

Records of the Northern Vietnamese Odonata Taken
by the Expedition Members from the National
Science Museum, Tokyo

5. Coenagrionidae, Protoneuridae and Platycnemididae

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Abstract In total twenty-four species of northern Vietnamese damselflies referable to three zygopterid families are recorded in the fifth part of this series. Many of them seem to be rather common lowland species, but special attention is paid to the family Platycnemididae, of which three *Calicnemia* are illustrated including one new species and six of the seven *Coeliccia* species are described as being new to science. A large-sized *Coeliccia*-like species, once treated as "*Trichocnemis orang* Foerster", is placed in the genus *Indocnemis* Laidlaw, and its largest form is treated as *I. orang* Foerster, forma *kempfi* Laidlaw.

Key words: Odonata, Zygoptera, collection records, new species, northern Vietnam.

In the fifth part of this series of reports, rather small-sized damselflies belonging to the three families Coenagrionidae, Protoneuridae and Platycnemididae will be recorded. To facilitate their identification, male abdominal end will be illustrated for all of them. Special attention will be paid to the platycnemidid genera *Calicnemia* and *Coeliccia*, of which the former includes one and the latter includes six new species. In the same family, one large-sized but problematical *Indocnemis* species will be recorded and described.

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Family Coenagrionidae

51. *Agriocnemis femina femina* (Brauer)

(Fig. 1)

Specimens examined. 2 ♀, Tam Dao, 930–1,230 m alt., Vinh Phu Prov., 23~24-IX-1994, A. Saito leg.; 2 ♀, ditto, 22-IX-1995, H. Ono leg.; 1 ♀, ditto, 25-IX-1995, H. Ono leg.; 1 ♂, Cuc Phuong, 370 m alt., Gia Vien, Ninh Binh Prov., 12-X-1995, M. Tomokuni leg.

From the characteristic shape of the male superior appendages (Fig. 1), these

specimens are believed to belong to the nominotypical form.

52. *Ischnura senegalensis* (Rambur)

(Fig. 2)

Specimens examined. 1♂, Tam Dao, 950–1,230 m alt., Vinh Phu Prov., 25–IX–1994, A. Saito leg.; 1♂, Ban Him Bon, 440 m alt., Pa Ha, Muong Lay, Lai Chau Prov., 7–V–1995, M. Satô leg.; 1♀, Deo Cao Pha, 420 m alt., E of Ban Song, Son La Prov., 3–V–1995, Y. Nishikawa leg.; Noi Bai Airport (paddy field), 22–IX–1995, H. Ono leg.

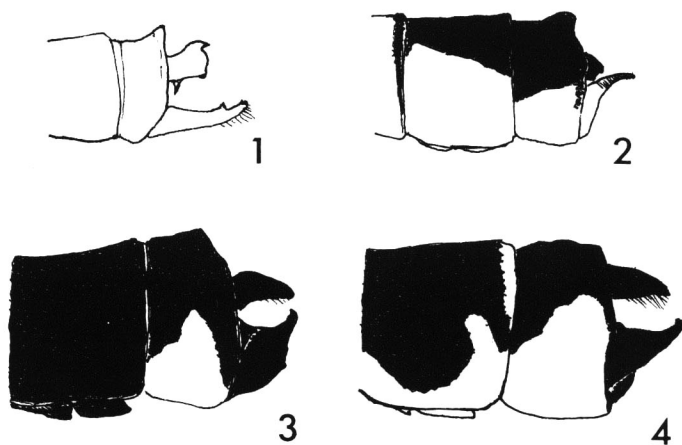
A common species in grassland.

53. *Ceriagrion fallax pendleburyi* Laidlaw

(Figs. 3–4)

Specimens examined. 2♂, 1♀, Ban Khoang, 1,500 m alt., Sa Pa, Lao Cai Prov., 14–V–1995, S. Uéno leg.; 3♀, Sa Pa, 800–1,200 m, Lao Cai Prov., 16–X–1995, H. Kurahashi leg.; 5♀, Ban Ta Phin, 1,300–1,340 m alt., Xa Ta Phin, Lao Cai Prov., 11–X–1994, A. Saito leg.; 3♂, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8–V–1995, A. Shinohara leg.; 1♀, Deo Pha Din, 1,400 m alt., Son La Prov., 4–V–1995, M. Owada leg.

An almost entirely yellowish coloured species.



Figs. 1–4. Caudal appendages, ♂, lateral. — 1. *Agriocnemis femina femina* (Brauer), Cuc Phuong. — 2. *Ischnura senegalensis* (Rambur), Tam Dao. — 3. *Ceriagrion fallax pendleburyi* Laidlaw, Ban Khoang. — 4. Same species, Ban A Chia.

54. *Ceriagrion* sp.

Specimens examined. 1 ♀ (broken), Hanoi, 20-IX-1994, M. Satô leg.; 1 ♀, Sa Pa, 1,200 m alt., Lao Cai Prov., 7-X-1995, M. Tomokuni leg.

Since no male specimen is available, identification had better be postponed.

55. *Aciagrion hisopa* Selys

(Fig. 5)

Specimens examined. 1 ♂, 1 ♀, Sa Pa, 1,200 m alt., Lao Cai Prov., 7-X-1995, M. Tomokuni leg.; 1 ♀, Truong Yen, 950 m alt., Moc Chau, Son La Prov., 1-V-1995, Y. Nishikawa leg.

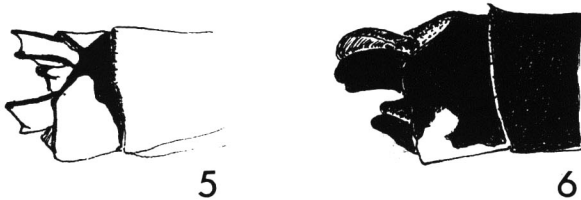
A delicate azure-blue species.

56. *Pseudagrion pruinosum* (Burmeister)

(Fig. 6)

Specimen examined. 1 ♂, Ao Vua, 70 m alt., Ba Vi, Ha Tay Prov., 16-X-1995, M. Tomokuni leg.

