The Genera *Phorticella* DUDA and *Zaprionus* COQUILLETT (Diptera, Drosophilidae) of the Oriental Region and New Guinea

Toyohi OKADA
Gotokuji 2-30-18, Setagaya-ku, Tokyo, 154 Japan

and

Hampton L. CARSON
Department of Genetics, University of Hawaii, Honolulu, Hawaii 96822, U.S.A.


WHEELER (1981) lists 8 species of Drosophilidae under the genus *Phorticella* DUDA and 22 under the genus *Zaprionus* COQUILLETT. These are Drosophilidae which have silvery or chalky white longitudinal stripes on the frons and mesoscutum. Under both genera, he dupliicates a listing of five “Species of Uncertain Affinity,” that is, species which are not clearly assignable to either *Phorticella* or *Zaprionus*. This uncertainty is also made evident by the fact that WILSON et al. (1969) included most of these “uncertain” species in the “lineosa” species subgroup of the *immigrans* species group of Drosophila. Indeed, TSACAS et al. (1977) also mentioned that *Zaprionus* species are difficult to discriminate from the “lineosa” subgroup species. Furthermore, STURTEVANT (1927) reduced *Phorticella* to a subgenus of *Zaprionus*, basing this decision on the small anterior reclinate orbital bristle.

In order to distinguish *Phorticella* and *Zaprionus* more clearly and to discriminate them from the *immigrans* group, we will take into consideration in this paper further characters: 1. position of posterior reclinate orbital bristle relative to proclinate orbital, 2. minute cuneiform bristles (Type 3 of DE CASTRO, 1953) on the tarsi of mid and hind legs, 3. the shape of ventral border of clypeum, and 4. number of hypandrial submedian spines. The minute cuneiform bristles of legs have been found in *Zaprionus*, *Zygothrica*, *Mycodrosophilag Paramycodrosophila* and *Drosophila* (part, including *immigrans* group) (DE CASTRO, 1953). Similar types of bristles also prevail among Steganiniae.

D. Carzan, 1936, from Sanle City, in ourNotes
Genus *Phoritella* DUDA


Anterior reclinate orbital usually fine, posterior reclinate nearer to proclinate than to inner vertical. Epandrium truncate below. Hypandrium with 2 long submedian spines. Type: *Drosophila bistriata* de MEIJERE.

Subgenus *Phoritella* DUDA

Frons without median longitudinal whitish stripe. Tarsi of mid and hind legs without minute cuneiform bristles. Male genitalia closely resemble those of *Drosophila* (*Sceptodrosophila*) species (cf. BOCK, 1982).

*Phoritella* (P.) *bistriata* (DE MEIJERE)

(Figs. 1D, 3A–C)


Supplta Ent., 14: 45 (Taiwan).


*Phoritella fenestrata* DUDA, 1923. Annls hist.-nat. Mus. natn. hung., 20: 36 (as var. of *bistriata*) (Taiwan).

♂, ♀. Body (Fig. 1D) about 2 mm in length. Eye with pile. Antenna with 3rd joint bright white. Face blackish at middle (white in "alboconus"). Mesoscutum dark brown, with a pair of white longitudinal stripes reaching anterior corner of scutellum. Tip of scutellum white. Acrostichal hairs in 4 rows. Male genitalia (Fig. 3A–B) yellowish brown, surstylus with about 11 teeth. Ovipositor (Fig. 3C) yellowish brown, with dense ventral row of teeth.


Distribution. Taiwan, Java, Sumatra (n. loc.), Burma (n. loc.).

*Phoritella* (P.) *alboconus* (MALLOCH)

(Fig. 1A–C)


Mesoscutum (Fig. 1A) with lateral white longitudinal stripes extending halfway on scutellum. Male genitalia (Fig. 1B–C) as figured by BOCK (1978).


Distribution. Australia, New Guinea (n. loc.).

The New Guinean specimen slightly differs from the Australian in having 2nd and 3rd antennal joints white and surstylus teeth fewer in number.
Fig. 1. Head, thorax, male genitalia and ovipositor of Phorticella species. — A–C, P. (P.) olivaceola; D, P. (P.) hierothea; E–G, P. (P.) singularis; H–I, P. (P.) antseviae. A,D,E,H, Head and thorax; B,F, periphalic organs; C,G, phallic organs; I, ovipositor. Scales 1.0 mm for A,D,E,H; 0.1 mm for other figs.

Phorticella (P.) singularis (Duda) n. comb.

