Entomological Review, Vol. 77, No. 7, 1997, pp. 807–814. Translated from Entomologicheskoe Obozrenie, Vol. 76, No. 3, 1997, pp. 661–670.

Some Little Known and a New Species of Ant-Lions (Neuroptera, Myrmeleontidae) from Indo-China

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Received November 21, 1996

Twenty ant-lion species from Indo-China and neighboring archipelagoes, collected by Russian investigators and entomologists from the former USSR, together with several speciemens from collections of L. Fea, apparently, bought about 100 years ago, are represented in the collection of the Zoological Institute, Russian Academy of Sciences. Until recently, these collections were not studied. Ten poorly studied species of ant-lions from the Indo-China Province of the Oriental Kingdom are dealt with in the present paper, together with the description of a new species, *Dendroleon caelestis* sp. n. from Vietnam. *Thaumatoleon splendidus* E.-P. and *Hagenomyia mivans* (McL.) are for the first time reported from Vietnam, and *Stiphroneura inclusa* (Walker) from Thailand. New synonyms are established: *Lachlathetes* (ex *Myrmeleon*) *contrarius* (Walker, 1853) = *Palpares falcatus* McLachlan, 1867; *Cueta* (ex *Nesoleon*) *sauteri* (Esben-Petersen, 1913) = *Cueta plicata* Navás, 1914; *Banyutus* (ex *Formicaleo*) *feai* (Navás, 1915) = *Banyutus indicus* Navás, 1929. Additional descriptions and pictures of genitals are given for unsufficiently studied species.

The syntype of *Formicaleo feai* Nav. was provided to the author by the courtesy of dr. R. Poggi (Italy).

TRIBE PALPARINI

Lachlatheles contrarius (Walker, 1853) (Figs. 1–4).

Myrmeleon contrarius Walker, 1853 : 453.

Palpares contrarius (Walker)—Hagen, 1858 : 481.

Palpares falcatus McLachlan, 1867 : 236, syn. n.

Symmathetes falcatus (McLachlan)—McLachlan, 1867 : 237.

Symmathetes contrarius (Walker)—McLachlan, 1867 : 237.

Lachlateles contrarius (Walker)—Navás, 1935 : 39.

Lachlateles falcatus (McLachlan)—Navás, 1926a : 112.

Material. Vietnam. 1 ♀, Prov. Kien Giang, isl. Thom, 11–13.IV.1987, A. Ponomarenko; 3 ♀, southern Annam, Nha-Trang [Khan-Hoa], V–IX.1934, K. Davydov; 1 ♂, the South Chinese Sea, the Cam-Ranh harbor, in flight, 4–17.VI.1910, Starokadomskii.

Distribution. India, Sri Lanka, Burma, Cambodia, Vietnam-Indian and Indo-Chinese Provinces of Oriental Kingdom.

Taxonomic notes. Wing pattern is strongly variable, in particular, transverse crossbands of the hindwing may be either independent or widely connected in median parts. In the fresh specimen, the pattern is contrasting, brown; specimens from old collections loose their coloration, and body and wing pattern turns red. The falcate (looking like falcon's beak), bent shape of the hindwing apex, which has served as the basis for McLachlan to describe the separate species, is, undoubtedly, associated with lens-shaped curvation of wing's apical membrane surface. This character varies: I noted extreme and intermediate forms in the series from Amman. A long, bent upward abdomen of the male and ectoprocti with two spikes at the base in the inner side (Fig. 2) relate this species to *Palpares radiatus* Rmb.; shape of gonarcus and paramers (Figs. 3, 4) is similar to that of *P. sparsus* McL.

