

ISSN 0013-8738

VOLUME 74 NUMBER 9  
DECEMBER 1995



# ENTOMOLOGICAL REVIEW

A Translation of  
**ENTOMOLOGICHESKOYE  
OBOZRENIYE**

Published in cooperation with  
**THE ENTOMOLOGICAL SOCIETY OF AMERICA**  
by



**SCRIPTA TECHNICA, INC.**

A Subsidiary of John Wiley & Sons, Inc.

ENT07409

ENGLISH EDITION PUBLISHED IN FEBRUARY 1996

# Antlions of Genera *Euroleon* Esben-Petersen, 1918 and *Kirghizoleon* Gen. N. (Neuroptera, Myrmeleontidae) of the Palearctic Region\*

V. A. KRIVOKHATSKIY and A. V. ZAKHARENKO

Zoological Institute, Russian Academy of Sciences, St. Petersburg

**Abstract.** Keys to genera of Palearctic Myrmeleontini and to the *Euroleon* species are provided. *E. alienus* Navas, 1930 is a new synonym of *E. coreanus* Okamoto, 1924. *Kirghizoleon cubitalis* Kriv. & Zakh. gen et sp. n. is described.

**Key words:** Neuroptera; Myrmeleontidae; *Euroleon*; *Kirghizoleon*, systematics.

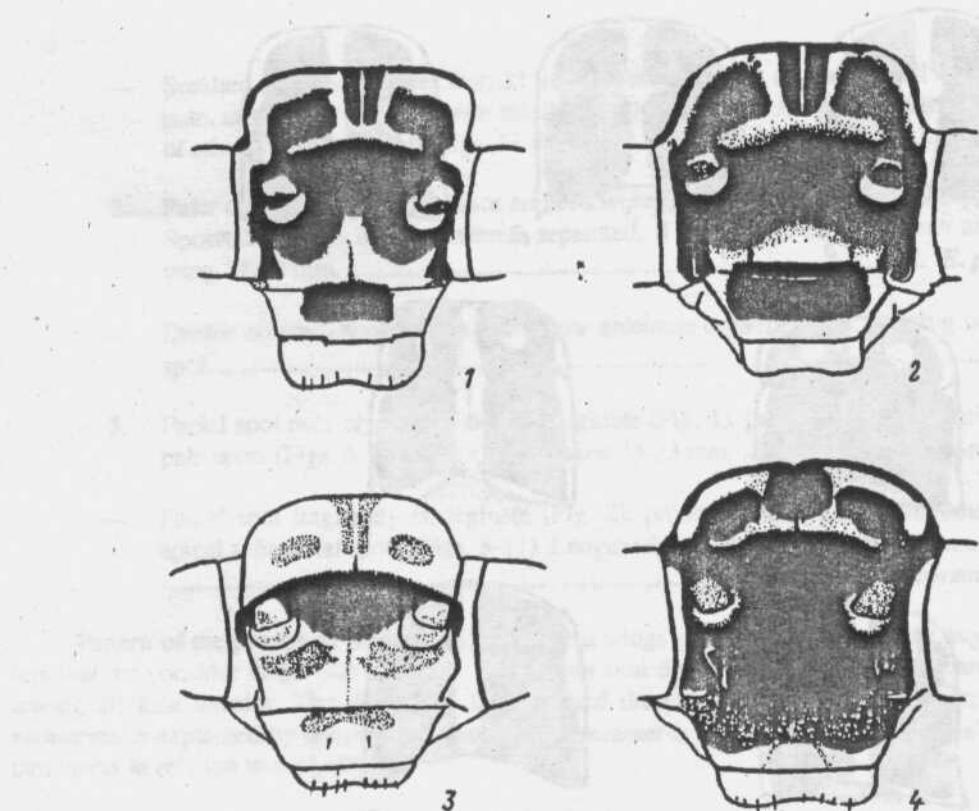
Antlions of the Palearctic genus *Euroleon* Esben-Petersen, 1918 of the tribe Myrmeleontini differ well from species of the genus *Myrmeleon* Linnaeus, 1767 in spotty pattern of wings and narrow and long cubital fork with parallel branches *Cu-1* and *CuA-2* on forewings and hindwings. The Australian genus *Callistoleon* Banks, 1910, is close to *Euroleon*. It also has spotty wings, but it has widely diverging branches of the cubital fork as in *Myrmeleon*. However, unlike in *Myrmeleon* *CuA-2* the forewing of *Callistoleon* does not fuse with *CuP+1A*.

We found a new species with spotty wings, diverging branches of the cubital fork and with fused *CuA-2* and *CuP + 1A* occupying an intermediate position between the genera cited above. We distinguish a new genus, *Kirghizoleon*, for this species, which is easy to distinguish from the genera and subgenera of the antlions of the tribe Myrmeleontini of the Palearctic region.

## KEY TO GENERA AND SUBGENERA OF PALEARCTIC ANTLIONS OF THE TRIBE MYRMELEONTINI

1. Costal area of forewing in apical part in 2 rows. .... *Hagenomyia* Bks.
- Costal area simple, sometimes some transverse veins of fork simple. .... 2.
2. Cubital fork with parallel branches *Cu-1* and *Cu-2*, membrane of wing with spots and labial palpi extended. .... *Euroleon* Esb.-Pet.
- Cubital fork with diverging branches. .... 3.
3. ♂'s without axillary plates and wings without spots. .... *Myrmeleon* s. str.
- ♂'s with axillary plates. .... 4.

\*Originally published in Entomologicheskoye Obozreniye, Vol. 73, No. 3, 1994, pp. 690-699.



Figs. 1-4. *Euroleon* Esb.-Pet., head: 1) *E. nostras* Geoffroy, 2) *E. coreanus* Okamoto, 3) *E. parvus* Hölzel, 4) *E. polypilus* Gerst.