(Fig. 1E–G)


♂, ♀. Body (Fig. 1E) about 2 mm in length. Eye bright red, bare. Antenna with 2nd joint pale brown, 3rd white. Arista with 4 upper and 2 lower branches and a large fork. Palpus yellowish brown. Ocellar triangle brown. Periorbit black, narrow, short, restricted at upper half of frons. Frons brown, with lateral broad whitish longitudinal stripes. Face yellowish brown. Carina low, mediately brown. Clypeus brown. Cheek brown, 1/10 as broad as the greatest diameter of eye. Anterior reclinate orbital and vibrissa fine. Mesoscutum subshining dark brown, with a short yellowish longitudinal stripe before suture, yellowish cross band along suture, and a short yellowish longitudinal stripe outside dorsocentral bristles. Scutellum dark brown, anterolaterally and apically yellowish. Thoracic pleura dark brown. Humerals 2. Acrostichal hairs in 6 rows. Anterior dorsocentrals 5/9 posteriors, length distance of dorsocentrals half cross distance. Prescutellars undeveloped. Lateral scutellars convergent, as long as apicals, which are nearer to each other than to laterals. Sternal-index 0.7, median sternopleural fine. Legs brownish black, knees and tarsi slightly paler, fore tibia with a black annulus, mid and hind tibiae with 2 black annuli. Wing hyaline. R₅₊₃ straight, R₆₊₃ and M
parallel. C-index 1.7; 4V-index 2.4; 4C-index 1.1; 5x-index 2.0; Ac-index 2.3.
Cl-bristles 2; C3-fringe 7/10. Halter yellowish orange. Abdominal tergites dark
brown, 1T entirely, 2T anteromedially, 3T caudally, and 4–5T anterolaterally in
♂ yellow. Periphallic and phallic organs (Fig. 1F–G) pale brown, similar as in P.
(P.) bistrigata. Surstylus with about 9 black teeth in a straight row.

Specimens examined. NEW GUINEA: PNG: Wau, 2 ♂, 4 ♀, 1–23. XL
1977 (CARSON), on fermented commercial mushrooms used as baits, in the “Bird of
Paradise” forest. TAIWAN: Chitau, Nantow, 1 ♂, 1 ♀, 16–17. VIII. 1967 (THROCKMORTON);
Yunshuei, Chia-I, 2 ♀, 12–18. VII. 1967 (OKADA). SINGAPORE:
Forest reserve, 1 ♂, 23. VII. 1971 (IKEDA). MALAYA: Penang, 1 ♂, 15–19. VII.

Distribution. Taiwan, Malaya (n. loc.), Singapore (n. loc.), Java (n. loc.), New
Guinea (n. loc.).

Phorticella (P.) antestriata n. sp.

(Fig. 1H–I)

♂. Body (Fig. III) about 1.8 mm in length. Eye reddish brown, bare. Antenna
with 2nd joint white, brown above, 3rd white. Arista with 3 upper and 2 lower
branches and a large fork. Palpus brown. Periorbit narrow, black, restricted at
upper half of frons. Frons dark brown, anteriorly as broad as median length,
laterally with silvery white longitudinal stripes. Face dark brown. Carina large.
Cheek narrow, 1/10 the greatest diameter of eye, glossy black, gray at eye margin.
Clypeus glossy black. Anterior recinate orbital 1/5 others. Second oral 1/5
vibrissa. Mesoscutum glossy dark brown, anterolaterally with a pale longitudinal
stripe, thus the specific name. Scutellum and thoracic pleura entirely glossy dark
posteriors. Scutellars equal in length. Sperno-index 0.5. Legs brownish black.
Metatarsus as long as succeeding 3 tarsal joints. Wing hyaline. R₁₁ nearly straight,
R₁₁₁ and M parallel. C-index 1.3; 4V-index 2.4; 4C-index 1.8; 5x-index 1.7; Ac-
index 3.0. Cl-bristle 1; C3-fringe 3/5. Halter white. Abdominal tergites brown.
Ovipositor (Fig. 1D) pale yellow.

Holotype ♂ (C220.19), NEW GUINEA: PNG: Mac Adam Memorial park,
1200 m, 22. IX. 1977 (CARSON), collected over a small heap of discarded vegetables
along the side of the road.


This species resembles P. (P.) singularis in having bare eye and anterolateral
pale stripes on mesoscutum, but differs by other thoracic ornamentation and much
smaller body.

Subgenus Xenophorticella n. subgen.

