

NOTES ON ODONATA FROM SOUTHERN PRIMORYE, THE FAR EAST OF THE USSR

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Abstract — Notes on morphology and distribution are given for 16 spp. of 5 families, and structural features of *Somatochlora viridiaenea* (Uhl.) and *Sympetrum e. eroticum* (Sel.) are figured.

Introduction

In spite of the considerable number of publications on the odonate fauna of Southern Primorye (BARTENEV, 1914, 1956; BELYSHEV, 1956, 1965a, 1965b, 1966a, 1966b, 1970, 1973-1974; BELYSHEV et al., 1971; BELYSHEV & STEPANCHUCK, 1965; HARITONOV, 1986), the region still remains insufficiently investigated. The combination in this territory of Siberian faunal elements and species penetrating from China and Japan, makes the region attractive for biogeographic research, particularly so with reference to the many taxa reaching here the boundaries of their ranges. As far as the USSR territory is concerned, many of these are restricted to Southern Primorye, and some are known from a single specimen.

The below records were brought together during the 1989 expedition (August-September) by the second author.

Localities — (Fig. 1)

- (1) "Kedrovaya Pad" Nature Reserve, Hasansky region; 19/23-VIII-1989. Wide and open sandy glade, surrounded by deciduous forest; at the confluence of a small stream and the Kedrovaya R.
- (2) Ryazanovka, Hasansky region; 21/29-VIII-1989. Man-made pond (10x20 m approx., depth 0.3-1.0 m, with large *Alisma* and *Sagittaria* patches), close to an oak forest.
- (3) Barabash-Levada, Hanka's region; 16-VIII-1989. Stream (1.0 m width) and grassland, at the base of a hill covered by oak.
- (4) Primorsky, Hasansky region; 21/22-VIII-1989. Wide grassland, at about 500 m from the sea, near the Kedrovaya R. mouth.
- (5) Gornotayozhnoye, Ussurijsky region; 1-IX-1989. Dry hill, covered by grass and *Rosa* bushes, surrounded by deciduous forest.

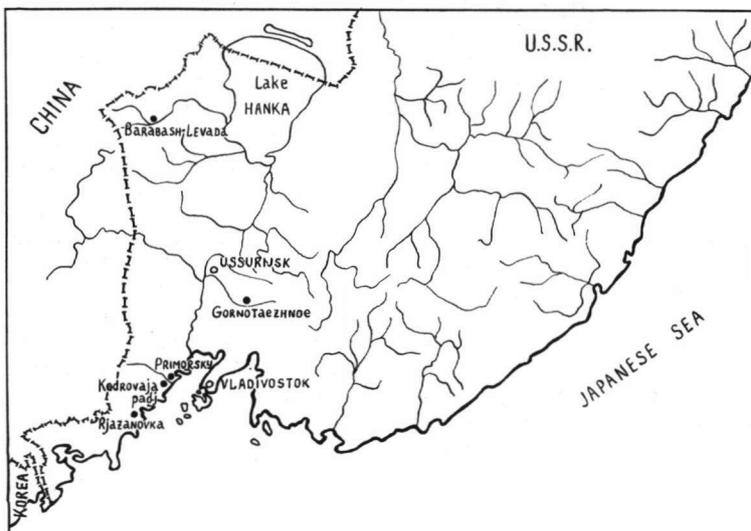


Fig. 1. Topographic position of the localities visited.

Annotated list of species

Calopterygidae

Calopteryx atrata Sel.: Ryazanovka, 1 ♀, 5-VIII-1989, A. Below leg.

Lestidae

Lestes sponsa (Hans.): Ryazanovka, 8 ♂, 24-VIII-1989; 1 ♀, 27-VIII-1989.

L. temporalis Sel.: Primorsky (nr a small stream), 2 ♂, 22-VIII-1989.

Sympetma annulata striata St. Quentin: Barabash-Levada, 1 ♂, 1 ♀, 16-VIII-1989; — Gornotayozhnoye, 1 ♂, 1 ♀, 1-IX-1989. — The Barabash ♀ has a weakly pronounced dark tooth on the left dorsal thoracic strip (missing on the right strip).

Aeshnidae

Aeshna crenata Hag.: "Kedrovaya Pad", 1 ♂, 22-VIII-1989; — Ryazanovka, 1 ♀, 27-VIII-1989. — The ♀ wings with a dense brown spot, with indistinct boundaries, covering the total wing width, from the nodus to the distal edge of the pterostigma. This pattern is typical of the eastern specimens (BELYSHEV, 1973). The ♂ wings are absolutely transparent. — Copulation and oviposition were observed.

Corduliidae

Somatochlora graeseri Sel.: "Kedrovaya

Pad", 1 ♂, 23-VIII-1989. — Wings with a dark spot, distally gradually darkening.

S. metallica exuberata Bart.: Ryazanovka, 1 ♂, 24/27-VIII-1989; — "Kedrovaya Pad", 1 ♀, 23-VIII-1989; — Barabash-Levada, 1 ♀, 16-VIII-1989. Fore wings with yellow-brown spot near pterostigma. The "Kedrovaya Pad" ♀ has yellow-coloured wings, which are darker towards the distal part. All specimens have isolated light spots on the frons and dark pterostigmata. The ♀ membranulae white, the ♂ membranulae white for 1/4 of the length.