- 4. Wings spotty, labial palpi strongly extended. .... *Kirghizoleon* gen. n.
- Wings without pattern, labial palpi of normal size. .... *Morter* Nav.

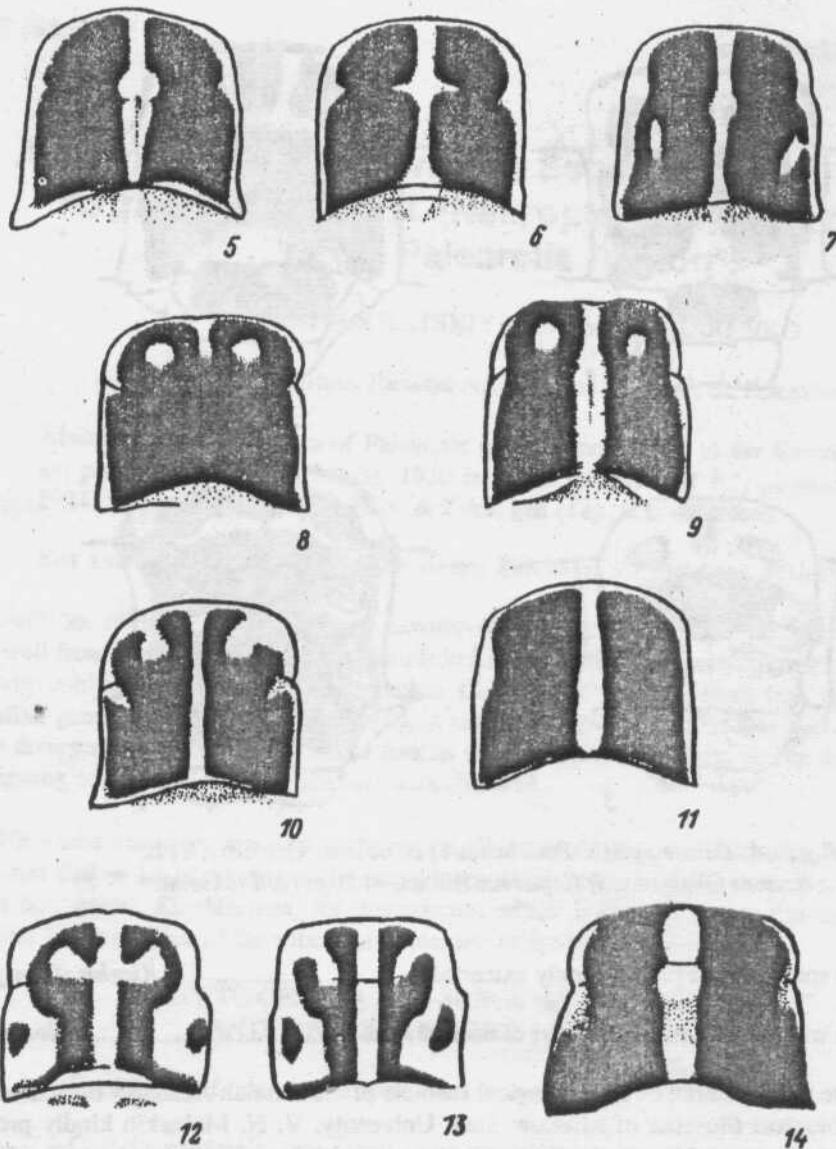
In this work we used material of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, and Zoological Museum of Moscow State University. V. N. Makarkin kindly provided several specimens of *Euroleon* from the collection of the Soil-Biology Institute of the Far Eastern Branch of the Russian Academy of Sciences, Vladivostok. Dr. Gy. Sziraki, Budapest (Hungarian Natural History Museum, HNHM) provided specimens of *Euroleon*. I sincerely thank all these people and also I. M. Kerzhner, who helped us in nomenclature problems.

#### *EUROLEON* Esben-Petersen, 1918

*Formicaleo* Geoffroy, 1762: 256; Geoffroy in Müller, 1754: XX—name rejection proposed (Kerzhner, 1991: 114).

*Euroleon* Esben-Petersen, 1918: 125—type species *Myrmeleon europaeus* McLachlan, 1873 = *Formicaleo nostras* Geoffroy in Fourcroy, 1785.

*Teula* Navás, 1930: 5—type species *Teula sinica* Navás, 1930 = *Euroleon coreanus* Okamoto, 1924.



Figs. 5-14. *Euroleon* Esb.-Pet., pronotum: 5-7) *E. nostras* Geoffroy (5 - Crimea, 6 - Georgia, 7 - Armenia); 8-11) *E. coreanus* Okamoto (8 - Altai, 9 - E. Kazakhstan, 10 - Inner Mongolia, 11 - Korea); 12, 13) *E. parvus* Hözel (Tajikistan); 14) *E. polypilus* Gerst. (Transbaikalia).

#### KEY TO SPECIES OF ANTLIONS OF *EUROLEON*

1. Large: forewing 32-42 mm. Tarsi entirely black, membrane of wings with numerous black spots. Pattern of face and pronotum as in Figs. 4, 14. Axillary plates of ♂ large, diameter twice diameter of stigma of metathorax (Fig. 18). .... *E. polypilus* Gerst.