Frons with median longitudinal whitish stripe. Tarsi of mid and hind legs with
minute cuneiform bristles. Type: Zaprionus flavipennis DUDA.

Phorticella (Xenophorticella) flavipennis (DUDA)

(Figs. 2A, 3D–F)

Zaprionus flavipennis DUDA, 1929. Treubia, 7: 416 (Buru Is.).
(19): 31 (Ryukyu) n. syn.

♂, ♀. Body (Fig. 2A) about 3 mm in length. Arista with 5–6 upper and 3–4 lower branches and a small fork. Palpus gray. Periorhths milky white. Frons orange, with lateral black stripes. Face white. Carina narrow, well developed. Anterior reclinate orbital 1/3 posteriors. Mesoscutum yellowish orange, with 2 pairs of milky white longitudinal stripes bordered by black. Scutellum yellowish orange, laterally milky white. Acrostichal hairs in 6 rows. Lateral scutellars 2/3 apicals, convergent, apicals much nearer to each other than to laterals. Sterno-index 1.0. Legs yellow. Wing hyaline, crosseins somewhat dusty. C-index 1.8; 4V-index 1.8; 4C-index 1.4; 5x-index 2.0; Ac-index 3.3. Halter yellowish brown. Abdominal tergites yellowish brown, setae inserted on black spots. Male and female genitalia (Fig. 3D–F) yellowish brown.

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Fig. 2. Head and thorax of Phorticella and Zaprionus species —— A, P. (X.) flavipennis; B, Z. (A.) orissaensis; C, Z. (A.) spinilineosus; D, Z. (A.) lineosus; E, Z. (A.) multistrigatus. Scale 1.0 mm.

Distribution. Moluccas (Buru Is.), New Guinea (n. loc.), Singapore (n. loc.), India, Taiwan, Ryukyus.

*Phorticella* (Xenophorticella) *bakeri* (STURTEVANT)


*Phorticella* *bakeri*: WHEELER, 1981. Genetics and Biology of *Drosophila*, 3a: 73.

Specimens examined. None.

Distribution. Philippines, Taiwan.

This species is closely allied to *P. flavipennis*, seemingly only different by having carina "large and flat."

Genus *Zaprionus* COQUILLET


Frons and mesoscutum with whitish longitudinal stripes*. Anterior reclinate orbital well developed, posterior reclinate at middle between procline and inner vertical, by which this genus is readily distinguished from the *immigrans* species group of *Drosophila*. Tarsi of mid and hind legs with minute cuneiform bristles. Fore femur often with tubercles below, although more than half of the known species of this genus lack this character. Epandrium pointed below, hypandrium with 1 or 2 short submedian spines. Type: *Z. vittiger* COQUILLET.

Subgenus *Zaprionus* COQUILLET

Mesoscutum with 4 longitudinal whitish stripes, median stripe absent. Fore femur often with tubercles below. Surstylus with irregularly arranged bristly teeth. Hypanadrium with 1 moderate submedian spine.

*Zaprionus* (Z.) *indianus* GUPTA


Distribution. India, Pakistan (n. loc.).

This species is a single representative of the subgenus in the Oriental Region. It belongs to the vittiger complex (TSACAS, 1980).

Subgenus Aproionus n. subgen.

Mesoscutum with 5 or 7 longitudinal whitish stripes, median stripe present. Fore femur without tubercles below, thus the subgeneric name. Surrystulus usually with a straight row of distal teeth. Hypandrium with 1 or 2 short submedian spines. Type: Z. lineosus (WALKER).

Zapronus (Aproionus) lineosus (WALKER) (Figs. 2D, 3G–I)


♂, ♀. Body (Fig. 2D) about 4 mm in length. Eye dark red, with thick pile. Antenna with 2nd joint yellowish white, anteriorly black, 3rd gray. Palpus gray, with a few long setae below. Occellar triangle black. Periorbit white. Frons anteriorly 3/5 as broad as median length, dark orange brown, with 3 white longitudinal stripes. Face yellowish gray. Carina narrow, darker below. Clypeus orange, laterally black. Cheek narrow, 1/10 as broad as the greatest diameter of eye, yellowish gray, black below. Anterior reclinate orbital 1/3 procline, at middle between procline and posterior reclinate. Second oral half vibrissa. Mesoscutum mat brown, with 7 narrow whitish yellow longitudinal stripes, median stripe short and restricted on caudal half of mesoscutum, inner lateral pair not reaching scutellum, outer lateral pair complete and extending on scutellum and anteriorly connected with inner lateral pair. Thoracic pleura yellow, with 3 faint dark longitudinal stripes. Scutellum mat brown, laterally yellowish white. Hemeralus 2. Prescutellars somewhat developed. Acrostomal hairs in 6 rows. Anterior dorsocentrals 1/5 posteriors, length distance of dorsocentrals half cross distance. Lateral scutellars somewhat convergent, apicals nearer to each other than to laterals. Legs with femora and tibiae mostly black, tarsi yellowish brown. Wing hyaline. R₅₁₃ straight, R₄₁₃ and M somewhat convergent. C-index 2.2; 4V-index 1.4; 4C-index 0.9; 5x-index 1.6; Ac-index 2.7. C₁-brisites 2, unequal; C3-fringe 3/5. Halter yellow. Abdominal tergites mostly subshining black. Male genitalia (Fig. 3G–H) brown. Ovipositor (Fig. 3I) pale yellowish brown.

