

Study on nominotypical subgenus of *Glycyphana* Burmeister, 1842, with the description of new species (Coleoptera: Scarabaeidae: Cetoniinae)

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Abstract. Representatives of nominotypical subgenus of *Glycyphana* Burmeister, 1842 are studied. *Glycyphana* (*Glycyphana*) *meridionalis* sp. nov. is described as new to science. It is compared with closely allied species *G. (G.) fulvistemma* Motschulsky, 1860 and *G. (G.) hybrida* Mikšič, 1970. Rarely collected *G. (G.) rugipennis* Ritsema, 1879 known only from females, is firstly pictured and its male is described. Differential diagnosis with *G. (G.) macquart* (Gory & Percheron, 1833) is given. Dichotomical key for all species of the nominotypical subgenus is provided and their updated list including distribution is given.

INTRODUCTION

Nominotypical subgenus *Glycyphana* Burmeister was established by Mikšič (1968). For subgenerical diagnosis he used character, that inner paramere rims completely cover outer rims in apical half of parameral length. This character can not be found in any other subgenus.

Distribution of representatives belonging to nominotypical subgenus encompasses Nepal and India, China, SE Asia and Greater Sunda Islands in Indonesia. One species reached Japan, Korean Peninsula, Mongolia and eastern parts of Russia. Subgenus currently accommodates 7 species. *Glycyphana* (*Glycyphana*) *fulvistemma* Motschulsky, 1860 and its closest congener *G. (G.) hybrida* Mikšič, 1970 can be considered as palearctic species occurring in Taiwan, Japan, Korean Peninsula, China, Mongolia and eastern parts of Russia. While *G. (G.) lyciphana hybrida* seems to be endemic of Taiwan only, its sister species *G. (G.) fulvistemma* Motschulsky, 1860 has much larger areal, encompassing large part of China (excepting only some southern parts and Hainan), Korean Peninsula, Japan, Mongolia and eastern parts of Russia.

Recently author received one male specimen of similarly looking species, but coming from southern part of Vietnam. Study of this specimen and comparison with both discussed species revealed that species belongs to same group, but differs from both species. This finding extends very significantly distribution of this species group very far to south of Vietnam, far from the southernmost distribution of *G. (G.) fulvistemma*. The species is described in taxonomical part of this article.

Rarest species in nominotypical subgenus of *Glycyphana* seems to be *G. (G.) rugipennis* Ritsema, 1879 from Sumatra. Mikšič (1970, 1982) studied holotype female and several additional specimens, all females. Due to absence of male, taxonomical position of the

species stayed unclear. More than hundred years after original description, one male specimen was collected in Mount Sanggul in West Sumatra. Study of male confirmed that it belongs to nominotypical subgenus of *Glycyphana*. Description and illustration of the male, illustration of its genitalia and differential diagnosis with its congener in studied subgenus is given in taxonomical section of this paper.

MATERIAL AND METHODS

The following codens of institutional and private collections are used in text:

RMNH Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands;

SJCP Stanislav Jákł private collection, Prague, Czech Republic.

Specimen of newly described species is provided with red label for HOLOTYPUS. Holotype label is provided with sex symbol and words St. Jákł det. 2022. Label data are cited for material examined, labels are indicated with a double slash (/), individual lines by a single slash (/).

TAXONOMY

Glycyphana (Glycyphana) meridionalis sp. nov.

(Figs. 1-5)

Type locality. South Vietnam, Kon Tum Province, Ngoc Linh.

Type material. Holotype (♂) (SJCP) labelled: S VIETNAM, Kontum / Prov., Ngoc Linh / III. 2021 / local collector leg.

