New dragonflies from the north-eastern Asia (Odonata)

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Amongst my collection there are some interesting dragonflies which are considered to be new to science. These are one species from Japan, four species and two subspecies from Ryukyu, three species and two subspecies from Formosa. Leaving a detailed description of each species to the nearest future I intend to publish here the diagnoses separating them from the known congeners. All the materials are preserved in my collection in Tokyo.

1. *Rhipidolestes aculeata yakusimensis* subsp. nov. (Figs. 1～3)

This new subspecies differs in the following points from *R. a. aculeata* Ris from Formosa and Japan:

1. Body slenderer and smaller in general. (♂ abd. 31～35; h. w. 24～27; ♀ abd. 27～32; h. w. 23～26 mm.)

2. Wings of both sexes tinted all over with pale brown, in males it is distinctly deeper in the tip of wings distad of pterostigma. (Fig. 1)

3. The yellowish basal ring of 3－7 abdominal segments and the yellow end-ring of 7－8 become much obscure, they are almostly unrecognizable on the distal five segments.

4. Distribution confined to Yakusima Island (northern Ryukyu).

Holotype: 1♂ Kosugidani, Yakusima, 22. VII. 1950, leg. Shirozu.

Allotype: 1♀ The same as above.

Paratypes: 10♂ 3♀ The same as above; 1♂ Yakusima, 5. VI. 1936, leg. Nomura; 1♀ Yakusima, 13. VI. 1936, leg. Nomura.

The male penile organ is almost identical with that of *R. a. aculeata* Ris. (Fig. 2, 3)

2. *Rhipidolestes okinawana* sp. nov. (Figs. 4～8)

Argia apicalis Matsumura (nec Say, 1839), Thous. Ins. Japan, Addittamenta 1, p. 51, pl. 7. fig. 9 (1913)

This species is readily separated from *R. a. aculeata* Ris as follows:

1. Male: The dorsal spine of 8th abdominal segment ending in a blunt tip. (Fig. 4)

2. Male : The dorso-interior subbasal tooth of superior appendage sharply pointed. (Fig. 5)

3. Penis : The tip of the third segment ending in a pair of slender recurved processes. (Fig. 6, 7)

4. Male : Wing-apices deep brown distad of pterostigma. The pterostigma is slightly more elongate and darker in colour. (Fig. 8)

5. Female : The posterior border of prothoracic tergite faintly notched in the middle. (In *R. a. aculeata* it is entire.)

6. Body smaller; ♂ abd. 30～36, h. w. 25～27; ♀ abd. 25; h. w. 23mm.

7. Endemic to Okinawa Island.

Holotype : ♂ Isakawa-yama, Okinawa, 13. V. 1931, leg. Asahina.

Allotype : ♀ Oogimi, Okinawa, 5. V. 1931, leg. Asahina.

Paratypes : 4♂ Isakawayama, Okinawa, 2. V. 1931, leg. Asahina. 1♂ Nagodake, Okinawa, 2. V. 1936, leg. Sunabe.

In the slenderness of the body as well as the brown-tipped male wings this species is also closely allied to the above described new subspecies *R. a. yakusimensis*, but can be distingushed from the latter in the structure of male caudal appendages and penis. The female may be separated with difficulties.

3. *Coeliccia ryukyuensis* sp. nov. (Figs. 9～16)

This species is very closely related to *C. cyanomelas* Ris from Formosa and South China, but can be separeted from it in the following points:

1. Only a single antehumeral pale marking present in the black of mesepisternum. This marking is abbreviated in the middle in Okinawa specimens or extending slightly more dorsad in Amami speciemens. (Fig. 9, 10). In *C. cyanomelas* this marking is distinctly separated to a lower oblong one and an upper hieroglyph-shaped smaller one.

2. Male : Superior caudal appendages, seen in profil, broader, apex broadly rounded. (Fig. 11, 12)

3. Penile organ is of quite different structure. (Fig. 13, 14) In *C. cyanomelas* the third segment is ending in a pair of very slender processes.

4. Distribution confined to Okinawa and Amami-osima.

Holotype : ♂ Isakawa-yama, Okinawa, 14. V. 1931, leg. Asahina.