A slender-bodied, entirely dark-coloured male, with reddish tinted face and pterostigmata.



Figs. 5-6. Caludal appendages, ♂, lateral. — 5. *Aciagrion hisopa* Selys, Sa Pa. — 6. *Pseudagrion pruinosum* (Burmeister), Ao Vua.

Family Protoneuridae

57. *Prodasineura* sp. (*verticalis* Selys?)

(Figs. 7-8)

Specimen examined. 1 ♂, Xuan Nha, 850 m alt., Moc Chau, Son La Prov., 30-IV-1995, A. Saito leg.

A pale bluish striped, black-bodied species.

58. *Prodasineura autumnalis* (Fraser)

(Figs. 9–10)

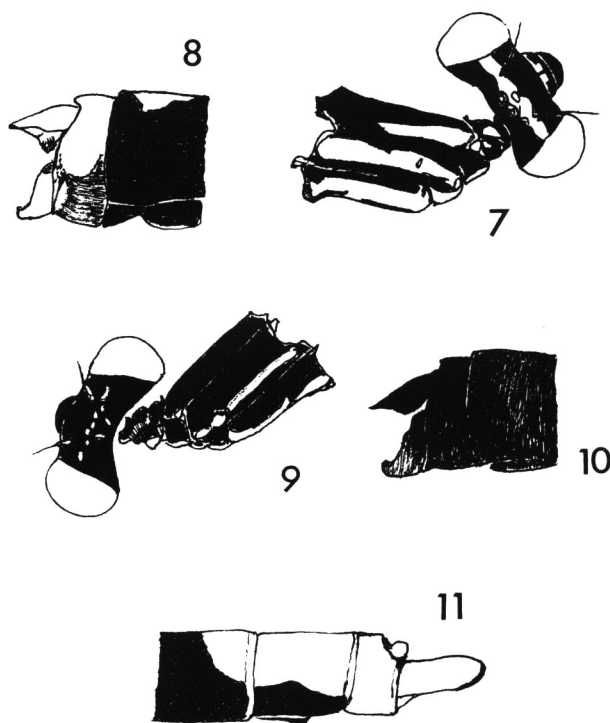
Specimens examined. 1♂, Nam Nang, 240 m alt., Kim Dong, Thach An, Cao Bang Prov., 3-X-1994, A. Saito leg.; 1♂, Ao Vua, 70 m alt., Ba Vi, Ha Tay Prov., 16-X-1995, M. Tomokuni leg.

Family Platycnemididae

59. *Copera vittata vittata* (Selys)

(Fig. 11)

Specimens examined. 1♂, Ban U, 340 m alt., Lay Nuo, Muong Lay, Lai Chau Prov., 7-V-1995, Y. Nishikawa leg.; 1♂, 1♀, Ao Vua, 70 m alt., Ba Vi, Ha Tay Prov., 16-X-1995, M. Tomokuni leg. (in cop.); 1♀, Cuc Phuong, 170 m alt., Gia Vien, Ninh Binh Prov., 27-V-1995, S. Uéno leg.; 1♀, Cuc Phuong, 170 m



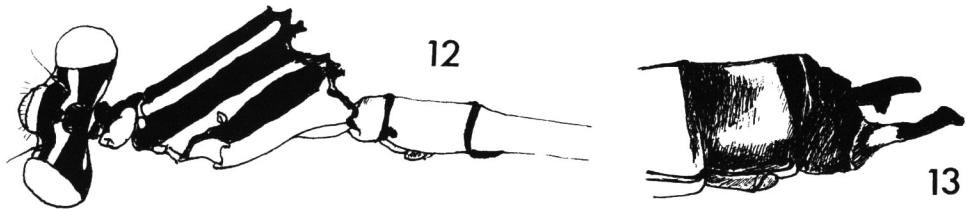
Figs. 7–11. — 7–8. *Prodasineura verticalis* Selys ?, ♂, Xuan Nha; head and thorax (7), and caudal appendages (8). — 9–10. *Prodasineura autumnalis* (Fraser), ♂, Nam Nang; head and thoracic pattern (9), and caudal appendages (10). — 11. *Copera vittata vittata* (Selys), ♂, Ao Vua; distal abdominal segments and caudal appendages.

alt., Gia Vien, Ninh Binh Prov., 27-V-1995, A. Saito leg.; 1♂, Cuc Phuong, 370 m alt., Gia Vien, Ninh Binh Prov., 14-X-1995, M. Tomokuni leg.

60. *Calicnemia miles* (Laidlaw)

(Figs. 12-13)

Specimen examined. 1♂, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8-V-1995, M. Owada leg.

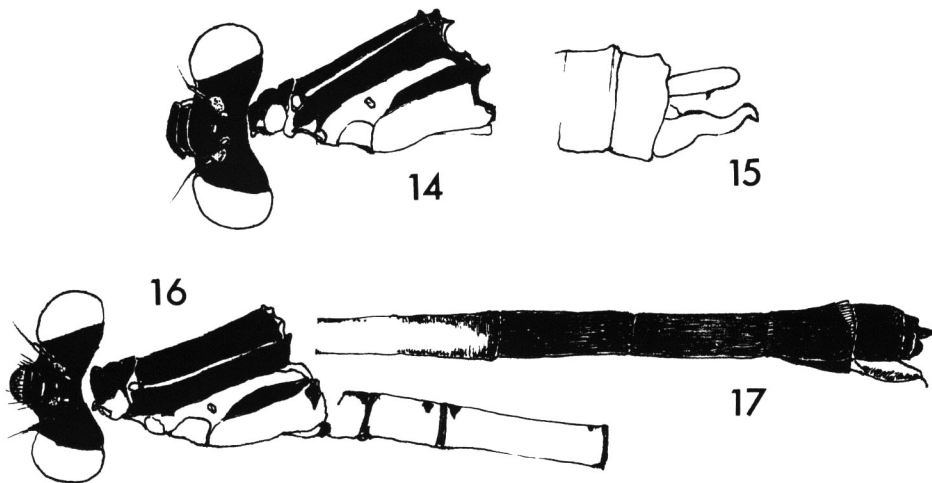


Figs. 12-13. *Calicnemia miles* (Laidlaw), ♂, Ban A Chia; head and thorax (12), and abdominal end (13).