- Smaller, forewing shorter than 35 mm. Tarsi brown, 1st segment of all tarsi at least partly pale, membrane of wings with smaller number of spots. Axillary plates of ♂ simple, size of stigma of metathorax (Figs. 15-17). ..... 2.
- 2. Paler colored, in pattern of face and pronotum yellow color predominant (Figs. 3, 12, 13). Spots above and below antennae separated, if fused then only between antennae. Forewing 22-28 mm. ..... *E. parvus* Hölzel.
- Darker colored, spots above and below antennae broadly fused, forming one large facial spot. ..... 3.
- 3. Facial spot near clypeus broadly emarginate (Fig. 1), pronotum without apical submedial pale spots (Figs. 5-7). Length of forewing 23-33 mm. ..... *E. nostras* Geoffroy.
- Facial spot linguately emarginate (Fig. 2), pronotum with pale, sometimes almost lost apical submedial spots (Figs. 8-11). Length of forewing 29-35 mm. ..... *E. coreanus* Okamoto.

Pattern of the pronotum (Figs. 5-14), head, and wings strongly variable. In the key only characters that we consider diagnostic are used. We did not find distinct differences in structure of genitalia among all four species. The difference in published drawings of complexes gonarcus-mediuncus-parameres is explained by considerable mobility of parameres relatively to the gonarcus and halves of parameres in relation to each other.

The literature dedicated to species of *Euroleon* is extensive. On *E. nostras* alone (including synonyms) we know of 120 publications. Therefore, besides necessary works, references are made only to sources with materials from Russia and adjacent countries.

*Euroleon nostras* (Geoffroy in Fourcroy, 1785) (Figs. 1, 5-7, 15).

*Formicaleo nostras* Geoffroy in Fourcroy, 1785: 360; Leraut, 1980: 240; 1982: 243; Makarkin, 1984: 38; Zakharenko, 1986: 85.

*Myrmeleon europaeus* McLachlan, 1873: 137; Schoch, 1885: 19; Esben-Petersen, 1913: 290; Shengeliya, 1947: 60; 1966: 105; Kozhanchikov, 1950: 286; Gilyarov, 1964: 585; Kovrigina, 1986: 110.

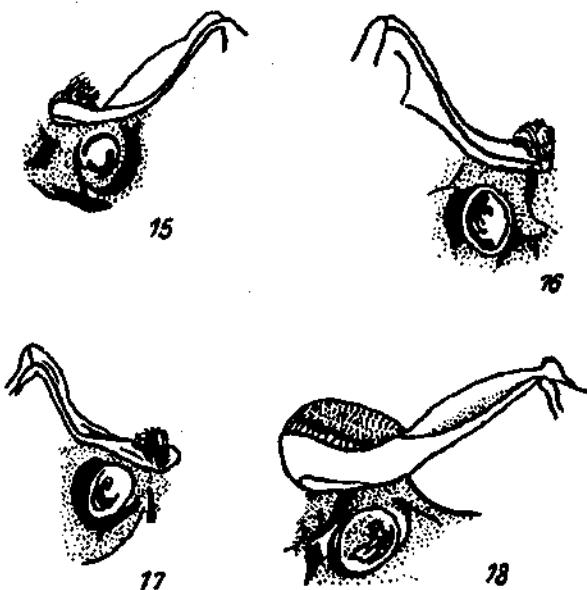
*Myrmeleon nostras* (Fourc.) — Navás, 1911: 530.

*Euroleon europaeus* (McL.) — Esben-Petersen, 1918: 126; Puzanova-Malysheva, 1947: 262.

*Euroleon nostras* (Fourc.) — Navás, 1920: 28; Mandru, 1963: 377; Hölzel, 1972: 36; Kovrigina, 1978: 750; Aspock et al., 1980: 295; Zakharenko, 1980: 26; 1987: 108; Luppova, 1987: 86; Gepp and Hölzel, 1989: 85.

*Euroleon nostras* Fabr. (sic!) - Kovrigina, 1983: 69; 1988: 31.

**Material.** Italy. 1 ♀, Italia, Pape. Austria. 1 ♀, Austria, Erberhh. (*Myrm. formicarius*, 34) ex larvae. Bulgaria. 1 ♀, Pirin, Gotse-Dolcheva lowland, 25.VIII.1988, M. Volkovich and V. Sakalyan; 1 ♂, Nessebar, J. Soffner, 23.VIII-4.IX.1962. Ukraine. Cherkassy Prov.: 1 ♂, Kanev, Dnieper Reserve, 23.VIII.1939, S. Malyshev; 2 ♂'s and 9 ♀'s, same locality, 4.VIII-4.IX.1939, E. Malysheva; 4



Figs. 15-18. *Euroleon* Esb.-Pet., axillary plate and stigma of metathorax of ♂'s: 15) *E. nostras* Geoffroy, 16) *E. coreanus* Okamoto, 17) *E. parvus* Hölzel, 18) *E. polypilus* Gerst.