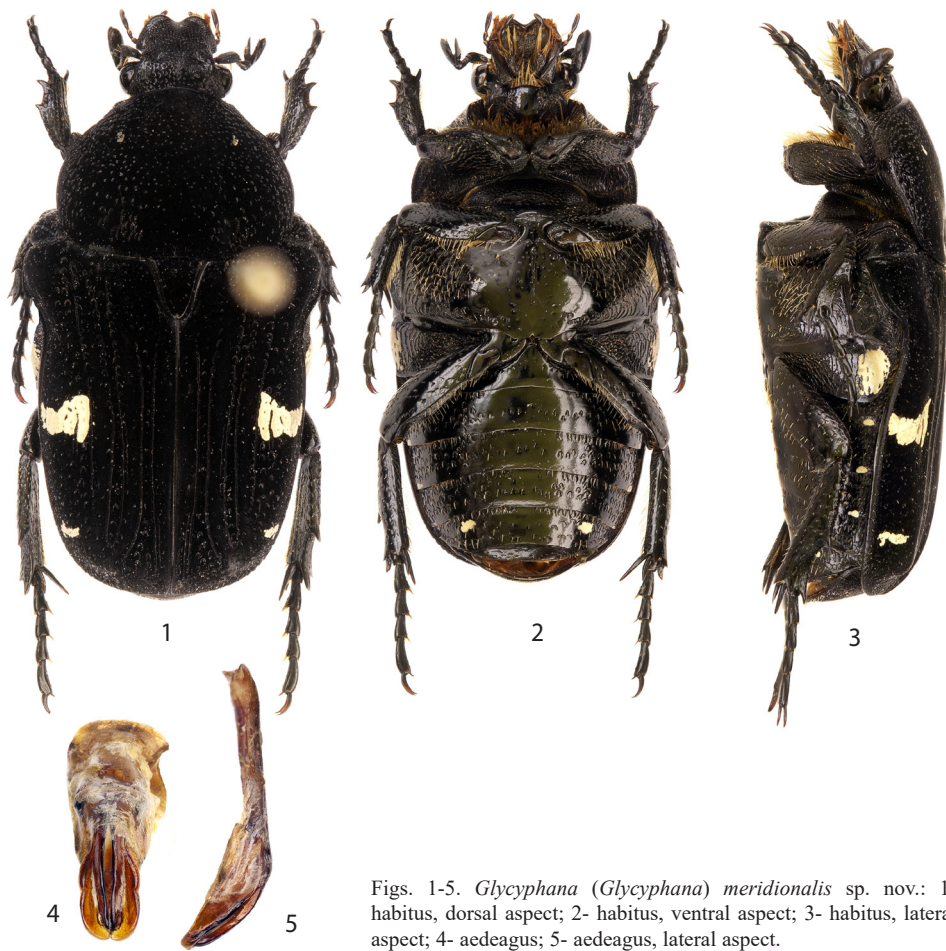
Description of holotype. Black, dorsum with cover of black tomentum. Elytron with two silvery yellow maculae. Pronotum with pair of minute yellowish maculae. Body length (excluding pygidium) 13.7 mm.

Head. Black, frons with cover of black, velvety tomentum. Punctuation in frons horse-shoe shaped, in clypeus punctures more dense, circularly shaped, diameters approximately same as interspaces. Clypeus deeply incised. Widest point approximately in middle length. Antennae rather short, black, length of club and stalk same.

Pronotum. Black, completely covered with velvety tomentum. Apical part of disc with pair of minute silvery yellow maculae. Sides with mixture of short striolae and horse-shoe shaped punctures. Punctuation of disc sparse, simpler. Base nearly impunctate. Anterolateral margins deeply emarginated. Lateral sides with low border.

Scutellum. Black, covered with tomentum. Triangularly shaped with rounded apex. Punctuation and ornament missing.