THRIBE ACANTHACLISINI

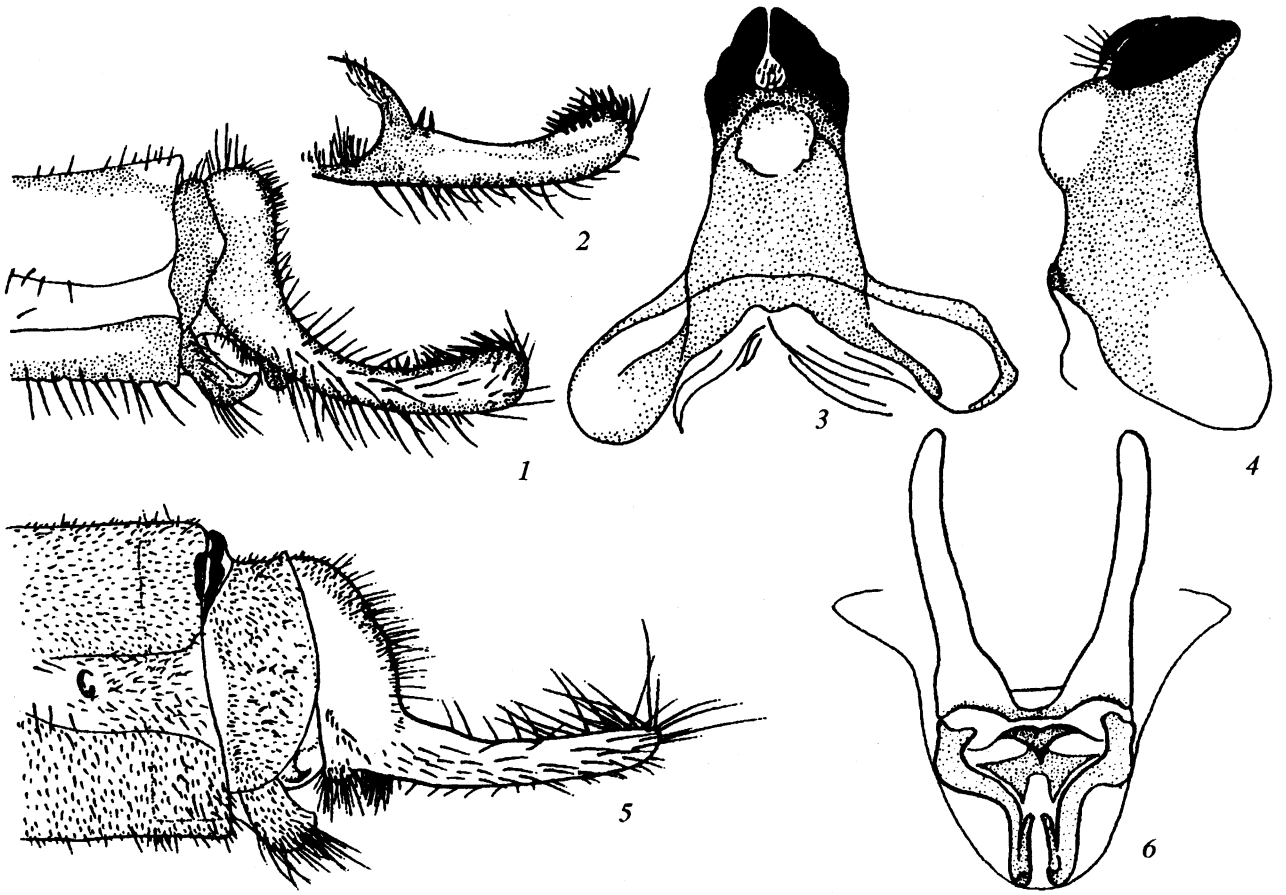
Stiphroneura inclusa (Walker, 1853) (Figs. 5, 6).

Myrmeleon inclusus Walker, 1853 : 327.

Acanthaclisis inclusa (Walker)—Hagen, 1866 : 379.

Stiphroneura inclusa (Walker)—Gerstaeker, 1885 : 91.

Neriga oculata Navás, 1926b : 80; 1930: 420 (syn.).



Figs. 1–6. (*1–4*) *Lachlathetes contrarius* (Walker) (Vietnam); (*5*, *6*) *Stiphroneura inclusa* (Walker) (Thailand). (*1*, *5*) Male abdomen apex, lateral view; (*2*) ectoproctus from inside; (*3*, *4*, *6*) male genitals: (*3*) dorsal, (*4*) lateral, and (*6*) caudal view.