Specimens examined. CELEBES: Marino, 1 ♂, 2 ♀, 11. XII. 1973 (SHINONAGA).

Distribution. Celebes, Taiwan.
Zapironus (Aprionus) spinilicusus n. sp.

(Figs. 2C, 3J–L)

♂, ♀. Body (Fig. 2C) about 3.5 mm in length. Fve reddish brown, with pile. Antenna with 2nd joint yellowish gray, 3rd gray. Arista with 3 upper and 2 lower branches and a large fork. Palpus black, with a few setae below. Ocellar triangle mat black. Periorbital yellow. Frons brown, with median yellowish longitudinal stripe, anteriorly as broad as median length. Face gray. Carina gray. Anterior reclinate orbital 1/3 procline, at middle between procline and posterior reclinate. Second oral half vibrissa. Mesoscutum mat brownish black, with 7 narrow white longitudinal stripes, median stripe very weak but complete, submedian pair posteriorly not reaching scutellum. Scutellum mat brownish black, marginally white. Thoracic pleura mat black, with 2 irregular yellow longitudinal stripes. Hemeral 2–3. Acrostichal hairs in 6 rows. Prescutellars somewhat developed. Anterior dorsocentralis half posteriors, length distance of dorsocentrales 2/5 cross distance. Lateral scutellars convergent, slightly shorter than apicals, which are nearer to each other than to laterals. Sterno-index 0.5. Legs mostly black, knees of fore leg and metatarsi of all legs paler. Wing hyaline. \( R_{4+5} \) straight, \( R_{4+5} \) and M parallel. C-index 2.1; 4V-index 1.4; 4C-index 0.9; 5x-index 1.2; Ac-index 2.4. C1-bristle 1; C3-fringe 2/3. Halter white. Abdominal tergites nearly uniformly subshining.
brownish black in ♂️, dark yellowish brown with caudal broad black bands in ♀️. Male genitalia (Fig. 3F-K) yellowish brown, cercus darker, anterior paramere sharply pointed apically, thus the specific name. Ovipositor (Fig. 3L) pale yellow, apically dark.

Holotype ♂️ (C225.1), 1 ♂️, 3 ♀️ paratypes, Gurakor Creek near Lae, PNG, 607 m, 4. XI. 1977 (M. S. CARSON), all five specimens collected from a single leaf. Types in Bishop Museum, 1 ♂️, 1 ♀️ paratypes in National Science Museum, Tokyo.


This species is closely allied to Z. lineosus in body coloration, but differs by having submedian and lateral white longitudinal stripes of mesoscutum not contiguous anteriorly and anterior paramere sharply pointed distally.

Zapironus (Aprionus) orissaensis (GUPTA) n. comb.

(Figs. 2B, 4A–C)


♂️, ♀️. Body (Fig. 2B) about 3.5 mm in length. Submedian and lateral white longitudinal stripes of mesoscutum connected by a white cross band at suture. Male and female genitalia (Fig. 4A–C) pale brown.


Distribution. India, Thailand (n. loc.).

Zapironus (Aprionus) multistriatus (DUDA)

(Figs. 2E, 4G–I)


Stegana lineata de MEJER, 1911, Tijdsschr. Ent., 54: 420 (preoc.) (Java).