Elytra. Black, with cover of tomentum. Each elytron with two silvery yellow maculae. One, much larger, running from lateral side to nearly half of width placed approximately in elytral middle length. Second smaller macula placed in apex, approximately in posterolateral margin. Each elytron with five rather deeply developed striolae lines running nearly from elytral base to level of apical calli. Lateral ridge with moderately dense horse-shoe shaped



Figs. 1-5. *Glycyphana (Glycyphana) meridionalis* sp. nov.: 1- habitus, dorsal aspect; 2- habitus, ventral aspect; 3- habitus, lateral aspect; 4- aedeagus; 5- aedeagus, lateral aspect.

punctures. Posterolateral and apical margins with short striolation. Apical calli very obtuse, humeral calli not developed. Sutural ridge flattened, its apex not drawn out over elytral apex.

Pygidium. Black, with horizontally developed striolation. Setation and ornament absent.

Ventrum. Black, moderately shining. Each abdominal segment with tiny yellowish macula at each side. Larger yellowish macula placed in lateral side of metacoxae, rest of ventrum immaculate. Abdomen arched, impression completely absent. Each sternite with horizontally running one or two rows of setiferous punctures. Metasternal sides with broad striolation bearing ochre setae, metasternal plate nearly impunctate, shining. Mesometasternal process as wide as long, in front its apex with horizontally developed asetose furrow. Prosternum black, bearing ochre setation.



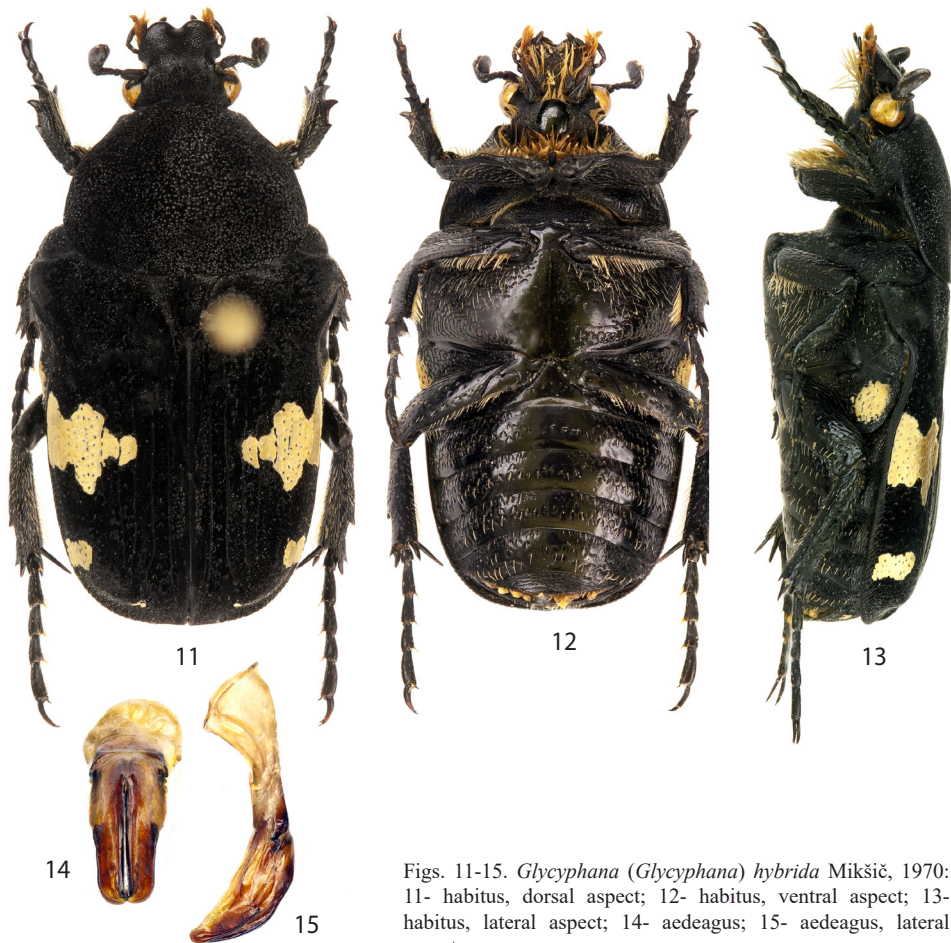
Figs. 6-10. *Glycyphana (Glycyphana) fulvitemma* Motschulsky, 1860: 6- habitus, dorsal aspect; 7- habitus, ventral aspect; 8- habitus, lateral aspect; 9- aedeagus; 10- aedeagus, lateral aspect.