♀'s, Kanev Reserve, 1-28.VIII.1981, A. Zakharenko; Khar'kov, Zmiyev Distr., Gaydary, 6-14.VIII.1963, V. Zakharenko; Donetsk Prov.: 1 ♂ and 1 ♀, Belokuz'minovka, 17.VII.1986, 18.VIII.1983, P. Pergalo; Kherson Prov.: 1 ♀, Askania-Nova, 15.VII, at light; Crimea: 1 ♀, Sympherop[ol] Stev. (*Myrmeleon formicarium runicum* Stev.); 1 ♀, Kurtsovskaya forest dacha, 12 verst from Simferopol', 20-21.VII.1902; 3 ♂'s and 4 ♀'s, Bakhchisaray Distr., Nauchniy, larvae — 24-25.V.1900, emergence of imagines 9.VII-10.VII.1990, V. Krivokhatskiy; 2 ♀'s, Alsu, Sevastopol', 17 and 20.VIII.1908, V. Ptiginskiy; 1 ♀, Bel'bek, 11.VIII.1897, N. Kuznetsov; 2 ♀'s, Mukholatka, 5 and 25.VII.1900, V. Ageyenko; 6 larvae, Karadag, 27.V.1990, V. Krivokhatskiy; same locality, 1 larva, VI.1976, emergence of ♀ VIII.1976, A. Zakharenko; 2 ♂'s and 3 ♀'s, same locality, 10.IX-20.X.1990, Yu. Budashkin; 1 ♀, Yalta, Chukurmar, 1908, Benkendorf; 1 ♀, Koreiz, 15.VIII.1928, N. Filippova; 2 ♂'s and 3 ♀'s, Nikitskiy Garden, 10.IX.1886, Yaroshevskiy; 1 ♀, Kekeneiz, 24.VIII.1924, A. Kirichenko; 1 ♀, Kerch', 1907, A. Kirichenko. Russia. Kuybyshev Prov.: 1 ♂, Zhigulevskiy Reserve, 12.VIII.1939, E. Novoderzhkin; Stavropol' Terr.: 1 ♂ and 6 ♀'s, Pyatigorsk, Mashuk Mt., 28.VII.1922, VIII.1924, VII.1925, M. Ryabov; 2 ♂'s and 2 ♀'s, same locality, VII.1925, N. Yegorov; 1 ♀, Kislovodsk, highlands of Koltso Mt., 7.VII.1923, M. Ryabov; 2 ♂'s and 1 ♀, same locality, larvae 4.VI.1993, emergence of imagines 8-10.VII.1993, V. Tikhonov; 5 ♂'s and 2 ♀'s, Novomar'yevskaya, larvae 24.VI.1993, emergence of imagines 6-23.VIII.1993, V. Krivokhatskiy; Krasnodar Terr.: 1 ♀, Gelendzhik, 10.IX.1976; 1 ♂ and 2 ♀'s, Chamlykskaya Sta., larvae, 22.VI.1993, emergence of imagines 10.VII-9.VIII.1993, V. Krivokhatskiy; Kabardino-Balkaria: 1 ♀, Egochkal near Dzherakhan, Terek Prov., 9.VIII.1927, M. Ryabov; 1 ♂, Staryy Lars, mountain steppe, 5.VIII.1923, M. Ryabov; Dagestan: 1 ♀ and 1 ♀, Karabudakh-Kend, forest-steppe, 13.VIII.1923, M. Ryabov, 2 ♂'s, Gunib, 25 and 26.VII.1924, M. Ryabov; 1 ♀, Untsukul', 18.VIII.1972, V. Garazhin. Georgia. 1 ♀, Sukhumi, at light, 3.VIII.1932, O. Chernova; 1 ♀, same locality, 18.VIII.1932, B. Rohdendorf; 1 ♀, Pitsunda, 1947, E. Malysheva. Armenia. 1 ♂, Spitak, 19.VIII.1974, A. Prisnyy; 1 ♀, Megri, 6-11.VIII.1977, A. Lisetskiy; 7 ♂'s, 4 ♀'s, Megri Distr., Aigedzor, 1100 m, 8.IX.1977,

A. Lisetskiy; 1 ♀, Megri Distr., Nyuvada, 28.IX.1951, I. Darevskiy. Azerbaijan. 1 ♂, Etakchi, Lenkoran Distr., 3.VII.1909; 1 ♂, Zuvand, 5-7.VIII.1968, V. Vedmederya.

Part of the material was determined by L. Navás, E. P. Luppova, and A. Popov as *Euroleon (Myrmeleon) nostras (europaeus)*.

**Distribution.** Morocco, Spain, France, Germany, Sweden, Switzerland, Austria, Italy, Albania, Romania, Poland, Bulgaria, Turkey, Chekbia, Moldova, Ukraine, W Russia, Georgia, Armenia, Azerbaijan. Records of this species in Russia in Navás (1932a) and Pleshanov (1974) in E Russia actually belong to different species.

*Euroleon coreanus* Okamoto, 1924 (Figs. 2, 8-11, 16).

*Euroleon coreanus* Okamoto, 1924: 19; Makarkin, 1990: 43.

*Teula sinica* Navás, 1930: 6.

*Euroleon alienus* Navás, 1932b: 111; Banks, 1940: 195 - syn. n.

*Euroleon sinicus* (Nav.) - Hözel, 1970: 128; Makarkin, 1987: 77.