Allotype : ♀ Yakkachi, Amami-osima, 18. VII. 1933, leg. Esaki et Yasumatsu.

Paratype : 1♂ Yamato, Amami-osima, 17. VII. 1927.

This species also allies to *C. flavicauda* Ris from Formosa, but can be distinguished from it by the shape of penile organ, by the absence of hieroglyph-shaped marking on the upper part of mesepimeron, by the broadly rounded apex of superi-

or appendage, and the position of the internal tooth of the same which is more distad and pointed at the apex.

4. *Coeliccia flavicauda masakii* subsp. nov. (Figs. 17 ~ 23)

This subspecies is characterized by the following points:

1. Male: The pale hieroglyph-shaped marking on the upper part of mesepimeron is ill defined at its posterior border. In female (and some males) it is confluent with the yellowish part of metepisternum. (Fig. 17, 18)

2. The broad internal hook of superior caudal appendage roundly produced. (Fig. 19, 20) (Rather spuarish in *C. f. flavicauda*)

3. Female paler in body colouration, the occipital part of head rather brownish even in a mature insect.

4. Body smaller in average: hind wing 22 ~ 23mm. In *C. f. flavicauda* it is 24 ~ 29mm.

5. Distribution confined to Isigaki-island (South Ryukyu).

Holotype: ♂ Isigaki, 15. IX. 1939, leg. Masaki.

Allotype: ♀ Isigaki, 15. IX. 1939, leg. Masaki.

Paratypes: 3♂ 1♀ The same as above: 1♂ Banna-dake, Isigaki, 1. VII. 1934, leg. Esaki; 1♀ Isigaki, VI. 1934, leg. Ogata.

This subspecies is named for the memory of the late Mr. H. Masaki of Isigaki-zima Meterological Observatory who had kindly forwarded me a series of most interesting Odonata from that island, but has regrettably been lost by a shipwreck during the war II.

5. *Gomphus nagoyanus* sp. nov. (Figs. 24 ~ 25)

This species is hardly distinguishable from *G. oculatus* Asahina (1949)[1], but the following characteristics may be worth to establish a separate species:

1. Hamuli posteriores tapering, not ending in a hook as that of *G. oculatus*. (Fig. 24)

2. The tip of superior caudal appendage, when obseved from the sides, does not tapering off to a point but obliquely truncated. (Fig. 25)

3. The basal middorsal yellow spot on the seventh abdominal segment short. The other body-patterns are quite identical with *G. oculatus*. Body length: ♂ abd. 44mm, h. w. 33mm.

Holotype: 1♂ Nagoya, Central Japan, VIII. 1942, leg. Matsui

Paratype: 1♂ (broken) Nagoya, Central Japan, 18. VIII. 1940, leg. Yamamoto.

Only two male specimens were studied, both were collected in the city of

[1] Ins. Mats. 17, (1), 29 (1949)

Nagoya. The female is yet unknown.

6. *Stylogomphus ryukyuanus* sp. nov. (Figs. 26～28)

This dainty gomphid resembles closely to Indian *S. inglisi* Fraser, but can be easily separated from the latter in the following characteristics :

1. Male : Superior caudal appendage with only one ventro-lateral tubercle. Inferior appendage much more deeply divided. (Fig. 26, 27)

2. Female : Valvula vulvae divided into roundly lobes. In *S. inglisi* it is "triangular, emerged at apex".

Holotype[1] : ♂ Yakkachi, Amami-osima, 18. VII. 1933, leg. Esaki et Yasumatsu.

Allotype[1] : ♀ Yakkachi, Amami-osima, 19. VII. 1933, leg. Esaki et Yasumatsu.

Paratypes[1] : 2♂ As above; 1♀ Ambo, Yakusima, 4. VIII. 1929, leg. Hori.

Paratypes : 2♂ Yakusima, 25. VII. 1931; 1♂ Kusugawa-toge, Yakusima, 30. VII. 1926, leg. Kawahira; 1♀ Kosugidani, Yakusima, 17. VII. 1950, leg. Shirozu.