Legs. Rather short and stout, femora, tibiae, tarsi black. Protibia tridentate, teeth equidistant. Meso- and metatibia with sharp carina placed in middle length. Inner sides of femora and tibiae with ochre setation.

Genitalia. Developed similarly as other representative of nominotypical subgenus of *Glycyphana* Burmeister. Apical half of inner paramere rim with notch (Figs. 4-5).

Variability and sexual dimorphism. Hitherto only male holotype is known.

Differential diagnosis. *Glycyphana (G.) meridionalis* sp. nov. seems to be sister species of *G. (G.) fulvitemma* and *G. (G.) hybrida* Mikšič, 1970. It differs from both species in following characters: I. dorsal yellowish ornament (specially in elytra) more developed in



Figs. 11-15. *Glycyphana (Glycyphana) hybrida* Mikšič, 1970: 11- habitus, dorsal aspect; 12- habitus, ventral aspect; 13- habitus, lateral aspect; 14- aedeagus; 15- aedeagus, lateral aspect.

both known species, but distinctly reduced in new species; II. Mesometasternal process without furrow or with shallow furrow in front of its apex in both congeners, but with deep horizontally developed furrow in new species; III. Inner paramere rim in its apical half with notch in newly described species, but normally developed, without notch, in both sister species; IV. Distribution areas of compared species should be also considered, distribution area of *G. (G.) fulvistemma* reaches southern provinces of China, but it is not recorded yet more to the south. Big question mark seems to be, what is flying in large gap between newly described species and *G. (G.) fulvistemma*.

Etymology. Named after southernmost finding in *Glycyphana fulvistemma* species group.

Distribution. South Vietnam, Kon Tum Province.

***Glycyphana (Glycyphana) rugipennis* Ritsema, 1879**
(Figs. 16-20)

Glycyphana rugipennis Ritsema, 1879 : 153 (original description); Schenkling 1921 : 278 (catalogue)
Glycyphana (Glycyphana) rugipennis Ritsema: Mikšič 1968 : 141 (checklist); Mikšič 1970 : 101 (revision); Mikšič 1982 : 384 (monograph), : 379 (key); Krajčák 1998 : 92 (catalogue)

Type locality. „Sumatra“ (= Indonesia, Sumatra).

Type material examined. Holotype female in RMNH.

Additional material examined: 1 ♂ (SJCP) labelled: INDONESIA, West / Sumatra, MT. SANGGUL / ca 35 km n Payakumbuh / VIII. 2013, Landai vill. env. / Local collector leg, 1200 m; 1 ♀ (SJCP) labelled: INDONESIA, W. Sumatra / MT. SANGGUL, 1200 m alt. / 25 km N Payakumbuh, VI. / 2010, St. Jákl leg; 1 ♀ (SJCP) labelled: INDONESIA, West Sumatra / Prov., MT. SANGGUL / 1200 m, Landai vill. env. / VI. 2009, ca 35 km N of / Payakumbuh, St. Jákl leg.

Description of male. Black, with cover of tomentum, pronotal sides red. Body length (excluding pygidium) 14.5 mm.

Head. Black, frons with cover of tomentum, clypeus moderately shining. Punctures in frons horse- shoe shaped, in clypeus more simple, smaller and denser. Apical margin of clypeus emarginated. Widest point in apical half of total length. Antennae black, tips of club dark brown. Club shorter than stalk.