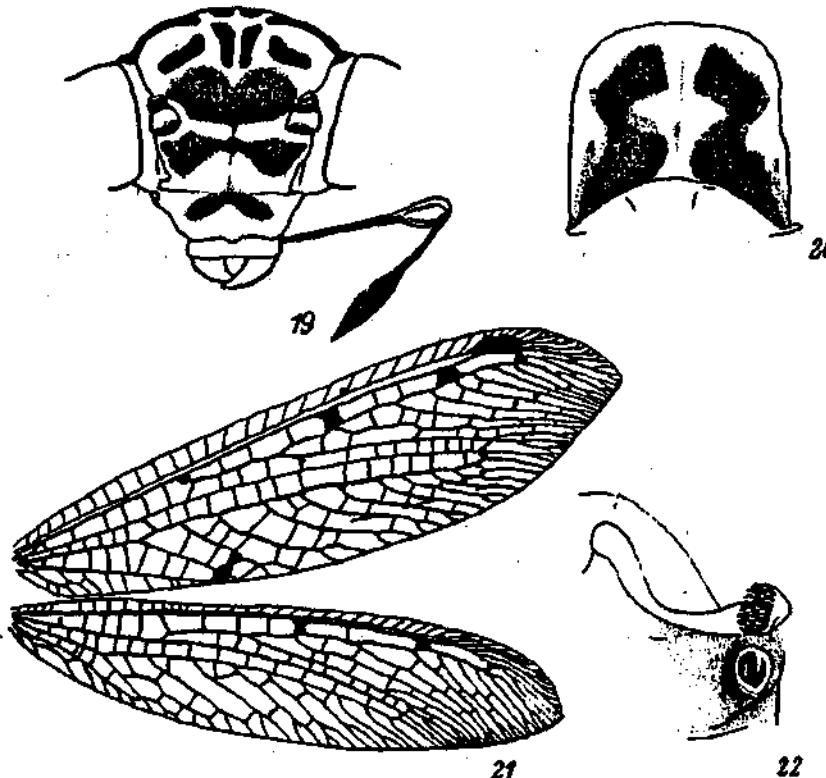
**Material. China.** 2 ♂'s, from Kalgan to Huanhe R. and N Ordos, V-VIII.1871, N. Przheval'skiy; 1 ♀, Lyashan, NW of Tsindao, 400-700 m, 24.IX.1954, G. Bey-Bienko; 1 ♀, S Alashan', collector Darbe-Khach, 6-8.III.1908, P. Kozlov; 1 ♂, Sunyao, village Sya-Den, 29.VIII.1954, O. Kryzhanovskiy; 1 ♀, village Tyandyago, 6 verst from Khersu and Da-Ili R., 2.VII.1905, V. Katin-Yartsev. Korea. 1 ♀, S Khamchen Prov., Khesandin, 16.VIII.1950, N. Borkhsenius. Mongolia. Khubsugul Aimak, 1 ♀, 10 km SE of Muren, 23-24.VII.1975, E Narchuk; Bulgan Aimak: 1 ♂, 4 km S of Somon Daschincilen, 1200 m, exp. Dr. Z. Kaszab, N 734, 23.VIII.1966 (HNHM); Selenga Aimak: 1 ♂, 25 km E of Darkhan, 31.VII.1975, E Narchuk; Kobdos Aimak: 1 ♀, Ulyastangoi R., 25 km N of Bulgan, 31.VII.1970, I. Kerzhner; Bayan-Khongor Aimak: 1 ♂, Ih-Bogdo, 15 km SW of Orlongur Lake, 1700 m, 17-18.VIII.1967, I. Kerzhner; Uver-Khangay Aimak: 1 ♂, near E shore Tatsyn-Nur Lake, 2-4.VIII.1969; I. Kerzhner; Gobi Aimak: 1 ♂, and 1 ♀, 25 km E of Shokhoy-Nor Lake, 3.VIII.1971, I. Kerzhner; 1 ♂, Dzhargalante-Khuduk, 21-22.VII.1909, P. Kozlov. Kazakhstan. E Kazakhstan Prov.: 1 ♀, 80 km E of Kurchum, 9.VIII.1986, Yu. Pesenko; 1 ♂ and 1 ♀, Saur Mts., 5 km from E Kenderlyk, 9.VIII.1967, L. Pritykina; 1 ♀, Zaisan Lake, Dzhemeni R., 30.V.1910, P. Yacobson. Russia. Altai Terr.: 1 ♂, Altai, Chulyshman, Katu-Yaryk place, 8.VIII.1987, V. Lukhtanov; Buryatia: 1 ♀, Ulan-Ude, Kumyska, edge of *Pinus* sp. forest, at light, 18.VII.1958, N Dzhelova; Chita Prov.: 1 ♀, Unda R., Zhidka, 28.VII.1969, A. Rasnitsyn; Maritime Terr.: 1 ♀, Molotov Distr., Sovkhoz No. 9, 13.VII.1952, W Onisimovka; 2 ♂'s and 1 ♀, Oktyabr'skiy Dist., Chernyatino Sta., 14.VIII.1962, O. Kovalev; 1 ♂, Spasskiy Uyezd, Ussuri Terr., 28.VIII.1926, A. D'yakonov, and N. Filip'ev; 1 ♂, Yakovlevka, Spassk Uyezd, 28.VIII.1926, A. D'yakonov and N. Filip'ev; 1 ♂, Zherdovka, 10.VIII.1914, S. Rodionov; 1 ♀, Novokachalinsk, 29.VIII.1987, S. Belokobyl'skiy.

Part of the material was determined by E. P. Luppova and G. Hözel as *E. sinicus*.

**Distribution.** Korea, Mongolia, China, Kazakhstan (?) and Russia: Altai Terr. (?), Buryatia, Chita Prov. (?), and Maritime Terr.

*Euroleon parrus* Hözel, 1972 (Figs. 3, 12, 13, 17).

*Euroleon parvus* Hözel, 1972: 36.



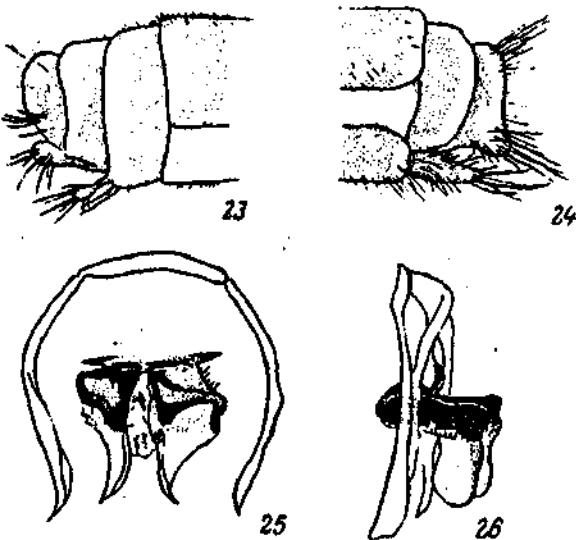
Figs. 19-22. *Kirghizoleon cubitalis* sp. n. (paratype): 19) head, 20)  
pronotum, 21) wings, 22) stigma and axillary plate of ♂.