61. *Calicnemia uenoi* sp. nov.

(Figs. 14-17)

Specimens examined. 1♂ (holotype), Ban Khoang, 1,400 m alt., Sa Pa, Lao Cai Prov., 12-V-1995, S. Uéno leg.; 1♀ (allotype), ditto; 1♂ (paratype), Ban



Figs. 14-17. *Calicnemia uenoi* sp. nov., Ban Khoang; ♂ head and thoracic pattern (14); ♂ abdominal end (15); ♀ head, thorax and proximal three abdominal segments (16); ♀ distal six abdominal segments (17).

Khoang, 1,400 m alt., Sa Pa, Lao Cai Prov., 12-V-1995, M. Owada leg.

Description. One of the typical *Calicnemia* species, patterned red and black.

In both sexes, the head is predominantly black coloured, from labrum to orbit, with very ambiguous faint nuance at the lateral ocelli. No trace of postoccipital pale spot.

Pterothorax entirely black, pale humeral stripes extremely narrow, but the second lateral suture is covered with rather thick black stripe at the metathorax.

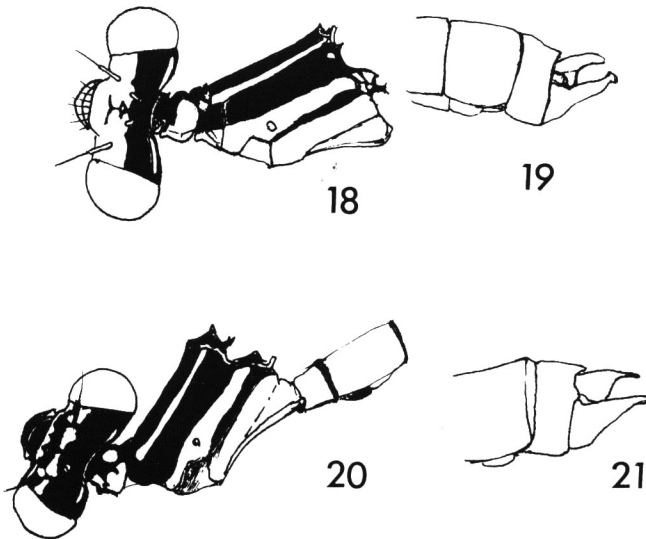
Five anterior segments of abdomen dark reddish with very narrow segmental end-rings. All black tinted from distal 1/5 of the 5th segment to the end of abdomen, including appendages.

Male caudal appendages entirely black, the superior being of a shape of simple round-headed stick, provided with a fine median spine directed ventrally (Fig. 15).

62. *Calicnemia eximia* Selys

(Figs. 18-19)

Specimen examined. 1♂, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8-V-1995, A. Saito leg.



Figs. 18-21. Head and thoracic pattern (18, 20), and abdominal end (19, 21). — 18-19. *Calicnemia eximia* Selys, ♂, Ban A Chia. — 20-21. *Calicnemia erythromelas* Selys, ♂, Ban Khoang.

63. *Calicnemia erythromelas* Selys

(Figs. 20–21)

Specimens examined. 2♂, Ban Khoang, 1,400 m alt., Sa Pa, Lao Cai Prov., 12–V–1995, M. Satô leg.

Since the abdominal ends of the two male specimens examined are badly broken, only the head pattern and abdominal end are illustrated.

64. *Coelliccia chromothorax* (Selys)

(Figs. 22–23)

Calicnemia chromothorax Selys, 1891, pp. 70–71, ♂ ♀, “Puepoli en juin, juillet et août (Fea)”.

Coelliccia chromothorax: Laidlaw, 1922, pl. 1, figs. 3–4, pl. 3, fig. 7, “4♂1♀ N. Shan States, July–Nov., Coll. F. Wall; 1♂ Kalaw, S. Shan St.” — Fraser, 1933, pp. 167–169, fig. 77 (♂ app.), “Upper Burma”. — Chûjô 1940, p. 362, “1♂ Chiang-mai, Siam (6. IV. 1940)”. — Asahina, 1970, p. 104, “1♂1♀ Maymyo-Lashio Road, 15. VII. 1962, leg. S. Svihla”; 1981, p. 4, “Doi Suthep, Chiangmai; Doi Inthanon”; 1984 b, pp. 5–6 (Thailand).

Specimen examined. 1♂, Ban Him Bon, 440 m alt., Pa Ha, Muong Lay, Lai Chau Prov., 7–V–1995, A. Saito leg.

Refer to my published records based on Thai material (Asahina, 1984 b).

65. *Coelliccia tomokunii* sp. nov.

(Figs. 24–28)

Specimens examined. 3♂, 2♀ (holotype, allotype and 2♂, 1♀ paratypes), Mt. Tan Vien, 500 m alt., Ba Vi, Ha Tay Prov., 15–X–1995, M. Tomokuni leg.; 1♀ (head missing), Cuc Phuong, 370 m alt., Gia Vien, Ninh Binh Prov., 13–X–1995, H. Kurahashi leg.

This is another remarkable black and deep yellowish tinted species.

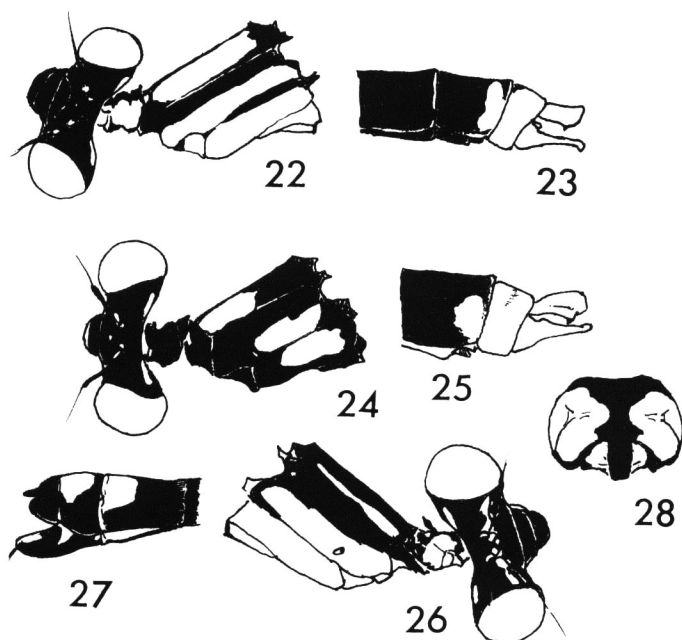
♂: Abdomen 43 mm, hindwing 28–30 mm.