Pronotum. Black, opaque. Sides red, red part interrupted with one blackish macula placed approximately in middle length. Punctuation in sides and anterior half semicircularly and horse- shoe shaped. Punctuation of disc and base sparser, but also present. Lateral sides with low and obtuse border. Anterolateral margins with rather deep emargination.

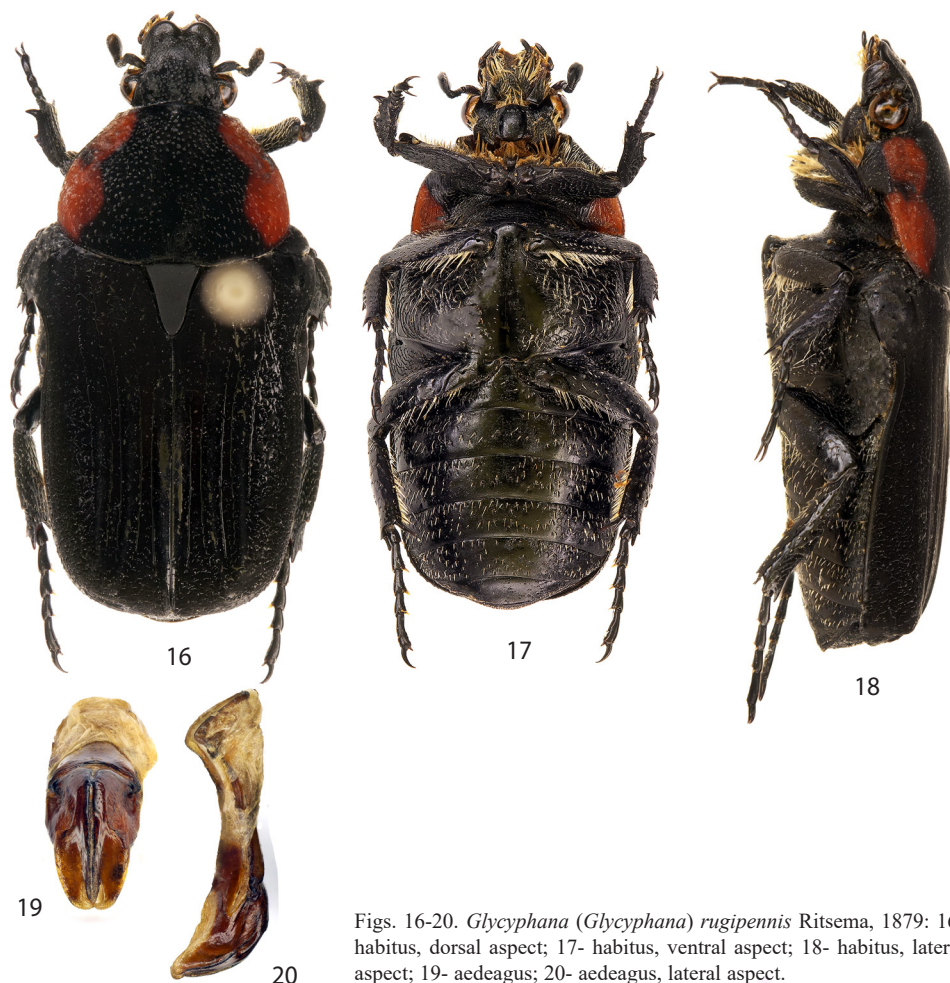
Scutellum. Black, opaque, triangularly shaped, apex rounded. Setation and ornament absent.

Elytra. Completely black, with cover of tomentum, opaque. Each elytron with five striolae lines running nearly throughout total elytral length, last outer line interrupted. Lateral ridge with mixture of short striolae lines and semicircularly shaped, shallow punctures distributed mainly in apical half. Humeral calli not developed, calli in apex very obtuse. Sutural ridge rather flat, its ending not protruding over elytral apex.

Pygidium. Black, opaque. Sides and base with very short, rather deep striolae lines. Setation and ornament missing.