Sytlogomphus was a monospecific genus known to occur in Dajeeling district. The occurrence of the second species from North Ryukyu seems very interesting. The both species show marked resemblance in the structure of caudal appendages, genital hamulus, wing-venation and body patterns. This new species is slightly darker in the general body marking.

7. *Sinogomphus formosanus* sp. nov. (Figs. 29～34)

This species is very closely related to Japanese *S. flavolimbatus* Oguma, but can be separated from the latter in the following points :

1. Male : Inferior caudal appendage much more widely bifurcated. (Fig. 29, 30)

2. Female : The elevated hindermost occipital border (just behind the post-frontal suture) slightly produced posteriorly. There is a conical tubercle just behind the each lateral ocellus (Fig. 33). In *S. flavolimbatus* the occipital border is shallowly bilobed, the area behind it does not produced backwards. The conical tubercle is quite absent.

3. Female : Valvula vulvae slightly longer. (Fig. 34)

4. Labrum entirely black. In *S. flavolimbatus* there are always a pair of yellowish spots.

Holotype : ♂ Pyanen-pass, Formosa, 17. VIII. 1936, leg. Asahina.

Allotype : The same as above.

Paratypes : 17♂ The same as above.

There is another one pair in my collection, the male of which was taken from Baikei near Hori (8. III. 1938), and the female from Taiheizan (24. VII. 1932, leg. K. Nomura).

[1] Preserved in the Entom. Lab., Kyusyu University, Fukuoka.

The above compared congeners are so closely allied that the general body pattern, the male accessory genitalia and the superior caudal appendages afford no good separable feature.

This new species also approaches two Chinese Gomphids, namely "*Gomphus pylades* Lieftinck" and "*Gomphus orestes* Lieftinck", but can be separated from them by the structure of male accessory genitalia and of caudal appendages.

8. *Oligoaeschna pyanan* sp. nov. (Fig. 35)

This species may be the eleventh of this rather primitive Aeschnid and is most closely related to Japanese *O. pryeri* Martin. The distinguishing characteristics are as follows:

1. The tip of male superior appendage pointed, the internal side of superior appendage with a distinct semicircular depression. In *O. pryeri* the superior appendage is spatulated distally with blunt apex; there is a distinct subbasal ventral projection.

2. Always two rows of cells present between MA and MApl in both pairs of wings.

3. Abdomen much more blackish than that of *O. pryeri*; the pale terminal paired spots on 3—6 segments smaller and the segments 7—10 entirely black. In *O. pryeri* the terminal spots from 3 to 7 are distinct, there are also median small pairs from 3 to 5 segment.

Holotype : ♂ Pyanan-pass, Formosa (1970 m above the sea-level), 17. VIII. 1936, leg. Asahina.

Paratype : 1♂ The same as above. 1♂ Sikikum-Togano-o, Central Formosa, 21. VII. 1932, leg. T. Esaki. (Coll. Entom. Lab., Kyusyu Univ., Fukuoka)

This species is also resembles Bornean *O. buhri* Foerster, but can be easily separated from it by the structure of inferior caudal appendage.

9. *Planaeschna taiwana* sp. nov. (Fig. 36 ~ 38)

This species is related to *P. milnei* Selys from Japan and Formosa but can be distinguished from the latter as follows:

1. Male : Superior appendages not strongly upcurved in its distal half. (Fig. 37)

2. Both sexes : Body colouration much paler; labrum, anteclypeus almostly dark yellow, there is a small yellowish ovoid spot on the mesepisternum just above the infraepisternum, the black band covering metepisternum is deeply divided by a yellow marking; there are apical yellowish spots on abdominal segments (♂ 3—8, ♀ 3—6); the last abdominal segment almost black.

Holotype : ♂ Soozan, Formosa, 19. VII. 1936, leg. Asahina.

Allotype : ♀ Soozan, Formosa, 7. VIII. 1936, leg. Asahina.

Paratypes : 1♂ 19. VII. 1936; 1♂ 2♀ 7. VIII. 1936, both from the same locality.

In the structure of male caudal appendages this new species is also rather closely allied to *P. intersedens* Martin from Assam and Upper Burma but can be distinguished from the latter through much larger dimension and differences of the body marking.