Head black, labrum and postclypeus shining black; minute yellow stripe present between lateral ocellus and the base of antenna. Postocular spots of short stripes.

Thorax and legs all velvet black with three large yellow markings on the side of thorax; two posterior spots closely adjoining. Wings hyaline, with 21–22 postnodals; pterostigma deep black. Legs black, meso- and metalegs black with pale coloured outer sides.

Abdomen deep black, whitish end-spot present on 3–6 segments, respectively; 7–9 segments black, with lateral brownish spot on segment 9. Segment 10 and caudal appendages yellowish.

Superior appendage provided with inflated head (Fig. 25).



Figs. 22–28. — 22–23. *Calinemnia chromothorax* (Selys), ♂, Ban Him Bon; head and thoracic pattern (22); distal abdominal segments and caudal appendages (23). — 24–28. *Coeliccia tomokunii* sp. nov., Mt. Tan Vien; ♂ head and thorax (24); ♂ abdominal end (25); ♀ head and thorax (26); ♀ abdominal end (27); ♂ ♀ prothorax, dorsal (28).

♀: Head markings more developed than those of the male, with a pale zigzagged line through ocelli (Fig. 26).

Prothoracic tergite provided with a much developed median standing process (Fig. 28), coloured deep black. Pterothorax simply patterned (Fig. 26), only with a narrow pale humeral stripe.

Abdomen black dorsally, terminal pale area present on segments 3–7, respectively. Three terminal segments are illustrated herewith (Fig. 27), with larger pale spots on segments 8 and 9, and on ovipositor.

Remarks. Checking Laidlaw's revision (1932), I found that the present specimens are rather allied to *C. scutellum* (pp. 22–23) from Tonkin (in coll. BMNH). However, Laidlaw gave only a single, rather rough drawing of the pterothorax which does not agree with those of ours. Laidlaw's specimens were taken in "Tonkin" in April 1924, hence a careful comparison of the type specimens is needed between the two species.

66. *Coelliccia uenoi* sp. nov.

(Figs. 29–35)

Specimens examined. 1♂ (holotype), Cuc Phuong, 450 m alt., Gia Vien, Ninh Binh Prov., 25-V-1995, S. Uéno leg.; 1♀ (allotype), Cuc Phuong, 370 m alt., Gia Vien, Ninh Binh Prov., 26-V-1995, A. Saito leg.

♂: Abdomen 53 mm, hindwing 35 mm. A very elongate species, coloured black and pale blue, with the abdominal segments 9–10 and appendages yellowish brown.

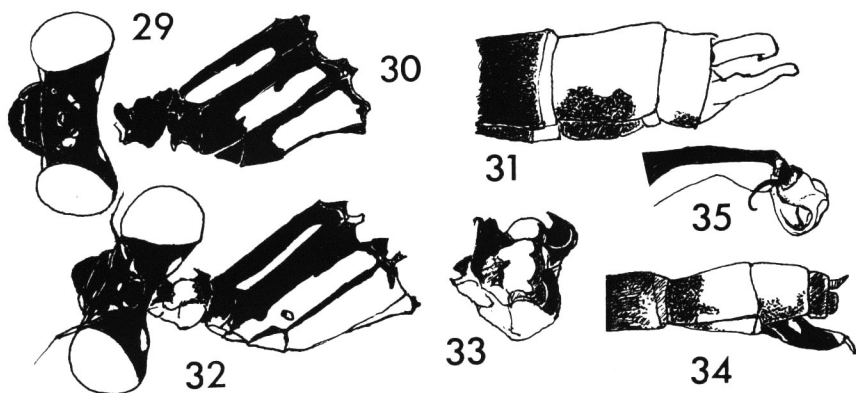
Head (Fig. 29) predominantly black, minute postocular spots recognizable, with very small paired triangular spots between lateral ocelli and antennal bases.

Prothorax entirely black, no pale marking recognizable in this mature specimen. Pterothorax also entirely black, both sides being striped with three, rather broad but abbreviated azure blue markings (Fig. 30). Wings hyaline, pterostigma short (ca. 1 mm), dark brownish.

Abdomen black from 1 to 8 segments, segments 3–6 provided with light brownish terminal ring, respectively. Two terminal segments light brownish, each with a dark ventral marking (Fig. 31).

Caudal appendages (Fig. 31) light reddish brown. Seen obliquely, superiors with broadened apical lobe bearing a minute spine. Inferior appendage with an incurved tip. Penile organ as illustrated (Fig. 35).

♀: Abdomen 40 mm, hindwing 35 mm. Head similarly coloured to that of the male insect. Prothorax with a very characteristic structure at the posterior lobe of tergite (Figs. 32–33): the hind lobe of the tergite upstanding with laterally pointed posterior lobe. Median tergite largely whitish.



Figs. 29–35. *Coelliccia uenoi* sp. nov., Cuc Phuong; ♂ head and thorax (29–30); ♂ abdominal end (31); ♀ head and thorax (32); ♀ prothorax, obliquely left lateral view (33); ♀ abdominal end (34); penile organ (35).

Anterior half of pterothorax black with a bluish humeral stripe, but the posterior half is almost whitish with a narrow complete black stripe on metapleural suture (Fig. 32).

Abdominal segments annulated as in the male insect, distal part of 7th segment with ambiguous pale area. Distal half of 8th segment dark yellow, 9th segment entirely so, but the last segment and the lateral valve of ovipositor are almost darkened (Fig. 34).