Ventrum. Black, medially shining. Abdomen arched, central impression absent. Each sternite with 2 to 3 rows of setiferous, mostly horse- shoe shaped punctures. Metasternum and metacoxae densely striolated and covered with whitish, moderately dense and long setae, metasternal plate with few simple and fine punctures. Mesometasternal process rather short, with glabrous and broadly rounded apex. Prosternal sides red, rest of prosternum black, densely striolated.

Legs. Black, short. Inner sides of femora and tibiae with cover of whitish setation. Protibia tridentate, but posterior tooth reduced and rather obtuse. Carina of meso- and metatibia rather indistinct, particularly in mesotibia.



Figs. 16-20. *Glycyphana (Glycyphana) rugipennis* Ritsema, 1879: 16- habitus, dorsal aspect; 17- habitus, ventral aspect; 18- habitus, lateral aspect; 19- aedeagus; 20- aedeagus, lateral aspect.

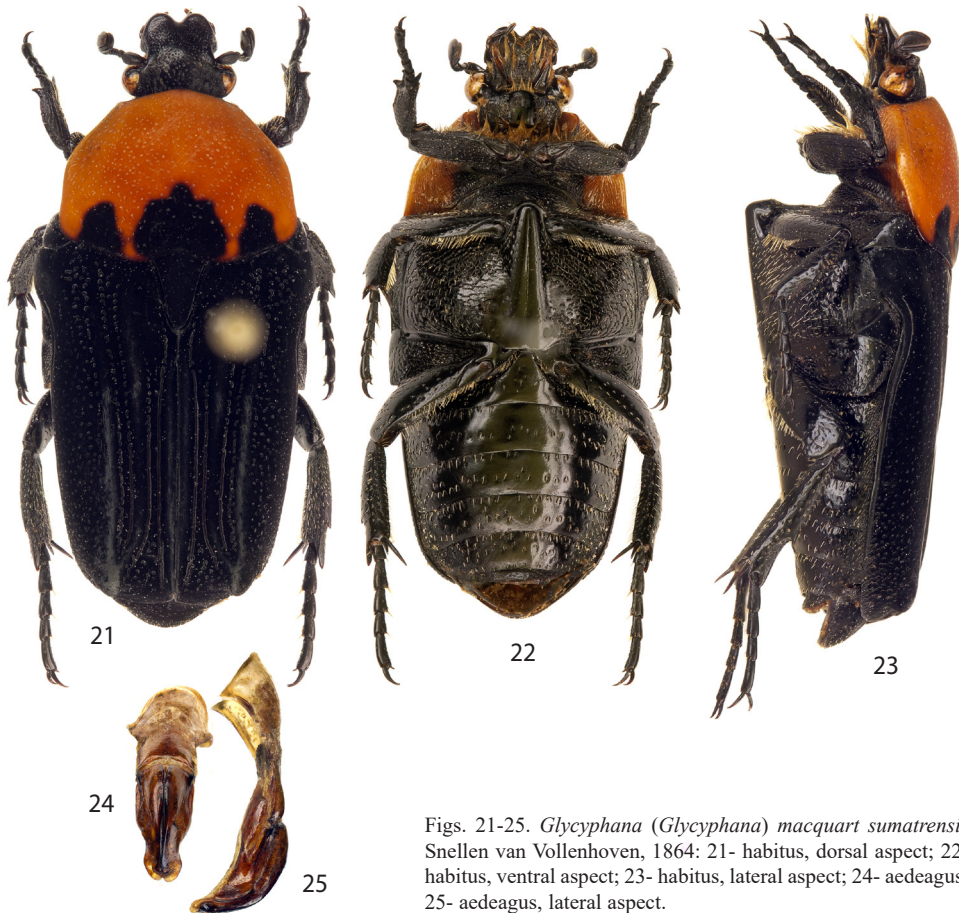
Genitalia. Structure of male parameres developed similarly as in other representatives of subgenus (Figs. 19-20)

Variability. Hitherto only one male specimen was available for the study.