10. *Planaeschna ishigakiana* sp. nov. (Figs. 39 ~ 40)

This species belongs doubtlessly to *Planaeschna* in the absence of the crossveins in the "median space", and resembles *P. milnei* Martin of Japan. The distinguishing characteristics are described below:

1. Superior appendages, seen from above, dilated from basal $^1/_4$ and is broadest in the middle, then gently tapered. If seen from the sides they are gently upcurved with the extreme apices pointed. (Fig. 39, 40) In *P. milnei* it is very narrow and strongly upcurved at the basal $^2/_5$, with the apical portion abruptly dilated.

2. The dorsum of the tenth abdominal segment all brownish black. In *P. milnei* it is almostly yellow.

Holotype : 1♂ Isigakizima, Ryukyu, 11. VI. 1933, leg. Senaha (Coll. Ent. Lab., Kyusyu Univ., Fukuoka).

This species is also closely allied to *P. taiwana* above described, but the ovoid spot of mesepisternum is absent and the pale area of metepisternum almost obliterated. The shape of superior caudal appendages will also worth to separate the congeners.

11. *Polycanthagyna erythromelas paiwan* subsp. nov. (Figs. 41 ~ 42)

"*Aeshna*" *erythromelas* MacLachlan has been known from north-eastern India and Tonkin. The present material from southern Formosa is almost identical with it, but so far as the available descriptions are concerned, there can be recognized some differences as described below:

1. Size smaller : Male abdomen 57—63mm, hind wing 51—55mm, female abd. 58mm, h. w. 55mm. (In *P. e. erythromelas* abd. of male 64—67mm, of female 59—63 mm, hind wing both sexes 55—57mm.).

2. Membranule distinctly greyish, while it has been described in *P. e. erythromelas* as "blanchâtre" or "whitish".

3. Antealar sinus almostly yellowish green. (In *P. e. e.* only distal $^3/_4$ yellow).

Holotype : ♂ Tyokakurai, Daibu, 27. VII. 1936, leg. Asahina.

Allotype : ♀ Kuraru, Kosyun, 22. V. 1934.

Paratypes : 1♂ Tyokakurai, Daibu, 28. VII. 1936, leg. Asahina; 1♂ Kuraru, 19. VII. 1935.

From the characters of body structure this species belongs doubtlessly to the subtropical *Polycanthagyna*. The nearest akin appears to be *P. melanictera* Selys and probably also *P. ornithocephala*. The present materials were captured flying swiftly on a forest stream in South Formosa, the larva is also closely allied to that of Japanese *P. melanictera* Selys.

12. *Sympetrum speciosum taiwanum* subsp. nov.

This new subspecies is most closely allied to *S. s. speciosum* Oguma from Japan (West Honsyu and Kyusyu). The definite and the only difference seems to be in the reduction of the reddish yellow markings of the wing base. In the fore wings it is reduced to the merely trace whithin the spaces sc and cu, in the hind wing it barely reaches to the level of the distal end of the triangle.

In Japanese specimens, so far as my materials are concerned, it is far more breadened in the fore wing to the level of t, and in the hind wing until well beyond t.

Holotype : ♂ Geriro-san, Central Formosa, 13. VIII. 1936. leg. Asahina.

Allotype : ♀ The same as above.

Paratypes : 1♂ 1♀ Mururoaf-pond, Central Formosa, 12. VIII. 1936, leg. Asahina; 12♂ 2♀ Geriro-san, 13. VIII. 1936; 1♂ Pyanan-pass, 12. VIII. 1936, 1♂ 1♀ Matumine (Meoto-ike), 19. VIII. 1936, all leg. Asahina.

I hesitated to establish a separate subspecies based upon the above mentioned characteristic of wing colouration. There are similar cases in *Sympetrum* which can be considered to be individual variation within a single species. But in the present case all the specimens I could examine myself show a definite tendency in the reduction of the wing marking. Moreover their habitats are quite strictly limited in the high mountains of Formosa, about 2000—3000 meters above the sea level.

postscript

After I sent the MS. to the editor I received from Mr. I. Matsui a female specimen of *Gomphus nagoyanus* which was described by the male-sex only.