Remarks. In the male specimen, the anal cross-vein (ac) is placed close to the wing border in the forewings, but is terminating on the anal bridge vein (ab), not near the wing border, in the hindwings.

67. *Coelliccia onoi* sp. nov.

(Figs. 36–43)

Specimens examined. 1♂ (holotype), Tam Dao, 900 m alt., Vinh Phu Prov., 21–IX–1995, H. Ono leg.; 1♀ (allotype), Tam Dao, 900 m alt., Vinh Phu Prov., 21–IX–1995, H. Ono leg.; 1♀ (paratype), Tam Dao, 900 m alt., Vinh Phu Prov., 26–IX–1995, H. Ono leg.

♂: Abd. + app. 40 mm, hindwing 25 mm. Medium-sized slender species. Body black and azure bluish tinted.

Head mat black with azure spots (Fig. 36); posterior spots very small, but rather distinct spots present on each side between lateral ocellus and antennal base. Clypeus and labrum shining black, lateral side of mandible pale or azure bluish.

Prothoracic tergite entirely black, but the lateral portion of tergite is pure white including coxae.

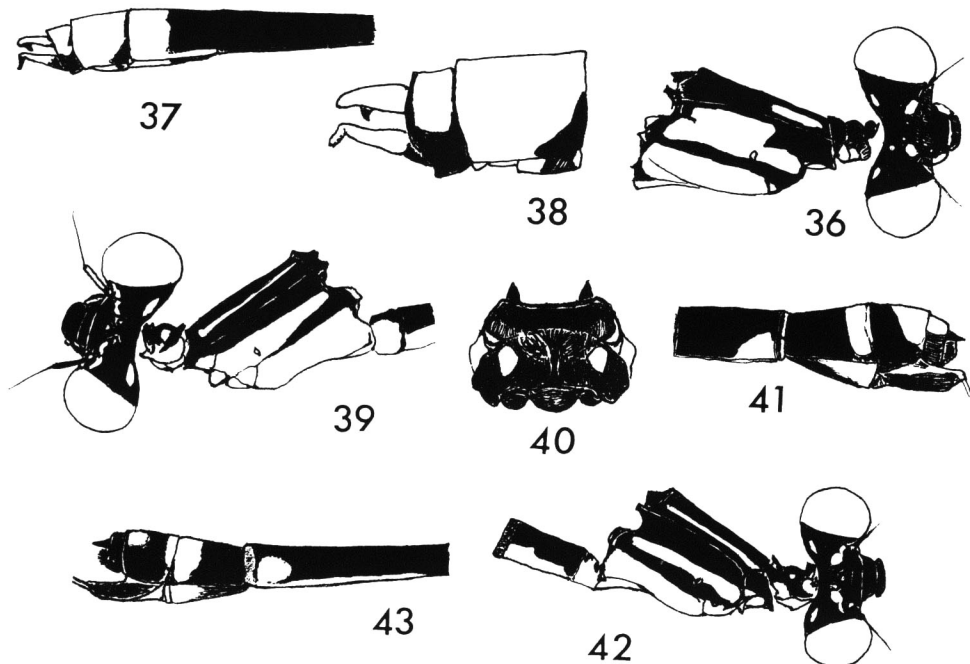
There is a short stripe on the mesothoracic episternum. The black stripe on the mesothoracic epimeron is abruptly widened at its lower 1/4 (Fig. 36). Another black stripe runs along the metapleural suture. Venter of pterothorax entirely whitish with a black spot between metapostepimeron and abdominal base. Wings hyaline with pale brownish pterostigma. All the legs whitish from coxae to tibiae, with fine stripe on femora and inner sides of tibiae, tarsi black.

Abdomen black dorsally with whitish marginal edge which is inflated at each segmental end. Distal half of segment 8, segment 9 and last segment brilliant blue (Fig. 37). Both caudal appendages also entirely blue coloured (Fig. 38).

♀: Abd. + app. 37–43 mm, hindwing 27–30 mm.

Head patterned like that of the male insect. In one female, the pale spot between the lateral ocelli and the antennal bases is somewhat enlarged (Fig. 39). The prothoracic tergite is as illustrated in Fig. 40. The hind lobe of tergite is developed as three visors.

The pterothoracic stripes are somewhat different in our two specimens (Figs.



Figs. 36–43. *Coeliccia onoi* sp. nov., Tam Dao; ♂ head and thorax (36); ♂ distal abdominal segments (37); ♂ caudal appendages, lateral (38); ♀ head and thorax, lateral (39); ♀ prothoracic tergite (40); ♀ distal abdominal segments (41); ♀ differently patterned specimen (42–43).

39, 42). In general the abdominal segments are black with pale terminal areas. Four terminal segments show pale brownish or pale bluish pattern as shown in Figs. 41 and 43. In one female (Fig. 43), the pale spots on the 8th segment are palely bluish tinted.

Remarks. This species is dedicated to its collector, Dr. Hirotsugu Ono.

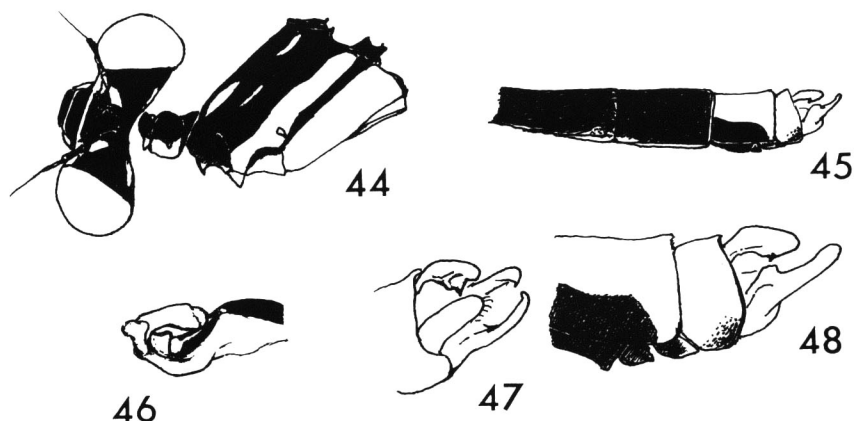
68. *Coeliccia satoi* sp. nov.