Neriga inclusa (Walker)—Navás, 1930 : 420.

Material. Thailand. 1 ♂, Surat Thani Prov., 40 km on road Phanom-Takuapa, Khao-Sok, on light, 28.X–2.XI.1995, M. Mostovski.

Distribution. India, Burma, Thailand, Vietnam—Indo-Chinese Province of Oriental Kingdom, to the border with Palaearctics northwards (the Himalayas). The report about *N. oculata* from Congo (locus typicus) is doubtful.

Taxonomic notes. Male genitals (Fig. 6) retain all structures typical of Acanthaclisini, differing from other representatives of the tribe by long elongated lateral branches of the gonarcus and absence of chaetae on the genital membrane. In addition, a strong sclerotization of apex of the 7th abdominal tergite is significant.

TRIBE DENDROLEONTINI

Dendroleon caelestis Krivokhatsky, sp. n. (Figs. 7–10).

Holotype: ♂, Vietnam, Hashonbin, env. Khoabin, district Dabak, settl. Tuli, 2000 m, 16–24.X. 1990, A. Gorokhov.

Male (holotype). Body light-brown, small. Length (in mm) of forewing, hindwing, and abdomen is 25, 25, and 14, respectively.

Head light-brown, with dark-brown face and a row of dark spots across occiput. Face bald; clypeus and base of labium with long thin hairs. Palpi thin, light-brown, terminal segment of labial palps slightly thickened, spindle-shaped. Antennae brown, with black base and club.

Pronotum light-brown, with monotonous longitudinal black median line, dark-brown lateral edges, and submedial shading from caudal edge to the middle. Pronotum longer than wide. Meso- and metathorax light-brown, with wide longitudinal brown lateral strips above coxae and brown spots along scuta and scutella.

Legs light, with black hairs and chaetae, with brown pattern. Fore- and midfemora nearly totally dark-brown, excluding light bases. Fore- and midtibiae with brown median part and dark apices. Hindfemora and tibia light, with dark apices. Tarsi of all legs light-brown, their first segment most light. Spurs light, thin, bent at apex, in all legs slightly longer than two tarsal segments. First tarsal segment in all legs as long as 5th segment and second to fourth measured together. Claws 2 times shorter than spurs, slightly bent.

Hyaline (transparent and shining) wing membrane with brown pattern (Fig. 7), noticeably folded, with expressed anterior Banks's line and curved plain of apical field and in regmal region of both wings. All veins brown with light intervals and totally brown in darkened areas of pattern. Costal field simple, with enbranching transverse veins from stigma to wing apex. No more than a single transverse vein in apical field of both wings. Point of branching *RS* in forewing is located 1/3 times closer to wing base than cubital vein. Presectoral field with 3 (4) and one transverse veins in fore- and hindwings, respectively. Wing pattern formed of brown spots with different color intensity. Small spots on regmae, irregular darkenings on stigmae and apices of both wings, and S-shaped figure along posterior edge of forewing (with oval bends in cubital and radial fields) are most contrast pattern elements. Axillar plates developed.

Abdomen short, with sparse black hairs; sternites brown, with light median spots; tergites light-brown, with lateral darkenings and dotted longitudinal dark-brown strip.

Genitals typical of species of the genus *Dendroleon* (Figs. 8–10); parameres with hoof-shaped apices.

Female unknown.

Etimology. *Caelestis* is the Latin word for celestial. The species was named due to its thin wing pattern.

Comparison. The smallest species among Asian species of the genus. The species is closely related to *D. jezoensis* Okamoto in structure of genitals, well differing in wing pattern.

Dendroleon vitripennis (Navás, 1912) (Figs. 11–13).

Neglurus vitripennis Navás, 1912a : 171.

Neglurus vitripennis (Navás)—Banks, 1931 : 388.

Dendroleon vitripennis (Navás)—Stange, 1976 : 297.

Material. Malaysia, 2 ♂, Malay States, Kuala Lumpur, Bata [Batu] Caves, small dark cave, 25.I. 1913, O. John.