♂️, ♀️. Body (Fig. 2E) about 3 mm in length. Eye dark red with thick pile. Antenna with 2nd joint black above, 3rd gray. Arista with 3 upper and 1 lower branches and a small fork. Palpus black. Ocellar triangle black. Periorbit yellowish white, narrow. Clypeus gray. Frons anteriorly narrower than median length, mat yellowish white with a pair of black longitudinal stripes. Face mat gray. Carina high, narrow, long. Cheek gray, 1/8 as broad as the greatest diameter of eye. Anterior reclinate orbital 2/5 posteriors, equally apart from procline and posterior reclinate. Vibrissa strong, other orals fine. Mesoscutum mat grayish yellow, with 6 brownish black longitudinal stripes, the stripes along dorsocentals narrow and anteriorly scarcely extending before suture. Scutellum mat brownish black, laterally pale. Thoracic pleura yellowish gray, with 2 brownish black longitudinal stripes, median stripe not broader than others. Humerals 2, long. Acrostichal hairs in 6 rows. Anterior dorsocentals 2/3 posteriors, length distance of dorsocentals half cross distance. Lateral scutellars slightly divergent; apicals somewhat longer than laterals, nearer to each other than to laterals. Sterno-
index 0.6. Legs yellowish gray. Wing somewhat fuscos. R₄₊₅ nearly straight, R₆,₇ and M nearly parallel. C-index 2.8; 4V-index 2.1; 4C-index 1.0; 5x-index 1.6; Ac-index 3.0; C₁-bristle 1; C₃-fringe 4/7. Halter yellowish white. Abdominal tergites yellowish brown, with diffuse black cross bands on anterior and posterior borders. Male and female genitalia (Fig. 4G–I) yellowish brown.


Distribution. Taiwan, Malaya (n. loc.), Java, India.

Zapriophus (Aprionus) grandis (Kikkawa et Peng) n. comb.

(Fig. 4J–L)  

♂, ♀. Body about 3 mm in length. Mesoscutum dark brown, with 5 yellowish gray longitudinal stripes, median stripe narrow, lateral stripes on each side of dorsocentral line. Thoracic pleura mostly black in ♂, yellowish gray with 3 black longitudinal stripes in ♀. Male and female genitalia (Fig. 4J–L) yellowish brown, upper half of epandrium and cercus in ♂ brownish black.
Further specimens examined. JAPAN: Kamiozogawa, Saga Pret., 1 ♂, 25. X. 1973 (YAMAGISHI); Shikoku, mountain area, 2 ♂, 9 ♀, 19. VII. 1980 (KIMURA).


Zaprimonus (Aprionus) obscuricornis (de MEIJERE)

(Fig. 4D)


♂, ♀. Body about 3 mm in length. Mesoscutum brown, with 7 yellowish longitudinal stripes. Surststylus (Fig. 4D) quadrinate, with 4 very long curved bristles distally (cf. DWIVEDI et GUPTA, 1980).


Distribution. Java, Sumatra, Lombok (n. loc.), Sabah, Brunei, Sarawak, Malaya (n. loc.), Thailand (n. loc.), India.

Zaprimonus (Aprionus) silvstriatus (BOCK et BAIMAI)

(Fig. 4E)


♂, ♀. Body about 3.5 mm in length. Mesoscutum dark brown, with 7 rather broad whitish longitudinal stripes. Surststylus (Fig. 4E) ventrally concaved, apically with 4 long bristles.

Specimens examined. NEW GUINEA: PNG: Wau, 1 ♂, 8. I. 1974 (SHINO-NAGA); same locality, 22 ex., VII-IX. 1977 (OKADA); Perenin River, 227 m, 1 ♂, 7. XI. 1977 (CARSON), from banana bait; Kunai Creek, Mt. Kaindli, 14. IX. 1977 (CARSON), from banana bait.

Distribution. New Guinea, Malaya?

This species resembles closely the foregoing species, Z. obscuricornis, especially in thoracic ornamentation, but it can be distinguished from the latter by the shape of surststylus. The record from Malaya (TAKADA & MOMMA, 1975) would certainly refer to Z. obscuricornis.
Lapronus (Apronus) argenostriatus (BOCK) (Fig. 4F)


♂, ♀. Body 2.5-4.0 mm in length. Mesoscutum brown, with 7 narrow whitish longitudinal stripes. Surstylus (Fig. 4F) with 4 rather long teeth distally.


Distribution. New Guinea, Australia, Celebes (n. loc.), Philippines, Bornco, Malaya, India, Thailand (n. loc.).

Taximetric Analysis

By means of S,B proximity analysis and UPGA cluster analysis of 13 species (t=13) over the following 13 characters (n=13), a dendrogram of relationships (Fig. 5) was prepared.