(Figs. 44–48)

Specimens examined. 1♂ (holotype), Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8–V–1995, M. Satô leg.

Description. ♂ Abd. + app. 42 mm, hindwing 27 mm. A slender species with reddish brown abdominal end.

Head: Dorsal side deep black, usual spots between lateral ocelli and antennal bases well developed. Postocular spots very much degenerated. Postclypeus shining black, labrum also, but the base of mandible and the genal region are shining white, anteclypeus also whitish.



Figs. 44–48. *Coeliccia satoi* sp. nov., ♂, Ban A Chia; head and thorax (44); distal abdominal segments (45); penile organ (46); caudal appendages, obliquely dorsal (47); distal abdominal segments, lateral (48).

Prothoracic tergite black, its lateral side whitish tinted. On pterothorax, three very short striae present on episternum 2 (Fig. 44), then pale azure tinted with a black stripe on the second lateral suture.

Abdomen black dorsally from base to segment 8 with azure blue lower margin bearing a broad black area on segment 9 (Figs. 45, 48).

Caudal appendages (Figs. 47–48) pale yellowish brown; superior appendage more or less twisting at the base with a subapical process armed with a spine (Fig. 47). Inferior appendage is of the same colour, ending in a curved point (Fig. 48). Penile organ as shown in Fig. 46.

Female unknown.

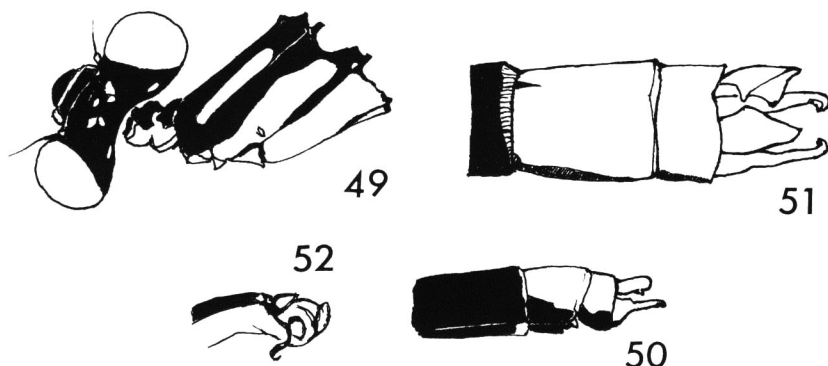
69. *Coeliccia acco* sp. nov.

(Figs. 49–52)

Specimens examined. 1♂ (holotype), Cuc Phuong, 370 m alt., Gia Vien, Ninh Binh Prov., 27–V–1995, A. Saito leg.; 1♂ (paratype), Cuc Phuong, 440 m alt., Gia Vien, Ninh Binh Prov., 27–V–1995, S. Uéno leg.; 1♂ (paratype), Van Tung, 740–810 m alt., Phu Nam Sek Mts., Cao Bang Prov., 1–X–1994, A. Saito leg.

Description. ♂ holotype: abd. + app. 43 mm, hindwing 25 mm. A slender and beautifully coloured species; all mature insects.

♂: Head deep black, minute postocular spot recognizable. Pale spots connecting lateral ocellus and antennal base very small (Fig. 49). Postclypeus shining black, labrum also. Genal region whitish. Mandibular base and anteclypeus also whitish.



Figs. 49–52. *Coeliccia acco* sp. nov., ♂, Cuc Phuong; head and thorax (49); distal abdominal segments (50); same, obliquely dorsal (51); penile organ (52).

Prothorax deep black dorsally, but the lateral side is pure white including coxal segment. Pterothorax (Fig. 49) black anteriorly with rather short but distinct antehumeral bluish stripe. Sides of pterothorax almost entirely pale bluish, except for a narrow stripe covering the second lateral suture. Ventral side of thorax pure white. Coxae and trochanters all whitish, femora and tibiae pale coloured with deep black stripes on femora, inner sides of tibiae black tinted.

Abdomen black dorsally; seen from side, a pale yellowish or reddish spot present near the end of segments 3–6, respectively. Dorsum of the two terminal segments and caudal appendages with reddish orange tint.

An enlarged figure of the caudal appendages is given to show the apical part of the superior appendage (Fig. 51). A rough sketch of the penile organ is also given (Fig. 52).

No female specimen was available.

70. *Coeliccia ambigua* sp. nov.

(Figs. 53–58)

Specimens examined. 1♂ (holotype), Tam Dao, 950 m alt., Vinh Phu Prov., 20–V–1995, M. Satô leg.; 3♂ (paratypes), Tam Dao, 950 m alt., Vinh Phu Prov., 23–IX–1995, M. Tomokuni leg.

Description. Holotype ♂ (May specimen): abd. + app. 53 mm, hindwing 34–35 mm. 3♂♂ paratypes (September specimens): abd. + app. 45–47 mm, hindwing 30–32 mm.

♂: Head black with minute postocular spots and faint paired spots between lateral ocelli and antennal bases.

In the pterothorax, no antehumeral pale stripe present, and the broad dorsal side, i.e. mesothoracic episternum, is entirely mat black and very palely pruinose.

Only one pale stripe runs along the interpleural suture. Metapleural suture is covered with a broad dark stripe. Ventral side of pterothorax whitish (Fig. 53).