Distribution. Endemic of Selangor, troglobiont in caves of Batu. Together with specimens collected in a shallow cave, John has reported these ant-lions from significant depth: "White ant-lions with transparent wings got flying from walls and disappeared in the darkness" (John, 1914, p. 364).

Taxonomic notes. The species was described as female. Both structure of male genitals (Figs. 11–13) and presence of axillar plates confirm its belonging to the genus *Dendroleon*. Differs from other species of the genus in size (fore- and hindwing length is 50–52 and 47–51 mm, respectively) and very noticeable lens-shaped curvation of membrane plain in apical field of both wings; anterior Banks's line fuses with apex *Sc* + *R* along interior edge of the lens.

TRIBE GLENURINI

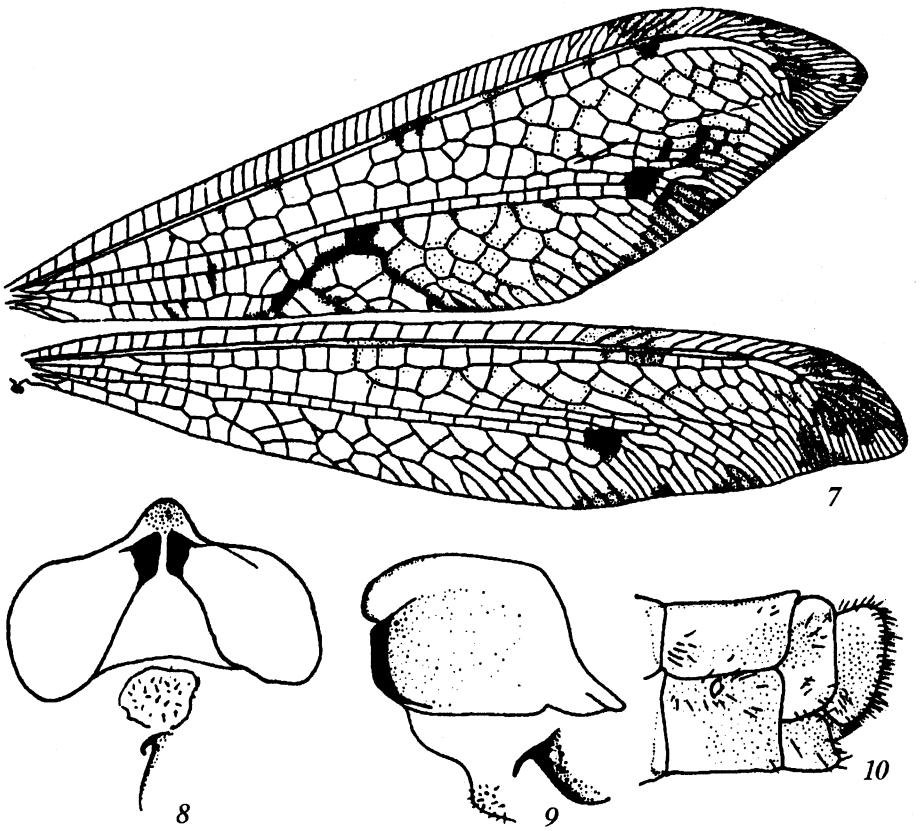
Thaumatoleon splendidus Esben-Petersen, 1920 (Fig. 14).

Thaumatoleon splendidus Esben-Petersen, 1920a : 127.

Material. Vietnam, 2 ♀, Gialai-Kontum Prov., Tainguen plateau, settl. Kannak, 600 m, 8–16.I.1988, A. Gorokhov.

Distribution. Taiwan, Vietnam—Indo-Chinese Province.