***Gomphus nagoyanus* Asahina**

Female. Very closely allied to that of *G. oculatus* but the following differences are noticeable:

1. The posterior occipital border slightly concave at the middle. (In *G. oculatus* it is produced in the shape of a triangle.)

2. Segments 4—6 of the abdomen each with a complete basal yellow ring. (In *G. oculatus* the ring is incomplete, and, if seen from above, there appears a basal triangular spot.)

3. The basal middorsal yellow spot on the segment 8 smaller.

1♀ Moriyama, Nagoya, 27. VII. 1951. leg. I. Matsui (Allotype)

1♀ Tokyo, 14. IX. 1950. leg. Y. Yoshida

For this interesting Gomphid I am indebted to Messrs. I. Matsui, Y. Yamamoto and Y. Yoshida to whom I must express my sincerer thanks.

（資料）

オオニジユウヤホシテントウについてのメモふたつ

坂 上 昭 一

Shoichi F. Sakagami: Miscellaneous notes on *Epilachna vigintioctomaculata*

1．オオニジユウヤホシテントウは，各種農作物の害蟲として知られ，ことに成蟲は極めて多食性の昆蟲であり，科を異にする多くの植物を加害する．私は 1945 年夏，北大農學部裏の路傍に栽培されたトウモロコシの實に本種があつまつて居るのをみつけた．その實はすでに半ば成熟してかなりかたくなつていたものだが，その外皮の 1 部をくいやぶり，12 匹の成蟲が約 2cm 平方にわたつて，種子をくいつくしていた．葉部以外では本種は札幌においてカボチヤの花をこのんで喰害するが，トウモロコシの實を喰うことはまだ聞かないので，こゝに報告しておく．

2．テントウムシ類の成蟲越冬は大群をなして一定箇所にあつまるものが多く，例えば札幌ではナミテントウが毎年市の南西藻岩山のふもとにある納骨堂にあつまつて越冬する．しかしオオニジユウヤホシは一般にかゝる形式をとらず，樹皮の下，草の根元などに單獨又は 3～4 匹があつまつて越冬することが多い．しかし前屬に近い型ともみられるものを私は 1946 年冬にみつけた．場所は北大農學部 4 階屋上のドアの外側で，北向のほとんど一日中日のあたらぬ所であり，下はコンクリートであつた．この一隅に 56 匹のオオニジユウヤホシがあつまづているのを 10 月 26 日にみつけた．すでにかなり寒さの加わつた時で，蟲はほとんど不動の狀態にあり，之にヒメカメノコテントウ 1 匹，ゾウリムシ 6 匹，及びキノコバエの 1 種 1 匹が加わつて一つの越冬群聚をつくつていた．のちに 12 月 2 日すでに半ば雪にうずもれた時みた時にはオオニジユウヤホシは 32 匹に減じ，他の蟲はゾウムシ以外見られなかつたので，その間に別な所に移動したものと思われる．その後の經過を記錄して居ないので，翌春まで，かゝる狀態をたもつていたのかどうか，殘念ながらわからなかつた．