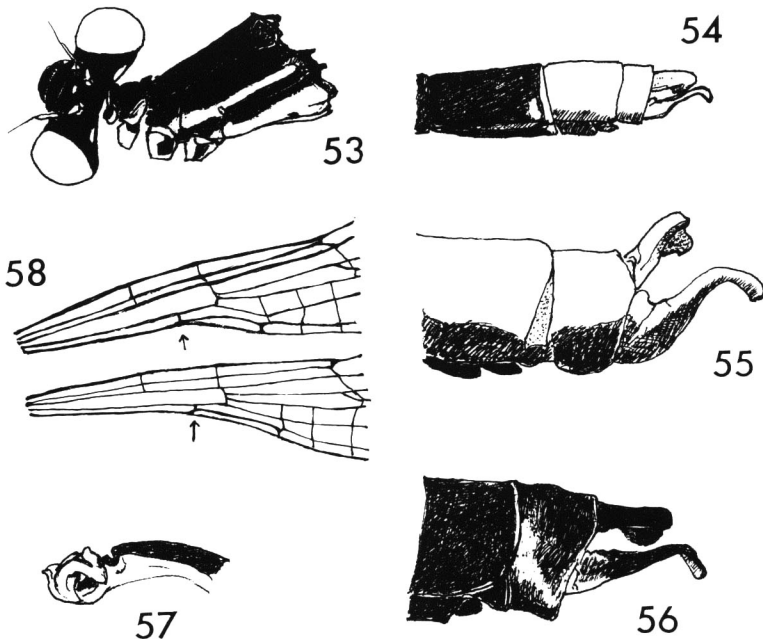
Wings hyaline, pterostigma mat black, covering almost two cell-length.

Abdomen black dorsally, whitish ventral border present in segments 1–5. Segment 8 entirely black; segments 9–10 and caudal appendages bluish tinted (Figs. 53–54), but in one male specimen, the last two segments and the caudal appendages are all black (Fig. 56).

For checking caudal appendages, I removed the left-side superior appendage and drew Fig. 55, to show the detail of the right-side superior appendage as seen from the left side.

The penile organ was checked in one male specimen (Fig. 57). It was found that the organ was rather an undeveloped type, with short terminal fold and reflected third segment.

Remarks. While checking the wing venation of the four available specimens, I have found that except for one specimen, the anal crossing (Ac) ends on the anal bridge vein (Ab), not on the wing margin. This feature does not agree with the generic characteristics of *Coeliccica*, but rather with those of the genus *Indocnemis* (see Fig. 58). See also Remarks for *Coeliccica uenoi* sp. nov.



Figs. 53–58. *Coeliccica ambigua* sp. nov., ♂, Tam Dao; head and thorax (53); abdominal end (54); caudal appendages, left superior appendage removed (55); dark coloured specimen (56); penile organ (57); wing base, showing the ab–ac junction (58).

71a. *Indocnemis orang* (Foerster)

(Figs. 59–65)

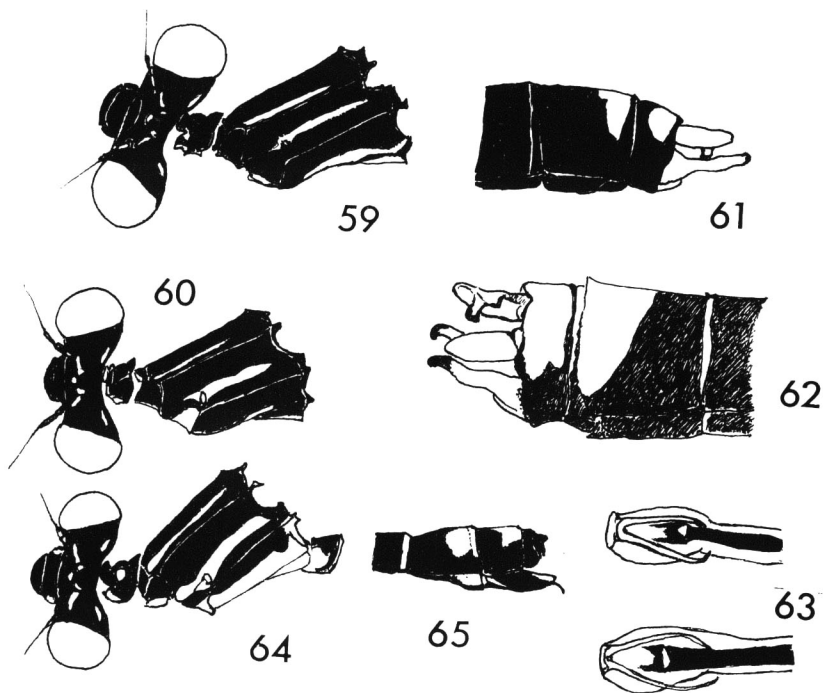
Trichocnemis orang Foerster, 1907, Fasciculi Malayensis, Odonata, Part II, pp. 2–4, ♂ (abd. 46 mm, Hfl. 33 mm); ♀ (abd. 43 mm, Hfl. 32 mm), “Camp Jor auf der Wasserscheide zwischen Pahang und Perak, 2000 f. Ein Pärchen in Coll. Foerster (Albert Grubauer).”

Specimens examined. 1 ♀, Cuc Phuong, 450 m alt. (primary forest), Gia Vien, Ninh Binh Prov., 25–V–1995, S. Uéno leg.; 1 ♀, Cuc Phuong, 370 m alt., 12–X–1995, H. Kurahashi leg.; 1 ♂, ditto, 13–X–1995, H. Kurahashi leg.; 1 ♂, 1 ♀, ditto, 12–X–1995, S. Nomura leg.

♂: Abd. + app. 47 mm, hindwing 29–31 mm.

Head almost entirely mat black, postocular spots very small, but there are similar pale striae connecting lateral ocelli and antennal bases. Bases of mandible all mat black.

Prothorax entirely black, pterothorax also black striped with three whitish striae which become narrowed with age (Figs. 59–60). Wings hyaline with black pterostigma.



Figs. 59–65. *Indocnemis orang* (Foerster), Cuc Phuong; ♂ head and thorax (59–60); ♂ distal part of abdomen (61); ♂ caudal appendages, oblique lateral (62); penile organ (63); ♀ head and thorax (64); ♀ abdominal end (65).

Abdomen entirely black, only two terminal segments spotted with pale yellow on dorsum (Figs. 61–62).

Posterior caudal appendages coloured more brownish with black tips. Penile organ provided with paired slender lobes (Fig. 63).

♀: Abd. + app. 43–48 mm, hindwing 30–33 mm.

Head similarly coloured to that of the male insect, but the side of the mandible is pale blue, with a minute round spot on the side of prothorax. Thoracic stripes broader and more clearly marked (Fig. 64).