Taxonomic notes. Nobody studied this species after the detailed description with total photograph of the type specimen from Taiwan (sex was not determined). No differences from the description were found in Vietnamese specimens. Structure of male genitals is typical of the tribe Glenurini (Fig. 14). Together with *L. contrarius, D. vitripennis*, and *D. caelestis*, the species is distinguished by a special lens-shaped bend of apical field plain of membrane in both wings. This parallelism is typical of representatives of various subfamilies of Oriental fauna and may be dealt



Figs. 7–10. *Dendroleon caelestis* sp. n. (holotype, Vietnam); (*7*) wings; (*8*, *9*) male genitals: (*8*) caudal and (*9*) lateral view; (*10*) male abdomen apex, lateral view.

with as the character of the special life form. This convergent character is obtained by different ways in the listed representatives of the genus. For example, when lens-shaped depression in the wing apical field adjoins the arciform folding which unites anterior Banks's line with *Sc+R* in Oriental representatives of the genus *Dendroleon*, this line is totally absent, in spite of the presence of similar lens-shaped depression, in *Th. splendidus*.

TRIBE NESOLEONTINI

Cueta sauteri (Esben-Petersen, 1913) (Figs. 15–18).

Nesoleon sauteri Esben-Petersen, 1913d : 222.

Nesoleon (*Cueta*) *sauteri* Esben-Petersen—Esben-Petersen, 1920b : 193.

Cueta duplicata Navás, 1914a : 138; Esben-Petersen, 1920b : 193 (syn.).

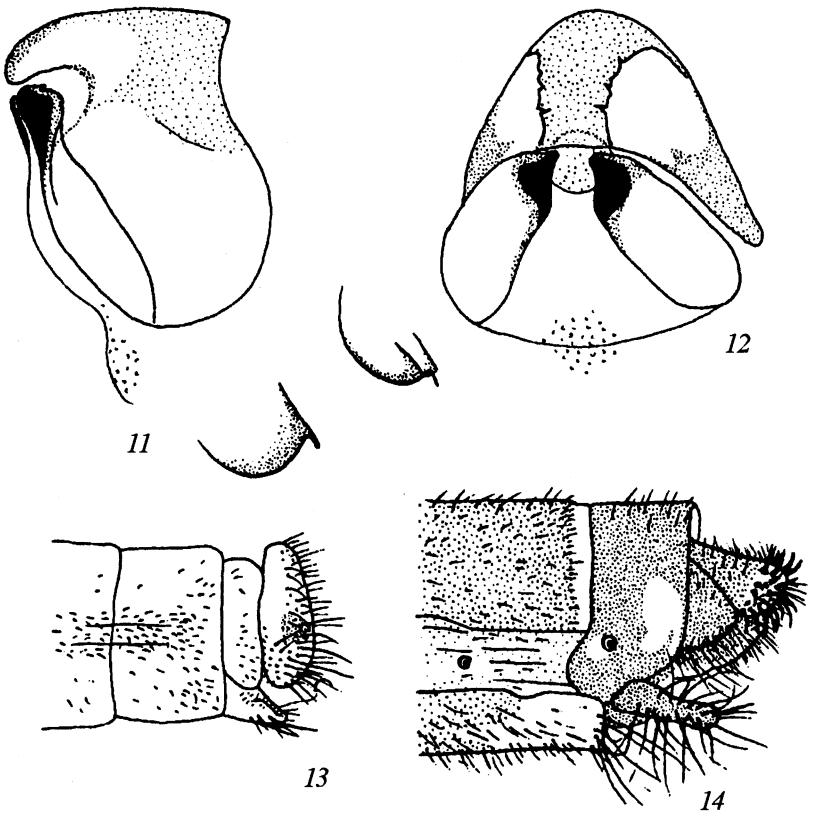
Cueta hugeli Navás, 1914b : 239; Esben-Petersen, 1920b : 193 (syn.).

Cueta plicata Navás, 1914a : 136; Esben-Petersen, 1920b : 193 (as probably syn. of *Nesoleon sauteri*), syn. n.