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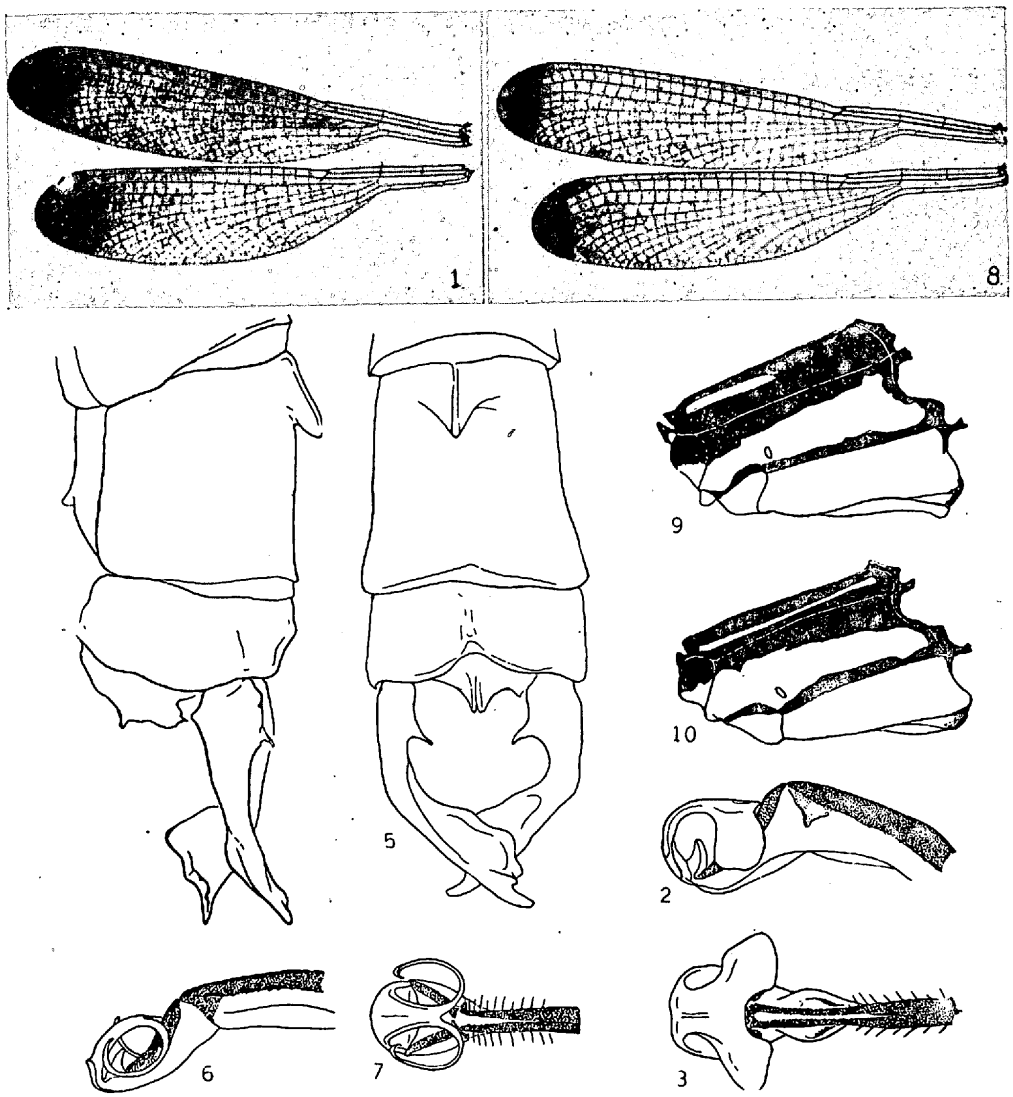


Fig. 1. *Rhipidolestes aculeata yakushimensis* subsp. nov. male, wings.
Fig. 2, 3. The same, penis.
Fig. 4, 5. *Rhipidolestes okinawana* sp. nov. male, abdomen.
Fig. 6, 7. The same, penis.
Fig. 8. The same, male, wings.
Fig. 9. *Coliccia ryukyuensis* sp. nov. male, pterothoracic colour-pattern.
Fig. 10. The same, female.