Sexual dimorphism. Males and females very similar, but females with distinctly larger and longer terminal spurs of metatibia, spurs of male shorter, thinner and sharper. Protibia of females and male with three not equidistant teeth, but in male posterior tooth distinctly reduced. Anal segment punctured in females, but nearly impunctate in male. Size of females (excluding pygidium) 13.0-13.8 mm.

Differential diagnosis. *Glycyphana (G.) rugipennis* is flying together with *G. (G.) macquart sumatrensis* Snellen van Vollenhoven, 1864 and both taxa imitate each other. Anyway external morphology and male aedeagi are completely different. *Glycyphana (G.) rugipennis* can be easily distinguished by the pronotal coloration, which is completely black with red sides only, but orange with black parts of base in *G. (G.) macquart sumatrensis*. Lateral ridge of elytra nearly impunctate in *G. (G.) macquart sumatrensis*, but rugose, with striolae lines and punctures in *G. (G.) rugipennis*. Mesometasternal process completely different, long, narrowing to its apex in *G. (G.) macquart sumatrensis*, but short with broad apex in *G. (G.) rugipennis*.

Distribution. Indonesia, Sumatra.



Figs. 21-25. *Glycyphana (Glycyphana) macquart sumatrensis* Snellen van Vollenhoven, 1864: 21- habitus, dorsal aspect; 22- habitus, ventral aspect; 23- habitus, lateral aspect; 24- aedeagus; 25- aedeagus, lateral aspect.

DICHOTOMICAL KEY FOR *GLYCYPHANA* (*GLYCYPHANA*) SPECIES

- 1 (10) Coloration of body black/orange to red, white, silvery yellow or yellow ornament absent
 2 (9) Mesometasternal process long, slightly narrowing, its apex beule shaped
 3 (4) Orange disc of pronotum with four black maculae, pronotal base orange throughout its total length
 *Glycyphana* (*Glycyphana*) *macquart macquart* (Gory & Percheron, 1833)
 4 (3) Black and orange parts of pronotum differently composed
 5 (6) Disc of pronotum with one pair of black maculae, part of pronotal disc black
 *Glycyphana* (*Glycyphana*) *macquart malesiana* Mikšič, 1980
 6 (5) Pronotal disc without black maculae, completely black or completely orange
 7 (8) Pronotum black, two anterior thirds of lateral sides orange.....
 *Glycyphana* (*Glycyphana*) *macquart haemorrhoidalis* Moser, 1908
 8 (7) Pronotum orange, smaller parts of pronotal base black
 *Glycyphana* (*Glycyphana*) *macquart sumatrensis* Snellen van Vollenhoven, 1864
 9 (2) Mesometasternal process short and flat, its apex wider than long, not beule shaped
 *Glycyphana* (*Glycyphana*) *rugipennis* Ritsema 1879
 10 (1) Body coloration black or black/red, elytra or sometimes also pronotum with white, silvery yellow or yellow ornament
 11 (16) Pygidium, pronotal margins or at least part of pronotal margins red (very rarely completely black), elytron with one laterally placed white to silvery yellow macula in posterior half
 12 (13) Large species with body size 16-18 mm. Pronotal disc, part of anterior margin and sometimes also part of base black, rest of pronotum red. Mesometasternal process flat and circularly shaped. Sutural ridge, narrow part of elytral base and elytral apex black, rest of elytron covered with silvery yellow ornament
 *Glycyphana* (*Glycyphana*) *fruhstorferi* Schoch, 1898
 13 (12) Smaller species with body size 12-17 mm. Pronotal margins completely or incompletely red. Mesometasternal process wider than long, its apex obtusely rounded. Elytron with small to moderately large yellow macula placed laterally in posterior half.
 14 (15) Pronotal margins completely red. Mesometasternal process slightly wider than long, its apex obtusely rounded. Body elongated, size 13-17 mm
 *Glycyphana* (*Glycyphana*) *horsfieldi horsfieldi* Hope, 1831
 15 (14) Base of pronotum and lateral margins red, anterolateral and apical margins black. Mesometasternal process wider than long, its apex sharply rounded. Body shorter and wider with size 12-13 mm
 *Glycyphana* (*Glycyphana*) *aurocincta* Arrow, 1910
 16 (11) Dorsal side and pygidium black. Pronotum with or without pair of tiny, yellow maculae. Elytron with two to three (sometimes numerous) white, silvery yellow or yellow maculae distributed in posterior half
 17 (18) Mesometasternal process with deep furrow shortly in front of mesometasternal apex. Inner rims of male parameres notched in apical halves. Yellowish ornament of elytra and pygidium very reduced.....
 *Glycyphana* (*Glycyphana*) *meridionalis* sp. nov.
 18 (17) Mesometasternal process without furrow or with shallow furrow in front of its apex. Inner rims of male parameres without notch, running in parallel or slightly rounded. Yellowish ornament of elytra and pygidium abundant.
 19 (20) Inner parameral rims of male oval. Mesometasternal process punctured and with furrow in front of its apex
 *Glycyphana* (*Glycyphana*) *fulvistemma* Motschulsky, 1860
 20 (19) Inner parameral rims parallel. Mesometasternal process glabrous and without furrow in front of its apex
 *Glycyphana* (*Glycyphana*) *hybrida* Mikšič, 1970