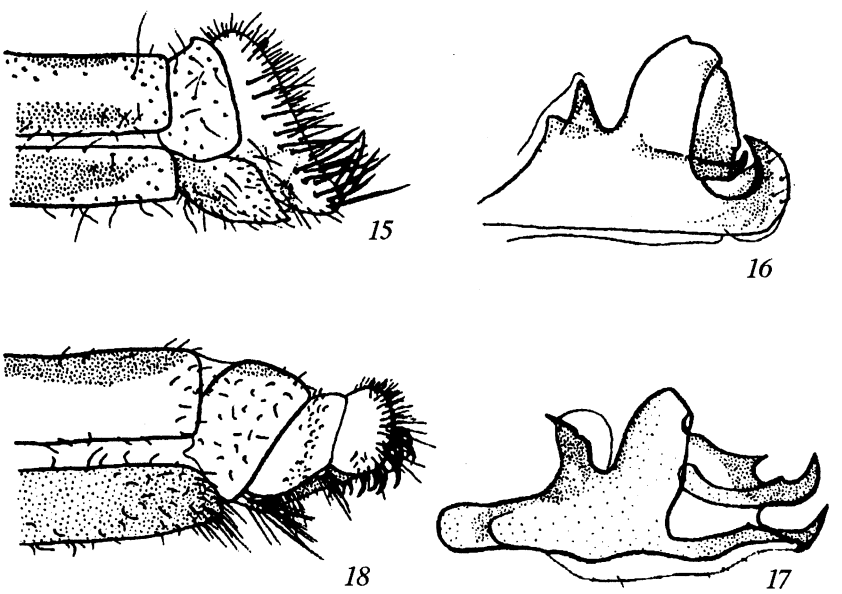
Material. Vietnam, 1 ♂, 1 ♀, Ha hong, 28.V.1993, A. Baranov; China: 1 ♂, 1 ♀, isl. Hainan, 18.V.1958, D. Naumov, A. Strelkov; 1 ♂, isl. Hainan, Haikou, mountain botanic garden, 29.V.1958, A. Strelkov; 1 ♂, Kanton, 14.IX.1954, G. Bei-Bienko; 7 ♀, Fuzhou, Prov. Futjian, Kushan, 5–28.VIII.1957, M.S. Yang.

Distribution. Vietnam, southern China—Indo-Chinese Province.

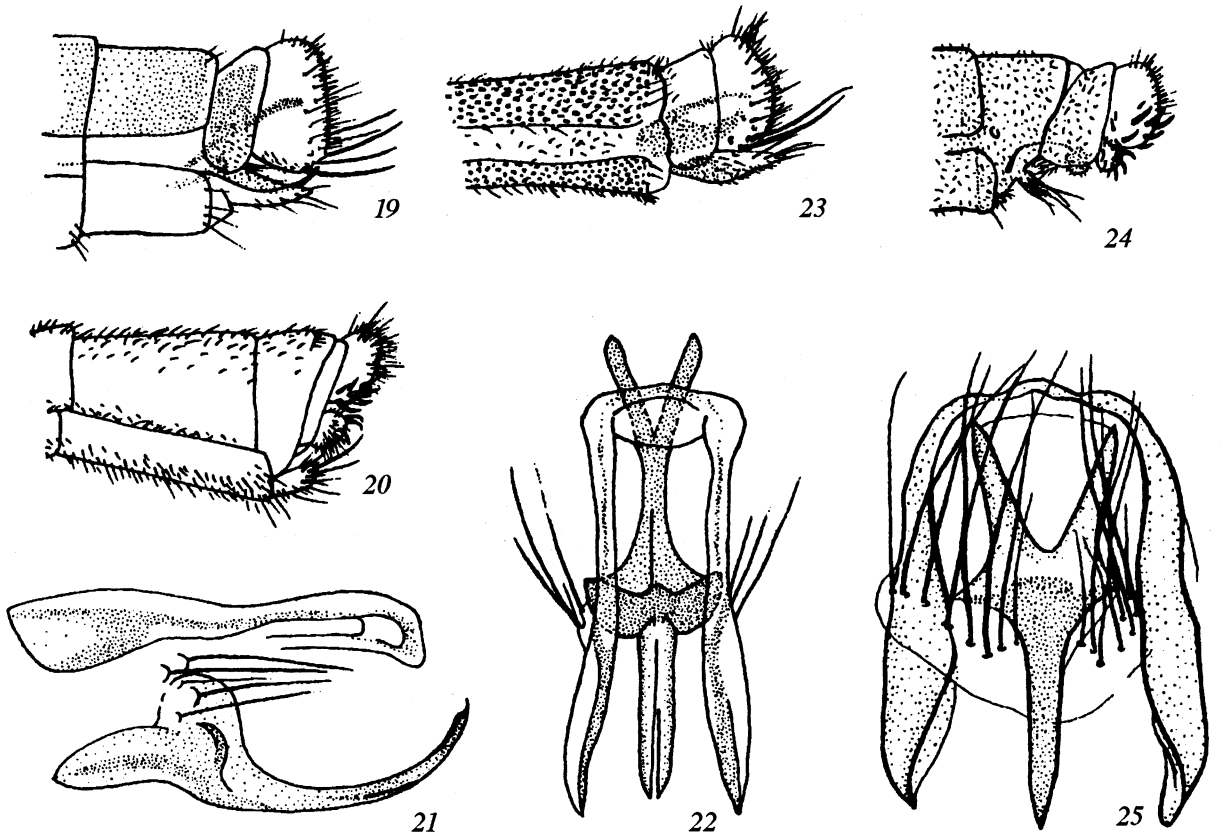
Taxonomic notes. Females described as *Cueta sauteri* and *C. duplicata*, reliably differs from males (*C. plicata*) by absence of a pattern (thin strip from regma to apical edge) in forewings. Both structure of genitals, shown in Figs 16–17, and especially shape of the male gonarcus allows to relate this species to some Palaearctic representatives of the genus (*C. anomala* Nav. and *C. kasyi* Hz. *et al.*) differing from these species in symmetrical apices of both wing pairs.