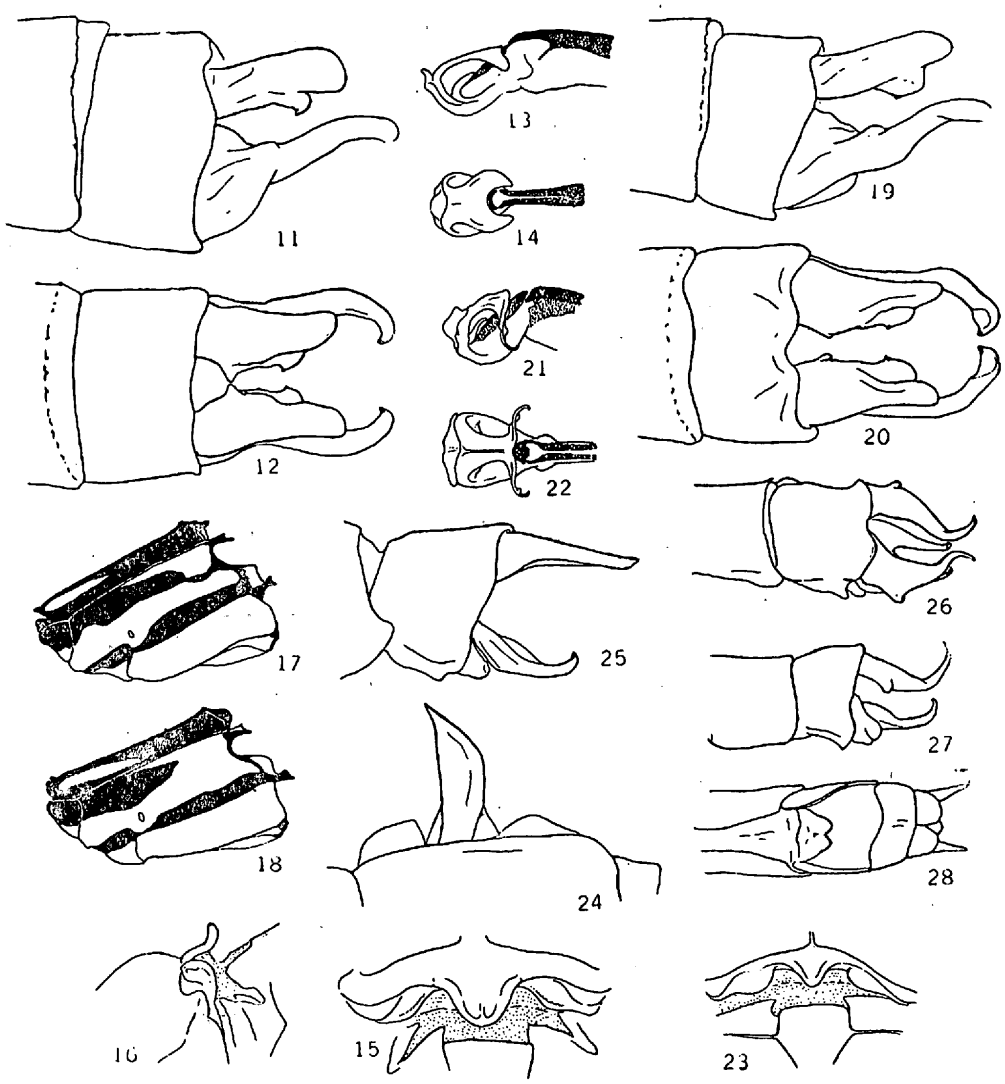
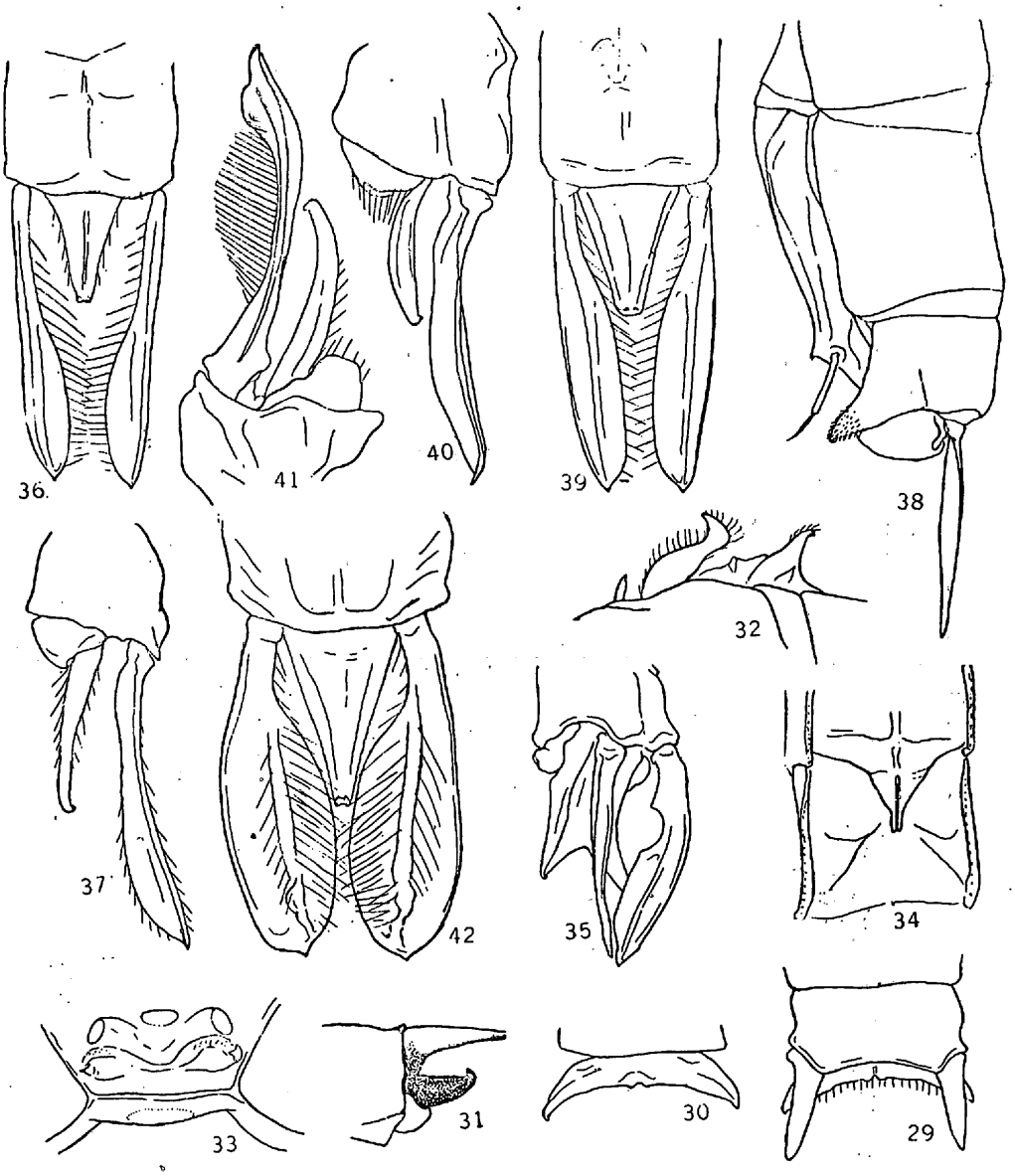