Note. *Glycyphana* (*Glycyphana*) *horsfieldi sylhetica* Mikšič, 1970 is not included in key. Author was not able to examine holotype, but with high probability it belongs to nominotypical subspecies.

UPDATED LIST OF *GLYCYPHANA* (*GLYCYPHANA*) SPECIES
and their geographical distribution

- Glycyphana* (*Glycyphana*) *aurocineta* Arrow, 1910 - Bhutan; Laos; Thailand; Vietnam
Glycyphana (*Glycyphana*) *fruhstorferi* Schoch, 1898 - Indonesia: Kalimantan; Malaysia: Borneo
Glycyphana (*Glycyphana*) *fulvistemma* Motschulsky, 1860 - China; Japan; Korean Peninsula; Mongolia; Russia: Far East, Kurile Islands; Taiwan
Glycyphana (*Glycyphana*) *horsfieldi horsfieldi* Hope, 1831 - S China India: Sikkim, Meghalaya, Assam, Manipur, West Bengal, Tamil Nadu; Laos; Myanmar; Nepal; Sri Lanka; Taiwan; Thailand; Vietnam
Glycyphana (*Glycyphana*) *horsfieldi sylhetica* Mikšič, 1970 - Bangladesh
Glycyphana (*Glycyphana*) *hybrida* Mikšič, 1970 - Taiwan
Glycyphana (*Glycyphana*) *macquart macquart* (Gory & Percheron, 1833) - Indonesia: Java
Glycyphana (*Glycyphana*) *macquart malesiana* Mikšič, 1980 - Malaysia: Malay Peninsula
Glycyphana (*Glycyphana*) *macquart haemorrhoidalis* Moser, 1908 - Indonesia: Nias I.
Glycyphana (*Glycyphana*) *macquart sipirokana* Mikšič, 1967 - Indonesia: Sumatra: Sipirok
Glycyphana (*Glycyphana*) *macquart sumatrensis* Snellen van Vollenhoven, 1864 - Indonesia: Sumatra, Kalimantan; Malaysia: Kalimantan
Glycyphana (*Glycyphana*) *meridionalis* sp. nov. - S Vietnam: Kon Tum Province
Glycyphana (*Glycyphana*) *rugipennis* Ritsema, 1879 - Indonesia: Sumatra

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