Figs. 10–14. (*11–13*) *Dendroleon vitripennis* (Navás) (Malaysia), (*14*) *Thaumatoleon splendidus* Esben-Petersen (Vietnam). (*11*, *12*) Male genitals: (*11*) lateral and (*12*) caudal view; (*13*) male abdomen apex, lateral view; (*14*) the same in female, lateral view.



Figs. 15–18. *Cueta sauteri* (Esben-Petersen) (Vietnam, China). (*15*) Male abdomen apex, lateral view; (*16*, *17*) lateral view of male genitals: (*16*) in the compact and (*17*) erect states; (*18*) female abdomen apex, lateral view.



Figs. 19–25. (*19–22*) *Banyutus feai* (Navás) (Burma); (*23–25*) *Creoleon cinnamomea* (Navás) (Vietnam, China). (*19, 23*) Male abdomen apex, lateral view; (*20, 24*) the same in female; (*21, 22, 25*) male genitals: (*21*) lateral and (*22, 25*) dorsal view.

TRIBE MYRMECOLEONTINI

Myrmeleon tenuipennis Rambur, 1842.

Myrmeleon tenuipennis Rambur, 1842 : 405.

Myrmeleon freyeri Navás, 1914a : 135; Esben-Petersen, 1931 : 446 (syn.).

Material. Vietnam, 1 ♂, 2 ♀, Hanoi, park, 4–10.X. 1990, S. Belokobyl'skii. Sri Lanka, 2 ♂, Vihara Maha, Devi Park, Colombo, Sri Lanka, larva collected 22.IV. 1976, bred in UK, cocoons V.1976, adults emerged 28, 29.VI.1976, W.R.B. Hynd.

Distribution. Southern India, Sri Lanka, Vietnam—species spread in the northwest of Oriental Kingdom.

Hagenomyia micans (McLachlan, 1875).

Myrmeleon micans McLachlan, 1875 : 176.

Balaga micans (McLachlan)—Navás, 1912b : 111.

Hagenomyia micans (McLachlan)—Okamoto, 1914 : 250.

Material. Vietnam, 1 ♂, Prov. Ha Son Binh, Dabac, Tuly, 16.X.1990, S. Belokobyl'skii. Japan, 1 ♀, Honsyu, Kunitachi, 9.VII.1937, Zhenzhurist; 1 ♀, "Japan" (coll. of Kotlyarevskii); 3 ♂, 1 ♀, isl. Kyusyu, Obama, 8–9.VIII.1907, Cherskii; 1 ♂, 1 ♀, isl. Kyusyu, 22.VII.1907, 29.VII.1917, Cherskii, Roshkovskii.