**Material.** Azerbaijan. 1 ♀, Baku, 1-3.VIII.1906, L. Bianki; 1 ♂, Archandag, Yelizavetpol' Gubernia, Mazit Gorge, 22.VII.1901, R. Shmidt. Turkmenia. 1 ♀, Kara-Elchi Gorge, 18 versts from Kara-Kala, W Kopetdag, 13.IX.1930, P. Petrishcheva; 1 ♀, Firyuza, Kopetdag, 6.VII.1932, Ya. Vlasov; 1 ♀, 5 km SW of Ashkhabad, 9.IX.1986, M. Fal'kovich; 2 ♀s, C Kopetdag, Dushak-Eregdag Mt., larvae 25.I.1991, emergence of imagines 9.III, 15.XII.1992, V. Krivokhatskiy; 1 ♀, E Kopetdag, Charlyk, larva 27.VI.1991, emergence of imago 15.VIII.1991, V. Krivokhatskiy. Uzbekistan. 1 ♂, 60 km ESE of Tashkent, Chatkal' Reserve, 1-12.VIII.1991, V. Zolotukhin. Tajikistan. 7 ♂s, Khorog, botanical garden, at light, 1-15.IX.1979, 21.VII-25.IX.1980, 23-30.VIII.1982, V. Mikhaylov; 1 ♂ and 2 ♀s, same locality, 25.VIII.1989, N. Kluge; 1 ♀, Vakhan, S Khorog, Shugan, E Bukhara, 7.VIII.1887, A. Kazankov; 2 ♂s, 4 ♀s, Kondara Gorge, 30 km N of Dushanbe, 11-25.IX.1991, P. Ustyuzhanin; 1 ♂, N slope of Hissar Mts., Kangoch, 15.VIII.1990, A. Kuz'minykh. Kazakhstan. 1 ♂, Alma-Ata Prov., Ketmen Mts., Kotek Gorge, 29.IX.1957, Andrushko.

**Distribution.** Afghanistan, Azerbaijan (!), Turkmenistan (!), Tajikistan (!), Uzbekistan (!), E Kazakhstan (!).

*Euroleon polypilus* (Gerstaecker, 1885) (Figs. 4, 14, 18).

*Myrmeleon polypilus* Gerstaecker, 1885: 24.



Figs. 23-26. *Kirghizoleon cubitalis* sp. n. (paratypes): 23) apex of abdomen of ♀; 24) apex of abdomen of ♂; 25, 26) genitalia of ♂ in dorsal and lateral views.

*Euroleon polystilus* (Gerst.) — Esben-Petersen, 1921: 39; Kuwayama, 1933: 448; Hözel, 1970: 128; Pleshakov, 1974: 190.

*Formicaleo polystilus* (Gerst.) — Makarkin, 1984: 39; Makarkin, 1990: 43.

**Material. Mongolia.** 1 ♀, Syutszukteh, SE China, NW Urga, 10.VII.1924, P. Kozlov. **Russia.** Irkutsk Prov.: 2 ♂'s, Padun on Angara R., 13.VI.1867 and 17.VI.1868, A. Chekanovskiy; 1 ♀, Baikal, Listvenichnoye, 12.VII.1912, M. Grodkaya; Buryatia: 1 ♂, Troitskosavsk (Kyakhta), 2.VII.1912, M. Maskova; 1 ♀, Troitskosavsk, 1912, M. Bogidayeva; 1 ♀, Botyy near Troitskosavsk, VI-VIII.1910, A. Nosov; 1 ♀, Verkhneudinsk (Ulan-Ude), 2.VII.1950, Kolmanova; 1 ♀, Ulan-Ude Distr., Kaleonovo, at light, 13.VII.1985, P. Ustyhanin; 1 ♀, Tumkinskiy Distr., Zun-Murino, 3.VIII.1963, A. Pleshakov; 1 ♀, Barguzinskiy Reserve, Davsha, 10.VIII.1989, T. Ananina; 1 ♀, Baikal, Bolshiye Koty, 12.VIII.1976, B. Yakushenko; Maritime Terr.: 1 ♀, Sikhote-Alin, Suchan Prov., 16.V.1911, V. Pereleshina; 1 ♂, Telenda R. basin, 26.VI.1911, N. Shingarev; 1 ♀, Suputinskiy (Ussuryisk) Reserve, 4.IX.1969, O. Kryzhanovskiy; 1 ♀, same locality, 18.VIII.1947; 1 ♀, same locality, 28.VII.1972, V. Kuslitskiy; 1 ♀, same locality, 7.VIII.1969, I. Kerzhner; 1 ♀, Yakovlevka, Spassk Uyezd, Ussury Terr., 14.IX.1926, A. D'yakonov and N. Filip'yev; 1 ♀, Yevgen'yevka, Spassk Uyezd, 16.VIII.1910, A. Cherskiy; 1 ♀, botanical garden, 19 km from Vladivostok, 10.VIII.1955, Z. Onisimova; Sakhalin: 1 ♂, Suprunenko; 1 ♀, Yuzhnosakhalinsk, 18.VII.1951, N. Violovich.

**Distribution.** Mongolia, Russia: Irkutsk Prov., Buryatia, Yakutia, Amur Prov., Khabarovsk Terr., Maritime Terr., Sakhalin.

#### *KIRGHIZOLEON* Krivokhatsky & Zakharenko, gen. n.

The species is close to *Euroleon* E.-P., *Myrmeleon* L., *Callistoleon* Bks. of the tribe Myrmeleontini.

Wings with brown pattern as in *Euroleon*, with diverging cubital fork as in *Myrmeleon*. CuA-2 of forewing fused with CuP+1A. Wings of ♂ with axillary plates. Labial palpi as in *Euroleon*, strongly extended. Spurs of all legs shorter than 1st tarsal segment.

The type species is *Kirghizoleon cubitalis* sp. n.