Abdomen entirely black, marked with pale spots on the side of the first segment. The end of the eighth sternum and the tip of the ovipositor process are pale brownish spotted (Fig. 65).

Remarks. This is a large-sized species. The pale markings of the body more or less diminish with age.

71b. *Indocnemis orang* (Foerster), forma *kempi* Laidlaw, comb. nov.

(Figs. 66–73)

Indocnemis kempi Laidlaw, 1917, Rec. Ind. Mus., **13**, pp. 326–327, fig. 1 (anal app. ♂ from above), 1♂, Cherrapunji, Assam, 4000 ft., 2–9–14 (S. W. Kemp); abd. 51 mm, hw. 38 mm (Type in Indian Mus., No. 8200/20).

Indocnemis kempi: Fraser, 1923, J. Bombay nat. Hist. Soc., **29**, p. 745; 1933, Fn. Brit. Ind., Odonata, **1**, pp. 186–187, fig. 83 a, b (♂ app.), “Cherrapunji, Assam, seemingly very rare and local insect.”

Indocnemis orang: Asahina, 1985 a, Chocho, **8**(1), pp. 8–11, figs. 22–32, ♂ ♀ (West Malaysia: Templer Park, Cameron Highland, Perak, Tapah 14 miles).

In our present material, the Tam Dao specimens (2♂), taken in September, are large-sized and are provided with broader thoracic stripes. These are now assigned to *Indocnemis orang*, f. *kempi* (Laidlaw, 1917), whereas the Cuc Phuong specimens (4♂, 1♀) taken in October are small-sized and are treated as *I. orang* (Foerster, 1907). The penile organs show no difference.

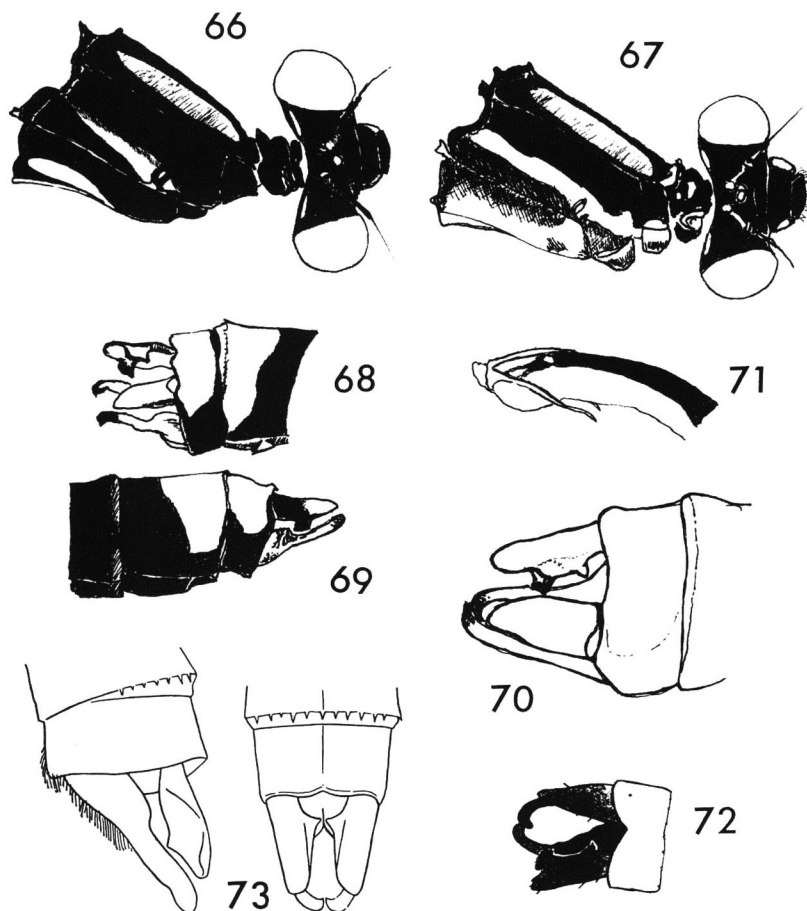
Now I am changing my previous idea (1985 a), in which *kempi* (1917) was synonymized with *orang* (1907), though the former was recognized as a large-sized form of the latter.

An example (♂) of *I. orang* (Foerster, 1907): abdomen 46 mm, hindwing 33 mm.

An example (♂) of *I. orang*, f. *kempi* Laidlaw, 1917: abdomen 51 mm, hindwing 38 mm.

♂ (ad.): Ground colour of body deep black, with three rather broad pterothoracic stripes of pale blue.

Head largely mat black, postocular pale spots very thin and small; narrow pale spots connecting lateral ocelli and antennal bases very thin. Postclypeus and



Figs. 66–73. *Indocnemis orang* (Foerster), f. *kempi* Laidlaw, ♂; adult head and thorax (66); immature head and thorax (67); abdominal end, oblique lateral (68); same, lateral (69); same, enlarged (70); penile organ (71). — 72. “*Indocnemis kempi*”, anal appendages (after Laidlaw, 1917). — 73. “*Indocnemis kempi*”, anal appendages (after Fraser, 1933).

labrum deep black. Base of mandible whitish, but the colour changes to entirely black.

Prothoracic tergite black with a small pale spot on each side, which disappears in aged insect. Pterothorax with three pale stripes on each side (Fig. 67) in immature male, but darkened in aged one (Fig. 66). Legs entirely black, with much developed spines on femora and tibiae.

Abdomen long and slender, entirely black, but the lateral side of the first segment is paler during teneral stage; segments 9 and 10 with distinct pale areas (Figs. 68–69) as in *I. orang* males.

Caudal appendages as illustrated in Figs. 47 and 49, which were drawn with somewhat depressed specimens.

Wings entirely hyaline; pterostigma deep brownish, covering 2–3 cell-length, pale brownish though changing to dark brownish. Postnodal cross-veins 21–24. There are 4 cells between the quadrilateral and the level of the subnodal.

Penile organ as illustrated (Fig. 71), with divided slender lobes.

Remarks. Copies of the two previous illustrations are herewith added (Figs. 72–73). They are the sketches of the male caudal appendages given by Laidlaw (1917) and Fraser (1933).

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