Distribution. Oriental Province and eastern Palaearctics (Japan, Korea, China, Taiwan). Reported for Vietnam for the first time.

Hagenomyia sagax (Walker, 1853).

Myrmeleon sagax Walker, 1853 : 382.

Hagenomyia sagax (Walker)—Esben-Petersen, 1913: 223.

Balaga nitens Navás, 1912b : 111; Esben-Petersen, 1913 : 223 (syn.).

Material. Indonesia, 2 ♀, isl. Komodo, 1–2.VIII. 1962, S. Said-Aliev. Vietnam, 1 ♀, prov. Gialai-Kontum, Tainguen plateau, settl. Kannak, 600 m, 8–16.XI. 1988, A. Gorokhov.

Distribution. India, Sri Lanka, China, Taiwan, Burma, Vietnam, Malaysia, the Philippines, Indonesia, New Guinea—the species is widely distributed all over Oriental Kingdom.

Taxonomic notes. The species is very variable, according to description of some subspecies distinguished by Weele (1909). Individuals studied by me reliably differ from *H. micans* (McL.) as in characters which were used by Navás (1912b) for differentiation of these species, so in the number of other, no less important characters. In particular, *H. sagax* possesses a straight longitudinal vein which substitutes posterior Banks's line in the forewing, whereas a broken line of transverse veins goes along the posterior Banks's line in *H. micans.*

TRIBE NEMOLEONTINI

Banyutus feai (Navás, 1915), comb. n. (Figs. 19–22).

Formicaleo feai Navás, 1915 : 389.

Banyutus indicus Navás, 1929 : 186, syn. n.

Material. Burma, 1 ♂, 1 ♀, topotypes, Palon (Pegu) [NE of Rhangun), VIII, IX.1887, L. Fea.

Distribution. India, Burma.

Taxonomic notes. Poggi (1993) gives data on three syntypes of *F. feai* deposited in Genova (Museo Civico di Storia Naturale "G. Doria"). Study of one of these syntypes, strongly damaged by dermestids, revealed its identity with two well preserved specimens from the collection of Zoological Institute RAS. Printed geographical labels are also similar in all the samples. Structure of Burmese specimens of *F. feai* is similar that described for the type series of *B. indicus* from "Khandala" (Bampur). Structure of genitals in males and females (Fig. 19–22), which has not been described earlier, confirms the species belonging to the genus *Banyutus*. The species differs from other species of the genus by concave posterior edge of wings, stronger expressed in males.

TRIBE CREOLEONTINI

Creoleon cinammomeus (Navás, 1913), comb. n. (Figs. 23–25).

Creagris cinammomea Navás, 1913 : 276.

Material. Vietnam, 2 ♀ , prov. Phykhanh, Nha Trang, 17.IV.1987, A. Ponomarenko. China, 1 ♂ , Hainan, Mt. Sanya, 28.XI, 20.XII.1959, A. Strelkov.

Distribution. Sri Lanka, China, Vietnam.

Taxonomic notes. The forewing is longer than the hindwing. The given species differs from *Creoleon griseus* (Klug), known from South Africa to Central Asia and India, and *Creagris littorea* Navás from southern India (Pondisheri) (which, apparently, is the synonym of the latter) in this character. Difference in wing length (the hindwing is longer and narrower than the forewing) is typical of the widely spread Afrotropical *Creoleon nubifer* (Kolbe), which possesses the very strongly expressed darkening in the apical part of the hindwing, differing in this character from *C. cinnamomeus.*

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9337

Reference Citation:
Krivokhatsky, V. A. 1997 [1997.??.??]. A new and little known species of ant-lions (Neuroptera, Myrmeleontidae) from Indo-China. Entomologicheskoe Obozrenie 76(3):631-640, 731 (abstract).

Notes:
English translation (title varies slightly): 1997. Some little known and a new species of ant-lions (Neuroptera, Myrmeleontidae) from Indo-China. Entomological Review 77(7):807-814. 25 figures. Notes: Pagination of original incorrectly cited in header of English translation as "661-670".

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