*Kirghizoleon cubitalis* Krivokhatskiy & Zakharenko, sp. n. (Figs. 19-26).

Holotype: ♂, Kyrgyzstan, S shore of Issyk-Kul Lake, Kadzhi-Say, 1620 m, 20.VII.1992, V. Lukhtanov; paratypes: 2 ♂'s and 1 ♀, Issyk-Kul Lake, Ak-Terek R., 4.VII.1966, A. Protsenko.

Pale brown, with spotty wings, length of forewing 24 mm (in paratypes 23, 29), length of hindwing 22 (22 and 27), length of abdomen of ♂ 17 (17), ♀ - 18 mm.

Head bare, straw-yellow and with brown pattern (Fig. 19): arcuate separate spots on clypeus and under antennae, transverse spot above antennae and 2 rows of symmetric spots on frons and vertex. On clypeus and labrum sparse brown setae. Antennae evenly pale brown, scape yellow, with brown spot and 1st flagellar segment brown. Palpi brown with yellow, 2nd and 3rd segments of labial palpi of equal length and 10 times as long as 1st segment each, 2nd segment apically widened, with pit for folding 3rd segment, 3rd segment spindlewise swollen, slightly curved, with acute apex and droplet-shaped sensory pit.

Pronotum yellow, with black pattern (Fig. 20), epipleura, mesonotum and metanotum mainly brown, only scutellum of mesothorax mainly yellow, and scutellum of metathorax with yellow edging at base. Pronotum and prescutum of mesothorax with sparse erect hairs and bristles, at base of forefemora and midfemora 1 sensory seta each; foretibia with golden brush of setae. Spurs pale red, on all legs shorter than 1st tarsal segment.

Wings hyaline, with brown spots (Fig. 21). All longitudinal veins pale, punctate with brown, only MP-1 and CuA of hindwing entirely pale. In presectorial area of forewing 7 transverse veins (in paratypes 6-8), in hindwing 4 (in paratypes one more, basal incomplete vein is present). Branches of cubital fork diverge at angle, inner cubital area in single row (in paratypes in middle, often in 2 rows). Banks lines not developed, only posterior Banks line developed in forewing. Pterostigma in forewing bicolored: apically white and basally brown; pterostigma of hindwing entirely milky white. In forewing brown shades present around some transverse veins connecting R and RS-1, on regma and at place of fusion of CuP + 1A and CuA = 1, weak semishades present around some transverse veins in apical and radial areas. In hindwing shades are fewer, in cubital area completely absent. Hindwings of ♂ with small axillary plate, diameter of which equals diameter of stigma of metathorax (Fig. 22).

Abdomen brown, apices of all tergites and sternites VII and VIII (in ♀ apices of sternites VI and VII) bordered with yellow. Ectoproct and genitalia of ♂ same as in species of *Euroleon* (Figs. 24-26).

Paratypes are similar to holotype, ♀ larger than ♂. End of abdomen of ♀ as in Fig. 23.

Type series is preserved in ZIS.

#### LITERATURE CITED

ASPOCK, H., U. ASPOCK, and H. HÖLZEL. 1980. Die Neuropteren Europas. Joecke et Evers, Krefeld, 1: 495; 2: 355 pp.

- BANKS, N. 1910. Myrmeleonidae from Australia. Ann. Entomol. Soc. Amer. 3: 40-44.
- BANKS, N. 1940. Reports on certain groups of Neuropteroid insects from Szechwan, China. Proc. U. S. Nat. Mus. Washington 88(3079): 173-220.
- ESBEN-PETERSEN, P. 1913. Notes concerning Neuroptera from Caucasus. Izv. Kavk. Muzeya: 287-294.
- ESBEN-PETERSEN, P. 1918. Helpnotes towards the determination and the classification of the European Myrmeleonidae. Entomol. Meddel. 12: 97-127.
- ESBEN-PETERSEN, P. 1921. Notes concerning some Neuroptera in the Helsingfors Museum together with a description of *Hemerobius poppii*. Not. Entomol. 1(2): 38-43.
- FOURCROY, A. F. 1785. Entomologica Parisiensis. Parasitis: 544 pp.
- GEOFFROY, E. L. 1762. Histoire abrégée des insectes qui se trouvent aux environs de Paris, 1: 523 pp.; 2: 690 pp.
- GEPP, J., and H. HÖLZEL. 1989. Ameisenlöwen und Ameisenjungfern (Myrmelenidae). In: Die neue Brehm-Bücherei. A. Ziems Verlag. Wittenberg Lutherstadt, 589: 108 pp.
- GERSTAECER, A. 1885. Vier Decaden von Neuropteren aus der Familie Megaloptera. Mitt. Nat. Ver. f. Neuendorf. u. Rügen 16: 1-49.
- GILYAROV, M. S. 1964. Order Neuroptera-Planipennia. [In Russ.]. In: Gilyarov, M. S. (Ed.). Opredelitel' Obityayushchikh v Pochve Nasekomykh. Nauka, Moscow: 577-585.
- HÖLZEL, H. 1970. Beitrag zur Kenntnis der Myrmeleoniden der Mongolei (Neuroptera; Planipennia). Acta Zool. Acad. Sci. Hungaricae 16(1-2): 115-136.
- HÖLZEL, H. 1972. Die Neuropteren Vordersaisens. IV. Myrmeleontidae. Beitr. Naturkd. Forsch. Südwestdeutsch. 37: 3-103.
- KERZHNER, I. M. 1991. Histoire abrégée des insectes qui se trouvent aux environs de Paris (Geoffroy, 1762): proposed conservation of some generic names (Crustacea and Insecta). Bull. Zool. Nomenclature, 48(2), Case 2292: 107-134.
- KOVRIGINA, A. M. 1978. Neuroptera of Central Volga River Region. [In Russ.]. Entomol. Obozr. 57(4): 746-751.
- KOVRIGINA, A. M. 1983. Fauna and habitat distribution of Neuroptera of Samara Luka. [In Russ.]. In: Probl. Rats. Ispol'zovaniya i Okhrany Prirödn. Kompleksa Samarskoy Luki. Kuybyshev: 69-70.
- KOVRIGINA, A. M. 1982. Condition of population of a common antlion in the I. I. Sprygin Zhiguloy State Reserve. [In Russ.]. In: Probl. Okhrany Genofonda i Upravleniya Ekosistemami v Zapovednikakh Lesnoy Zony. Tez. Dokl. Moscow, 2: 110-112.
- KOVRIGINA, A. M. 1988. Rare species of Neuroptera in Central Volga River Region and their protection. [In Russ.]. In: Okhrana Zhivotnykh v Sredнем Povolzhe. Kuybyshev: 29-34.