S. viridiaenea (Uhl.) (Figs 2-3): "Kedrovaya Pad", 1 ♀, 23-VIII-1989. — Our specimen has transparent wings, with an indistinct spot around the pterostigma. All abdominal segments with light lateral spots. The light spots on the frons are isolated. Thorax with 2 light lateral strips. Membranulae grey.

Libellulidae

Pantala flavescens (Fabr.): "Kedrovaya Pad", 1 ♂, 19-VIII-1989; 1 ♀, 23-VIII-1989; — Ryazanovka, 1 ♂, 1 ♀, 25-VIII-1989.

Sympetrum cordulegaster (Sel.): "Kedrovaya Pad", 1 ♂, 1 ♀, 22-VIII-1989. — The basal yellow spots in the fore wings extend to the 2nd prenodal vein.

S. depressiusculum (Sel.): "Kedrovaya Pad", 1 ♀, 19/23-VIII-1989; — Primorsky, 2 ♂, 1 ♀, 22-VIII-1989; — Ryazanovka, 2 ♀, 25-VIII-1989; — Gornotayozhnoye, 2 ♀, 1-IX-1989. — Males with transparent wings. In 1 ♂ the dark abdominal spots almost completely reduced. The fore wings of the majority of females have a weak darkening spot, extending from base to nodus. The Gornotayozhnoye specimens have indistinct spots around nodus and pterostigma.

S. e. eroticum (Sel.) (Fig. 4): Ryazanovka, 3 ♂, 25/29-VIII-1989. — Our specimens have fused spots on the frons. The central thoracic black strip may extend to the wing base, but it may be also disconnected in the middle, or completely lacking. The basal yellow spot in the hind wings reaches the cubito-anal vein. Anal appendages light, but in one specimen (cf. Fig. 4) the left app. sup. is dark, while its right counterpart is light apically only.

S. infuscatum (Sel.): "Kedrovaya Pad", 1 ♂, 19/23-VIII-1989; — Barabash-Levada, 1 ♂, 16-VIII-1989. — App. inf. black apically and light basally (but light brown in the Barabash specimen); app. sup. apically black over 2/3 of their length.

S. narvulum Bart.: Ryazanovka, 1 ♂, 2 ♀, 25/27-VIII-1989; — Barabash-Levada, 3 ♂, 1 ♀, 16-VIII-1989; — Primorsky, 1 ♀, 21/22-VIII-1989. — The ♂ anal app. light. The spots on the frons not isolated. The basal orange spots on the wings are small.

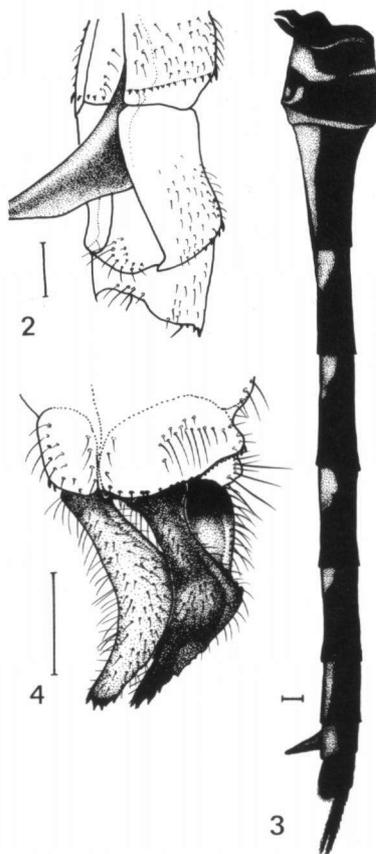
S. pedemontanum kurentzovi Belyshev: Barabash-Levada, 1 ♀, 16-VIII-1989. — The width of the colour band in the wings close to 6.0 mm. In the fore wing an indistinct spot near the nodus.

S. striolatum imitoides Bart.: Ryazanovka, 1 ♂, 24-VIII-1989; — Primorsky, 2 ♀, 21/22-VIII-1989. — Pterothorax dorsally light-brown, laterally light-yellow. The Primorsky specimens have an orange-yellow strip extending to the pterostigma. Between nodus and pterostigma there is a dense brown spot, extending to the distal part of the wing.

Discussion

The "Kedrovaya Pad" record of *Somatochlora viridiaenea* represents its second and southernmost known continental locality within the USSR boundaries. The species is extremely rare

and has been hitherto known solely from the Iman Basin in the Ussurijsky region (BELYSHEV, 1973). Although early summer was given as the adult season, our specimen from the end of August appears in a fairly fresh condition.



Figs 2-4. Structural features of *Somatochlora viridiaenea* (Uhl.) (Figs 2-3) and *Sympetrum e. eroticum* (Sel.) (Fig. 4): (2) ♀, genital plate; — (3) ♀, lateral view of abdomen; — (4) ♂, dorso-lateral view of anal appendages. — [All bars: 1 mm]

Sympetrum parvulum has been so far considered a rare species in the USSR collections, but it appears rather common and abundant in the region visited.

The record of *S. cordulegaster* is of particular interest. As a rule, only solitary specimens are always found, and the species seems to have a very narrow and/or patchy distribution.

While common and abundant in Siberia (BELYSHEV, 1973), *Aeshna crenata* appears considerably rare in the Soviet Far East.

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