Tsékou, 1902, R.P.J. Dubenard // Muséum Paris, 1936, A. Boucomont, 4 spec. in MNHN; Tsé-kou, P. Dubenard, 1903, 12 spec. in MNHN, 1 spec. in NMPC; Tali [= Dali], H$^{t.}$ [= Haute] Yunnan // Muséum Paris 1936 A. Boucomont, 1 spec. in MNHN; Yunnan, Okr. Tsinpina [= env. of Tsinpin], 1700 m., 13.V.1956, Khuan Ke-zhen [lgt.] i dr. [and the other] [orig. in Cyrillic script], 4 spec. in ZMAS; China, N-Yunnan, 14.7.[19]90, 27°13'N 100°16'E, Lijiang env., Yufeng monastery, 2500 m, D. Král lgt., 3 spec. in DKCP; China, N-Yunnan, 7.–12.7.[19]90, 27°08'N 100°14'E, Yulongshan mts., Baishui vill., 3500 m, D. Král lgt., 15 spec. in DKCP; China, N-Yunnan, 13.7.[19]90, Lijiang env., Xiangshan, 2400 m, D. Král lgt., 1 spec. in DKCP; China, N-Yunnan, 14.7.[19]90, 27°13'N 100°16'E, Yulongshan mts., E slope, 3200 m, D. Král lgt., 2 spec. in DKCP; China, N-Yunnan, 18.–23.7.[19]90, Yulongshan mts., 3000–3500m, Ganhaizi pass, 27°06'N 100°15'E, D. Král lgt., 22 spec. in DKCP; China, N-Yunnan, 24.–26.7.[19]90, Yulongshan mts., 2500–2800m, Ganhaizi/Lijiang road, D. Král lgt., 1 spec. in DKCP; China, Yunnan prov., Lijiang distr., 2500–2800m, Ganhaizi / Lijiang road, Yulongshan mts., 24.–26.7.1990, Vít Kubáň leg., 1 spec., SJCP; Yunnan, 2000–2500m, 25.42N 100.08E, Cangshan mts., E slope, 21/6.1992, D. Král lgt., 3 spec. in DKCP; Yunnan, 1800–2500m, 25.10N 100.21E, Weishan mt., 22–25/6.1992, 1 spec in DKCP; Yunnan, 2800–3000m, 25.12N 100.24E, Weibaoshan mts., 29–30/6.1992, D. Král lgt., 2 spec. in DKCP; Yunnan, 3300–2500m, 27.14N 100.15E, Yulongshan mts., N slope, 5/7.1992, D. Král lgt., 1 spec. in DKCP; Yunnan, 2000–3000 m, 27.20N 100.11E, Habashan Mts., SE slope, 10.–13.7.1992, D. Král lgt., 6 spec. in DKCP; Yunnan, 3000–3800 m, 27.20N 100.09E, Habashan Mts., E slope, 13.–17.7.1992, D. Král lgt., 2 spec. in DKCP; Yunnan, cca 2000m, 27.15N 100.09E, Hutiao [= Tiger leaping] gorge, Jinsha r., 18–22/7.1992, D. Král lgt., 7 spec. in DKCP; Yunnan, 24–26 May 1993, 27.01N 100.42E, Yulong Mts., 3200m, Bolm lgt., 1 spec., DKCP; Yunnan, 3200–2700m, Yulongshan mts., 27.00 / 100.12, 23–24/6.1993, Vít Kubáň lgt., 1 spec., SJCP; China, Yunnan prov., 29.10.1999, 4km SW Ancient Dali, Chang Shan [= Cang Shan], 3000m, J. Šťastný lgt., 1 spec. in DKCP; Yunnan, Pe-Yen-Tsin [= Yanfeng], 1 spec. in MNHN; Thibet, Tsékou, R.P. Dubenard, 2 spec. in MNHN; Yunnan, R.P. Delavay, Ex. Musaeo Armand David, 3 spec. in MNHN; Yunnan, 2 spec. in NMPC; **Vietnam**: H$^{t.}$ Tonkin, Dong-Van, Cap^{ne} Cadel, 1898, 1 spec. in NMPC; N Vietnam, Mt. Fan-si-pan, N-Seite, Chapa (= Sapa), 22.17N 103.44E, prim. Urwald, 28.x.–3.xi.1994, leg. Sinjaev & einh. Sammler, 1 spec. in DKCP; Chapa, Tonkin, H. Perrot, 1 spec. in SJCP.

Distribution. So far confirmed from China (Guizhou, Sichuan, Yunnan) and Vietnam. Literature data from different regions are confuse because of synonymization with *S. tridens* (see e.g., Boucomont 1929, Arrow 1931, Balthasar 1932, 1935, 1963, Kabakov & Napolov, 1999, above distribution of *S. tridens* and comments below).

Comments. *Synapsis yunnanus* was described by Arrow (1933) based on material from Yunnan. Later on, Balthasar (1935, 1963) synonymized the species erroneously with *S. tridens*. Based on study of the type specimens and relatively rich additional material of related species, I consider *S. yunnanus* a valid species. The revalidized species is closely related to *S. brahminus*, *S. davidis* and *S. tridens* possessing all the following set of synapomorphies: clypeus with distinct tubercle, gena produced into acuminate process, both episternum acarodomatia absent. They can be clearly separated from each other using the key below. In addition, at least *S. davidis*, *S. tridens* and *S. yunnanus* seem to have allopatric distribution areas.

1 (2) Pronotum outline bidentate anterolaterally, with inner anterior angle rounded; body length 28–30 mm. Bhutan; India: Assam, Darjeeling, Meghalaya, Sikkim; Nepal. ..... *S. brahminus* (Hope in Gray)
2 (1) Pronotum outline tridentate anterolaterally, with inner anterior angle sharp (Figs 2, 5).
3 (4) Elytron remarkably alutaceous, with striae only vaguely impressed, and intervals flat, finely coriaceous; body length 29–34 mm. China: Fujian, Gansu, Shaanxi, Sichuan. .... *S. davidis* Fairmaire in Deyrolle et Fairmaire
4 (3) Elytron remarkably shiny, with striae distinctly impressed, and intervals feebly convex, not coriaceous, only finely punctate.
5 (6) Emargination between inner and middle anterolateral pronotum tooth shallow (Fig. 2); acuminate process of gena less produced (Fig. 2); smaller in size, body length 30–36 mm. India: Assam, Meghalaya, Nagaland, West Bengal; Myanmar, Thailand. ..... *S. tridens* Sharp

6 (5) Emargination between inner and middle anterolateral pronotum tooth remarkably deep (Fig. 5); acuminate process of gena more produced (Fig. 5); larger in size, body length 34–43 mm. China: Guizhou, Sichuan, Yunnan; Vietnam. ..... *S. yunnanus* Arrow

A c k n o w l e d g e m e n t s

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