Fig. 11, 12. *Coeliccia ryukyuensis* sp. nov. male, abdominal end.
Fig. 13, 14. The same, penis.
Fig. 15. The same, female, posterior border of prothorax, dorsal view.
Fig. 16. The same, lateral view.
Fig. 17. *Coeliccia flavicauda masakii* subsp. nov. male, pterothoracic colour-pattern.
Fig. 18. The same, female.
Fig. 19, 20. The same, male, abdominal end.
Fig. 21, 22. The same, penis.
Fig. 23. The same, female, posterior border of prothorax.
Fig. 24. *Gomphus nagoyanus* sp. nov. male, accessory genitalia.
Fig. 25. The same, caudal appendages.
Fig. 26, 27. *Stylogomphus ryukyuanus* sp. nov. male, caudal appendages.
Fig. 28. The same, female, valvula vulvae.



ig. 29. *Sinogomphus formosanus* sp. nov. male, caudal appendages, dorsal view.
ig. 30. The same, inferior appendage, ventral view.
ig. 31. The same, lateral view.
ig. 32. The same, accessory genitalia.
ig. 33. The same, female, postfrontal region.
ig. 34. The same, valvula vulvae.
ig. 35. *Oligoaeschna fyanan*, sp. nov. male, caudal appendages.
ig. 36, 37. *Planaeschna taiwana* sp. nov. male, caudal appendages.
ig. 38. The same, female, abdominal end.
ig. 39, 40. *Planaeschna ishigakiana* sp. nov. male, caudal appendages.
g. 41, 42. *Polycanthagyna erythromelas paiwan* subsp. nov. male, caudal appendages.