“A” Upper branches of arista 4 or more (A=0) or 3 (a=1).
“B” Median whitish longitudinal stripe of frons absent (B=0) or present (b=1).
“C” Anterior reclinete orbital long, posteriors nearer to proclineate than to inner vertical (C=0), or anterior reclinete fine, posteriors at middle between proclineate and inner vertical (c=1).

“D” Whitish longitudinal stripes of mesoscutum 2-4, median stripe absent (D=0) or 5 or 7, median stripe present (d=1).
“E” Acrostichal hairs in 6 (E=0) or 4 rows (e=1).
“F” Minute cuneiform bristles on the tarsi of mid and hind legs absent (F=0) or present (f=1).
“G” C-index 2.8 or more (G=0) or less than 2.2 (g=1).
“H” 4V-index more than 2.0 (H=0) or less than 2.0 (h=1).
“I” C3-index less than 2.0 (I=0) or more than 2.0 (i=1).
“J” Ac-index less than 2.0 (J=0) or more than 2.0 (j=1).
“K” Halter black (K=0) or yellowish (k=1).
“L” Epandrium ventrally truncate (L=0) or pointed (l=1).
“M” Surstylus teeth irregular and scattered (M=0) or regular and in a row (m=1).
“N” Submedian spines of hypandrium 1 (N=0) or 2 (n=1).
“O” Submedian spines of hypandrium short (O=0) or long (o=1).

Phorticella (Xenophorticella) bakeri was excluded from the analyses because of
insufficient data. As a result the distinctions between genera and between subgenera were more or less clearly expressed on the dendrogram. From this dendrogram a sequential key to genera, subgenera and species was automatically constructed as shown below. Some additional data were inserted in couplets 5, 11 and 13.

**A Key to Genera, Subgenera and Species**

1. Anterior reclinate orbital fine, posteriors nearer to procline than to inner vertical (c); epandrium ventrally truncate (L); submedian spines of hypandrium long (o)......................... Genus Phorticella...........2
   — Anterior reclinate orbital long, posteriors at middle between procline and inner vertical (C); epandrium ventrally pointed (l); submedian spines of hypandrium short (O)......................... Genus Zapronius...........6

2. Median white longitudinal stripe of frons present (b); minute cuneiform bristles on the tarsi of mid and hind legs present (f); 4V-index more than 2.0 (H).............. Subgenus Xenophorticella............ P. (X) flavipennis
   — Median white longitudinal stripe of frons absent (B); minute cuneiform bristles on the tarsi of mid and hind legs absent (F); 4V-index less than 2.0 (h).............. Subgenus Phorticella...........3

3. Acrostichal hairs in 6 rows (E)......................... P. (P.) singularis
— Acrostichal hairs in 4 rows (e) ........................................ 4
4. Upper branches of arista 4 or more (A) .................. P. (P.) bistriata
— Upper branches of arista 3 (a) .......................... 5
5. Mesoscutal white stripes long ....................... P. (P.) albostiata
— Mesoscutal white stripes short ....................... P. (P.) antestriata
6. C3-fringe more than 2.0 (i); Ac-index more than 2.0 (j) ........... 7
— C3-fringe less than 2.0 (I); Ac-index less than 2.0 (J) ............

........................................... Zapriomus (Aprionus) part ....... 13
7. Median whitish longitudinal stripe of frons absent (B); whitish longitudinal stripe of mesoscutum 2 or 4, median stripe absent (D) ..............

........................................... Subgenus Zapriomus ....... Z. (Z.) indianus
— Median whitish longitudinal stripe of frons absent (b); whitish longitudinal stripes of mesoscutum 5 or 7, median stripe present (d) ..............

............................................ Subgenus Aprionus ....... 8
8. Submedian spine of hypandrium 1 (N) .............. Z. (A.) argento striatus
— Submedian spines of hypandrium 2 (n) ................... 9
9. C-index less than 2.2 (g); 4V-index more than 2.0 (H) ............. 10
— C-index more than 2.8 (G); 4V-index less than 2.0 (h) ............ 17
10. Surstylus teeth irregular and scattered (M) .............. Z. (A.) orissaensis
— Surstylus teeth regular and in a row (m) ...................... 11
11. Hypandrium apically rounded ...................... Z. (A.) lineeus
— Hypandrium apically pointed ...................... Z. (A.) spinilineeus
12. Halter yellowish (k) ....................... Z. (A.) multistriatus
— Halter black (K) ........................................ Z. (A.) grandis
13. Surstylus ventrally not concaved .................... Z. (A.) obscuricornis
— Surstylus ventrally concaved .................... Z. (A.) silvestriatus

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References