- KOZHANCHIKOV, I. V. 1950. Neuroptera. [In Russ.]. In: *Zhivotniy Mir SSSR, Zona Stepey*. Akad. Nauk SSSR Press, 3, Moscow-Leningrad: 286-287.
- KUWAYAMA, S. 1933. Notes on two species of the family Myrmeleontidae. *Proc. Imp. Acad.* 9(8): 446-449.
- LERAUT, R. 1980. Lista des Planipennes de France. *Bull. Soc. Entomol. France* 85 (9-10): 237-253.
- LERAUT, P. 1982. Planipennis de la region parisienne (Neuroptera). *Entomologiste* 38(6): 242-246.
- LUPPOVA, E. P. 1987. Superfam. Myrmeleontoidea. [In Russ.]. In: *Opredelitel' nasekomykh Evropeiskoy Chasti SSSR*. Nauka, Leningrad, 4(6): 73-96.
- MAKARKIN, V. N. 1984. Myrmeleontidae (Neuroptera) of the Far East. [In Russ.]. In: *Sistemmatika Nasekomykh Dal'nego Vostoka*. Vladivostok: 38-40.
- MAKARKIN, V. N. 1987. Neuroptera of Transbaikalia. [In Russ.]. In: *Taksonomiya Nasekomykh Sibiri i Dal'nego Vostoka SSSR*. Vladivostok: 72-77.
- MAKARKIN, V. N. 1990. A checklist of the Neuroptera-Planipennia of the USSR Far East, with some taxonomic remarks. *Acta Zool. Hung.* 36(1-2): 37-45.
- MANDRU, C. 1963. Myrmeleonidae (Neuroptera) der Moldau. *Fragm. Faun.*, Warszawa, 10(24): 367-378.
- MCLACHLAN, R. 1873. Notes sur les Myrméténides décrits par M. le Dr. Rambur. *Ann. Soc. Entomol. Belg.* 16: 127-141.
- MÜLLER, O. F. 1764. *Fauna Insectorum Fridrichsdalina*. Hafniae et Lipsiae, XXIV + 96 pp.
- NAVÁS, L. 1911. Insectes Neuroptères de Crimée. *Ann. Mus. Zool. Acad. Imp. Sci. St.-Petersbourg* 16: 528-534.
- NAVÁS, L. 1920. Sur les Neuroptères nouveaux ou critiques. I. *Ann. Soc. Sci. Bruxelles*, 39: 27-37.
- NAVÁS, L. 1930. Insectos del Museo de Paris, 5 ser. *Broteria* 24: 5-24.
- NAVÁS, L. 1932a. Insecta orientalia, IX ser. *Mem. Pont. Acad. Sci. N. Lin. Roma* 16: 913-919.
- NAVÁS, L. 1932b. Decadas de insectos nuevos, Decada 21. *Broteria* 5(1): 109-119.
- OKAMOTO, H. 1924. Some Myrmeleonidae and Ascalaphidae from Corea. *Insecta Matsumurana* 1(1): 18-24.
- PLESHANOV, A. S. 1974. Review of Neuroptera of Siberia and of the Far East. [In Russ.]. In: *Fauna Nasekomykh Vostochnoy Sibiri i Dal'nego Vostoka*. Irkutsk: 180-193.
- PUZANOVA-MALYSHEVA, E. V. 1947. Antlions and their capture funnels. [In Russ.]. *Tr. Inst. Evol. Fiziol. i Patol. und Imp. Akad. I. P. Pavlova* 1: 259-284.
- SCHOCH, G. 1885. Neuroptera Helvetiae analytisch bearbeitet, als Grundlage einer Neuropterensfauna der Schweiz. Schaffhausen: 1-20.

- SHENGELIYA, E. S. 1947. Contribution to the fauna of Neuroptera of Transcaucasia and adjacent countries (Neuroptera s. lat.) [In Georgian]. In: Tr. Zool. Inst. Akad. Nauk GSSR 7: 59-65.
- SHENGELIYA, E. S. 1966. Neuroptera. [In Russ.]. In: Fauna Bespozvonochnykh Zhivotnykh Trialetskogo Khrebita. Tbilisi: 105.
- ZAKHARENKO, A. V. 1980. Fauna of Neuroptera of Crimea. [In Russ.]. In: Issled. po Entomol. i Akarol. na Ukraine. Kiev: 25-27.
- ZAKHARENKO, A. V. 1986. Contribution to the fauna of Neuroptera of Caucasus. [In Russ.]. In: I-ya Zakavkazskaya Konf. po Entomol. Tez. Dokl. Yerevan: 85-86.
- ZAKHARENKO, A. V. 1987. Relation of ant lions to edaphic factors. [In Russ.]. In: Probl. Pochv. Zool. Tbilisi: 108-109.