

OBSERVATIONS ON THE CREPUSCULAR FLIGHT IN *AESHNA VIRIDIS* EVERS-MANN IN OMSK PROVINCE, WEST SIBERIA (ANISOPTERA: AESHNIDAE)

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Abstract – Observations of the crepuscular trophic flight of *A. viridis* (20:10-20:50 to 21:20-21:40) for the period of August 4-15, 1978 in northern Omsk province, West Siberia are presented. Upon the day of appearance, the moths *Loxostege sticticalis* L. were the main prey.

Introduction

Crepuscular flight is exhibited by many aeshnid species in the tropics and by quite a few species in the subtropics and the southern temperate zone (SILSBY, 2001). On the other hand, in the northern taiga zone all dragonflies exhibit only diurnal activity. Some species change crepuscular activity for a diurnal one in their northern range. For instance, in Tadjikistan all Aeshnidae are crepuscular, including *Aeshna mixta* Latr., while *Anax parthenope* Sel. is even night-flying (BELYSHEV et al., 1989). In Donetsk province of Russia, almost all Aeshnidae [except *Anaciaeschna isosceles* (Müll.) but including *Aeshna mixta*, *A. affinis* Latr. and *A. parthenope*] are crepuscular (OLIGER, 1956). At the same time, according to our data, in Siberia, *A. mixta*, *A. affinis* (in Omsk and Novosibirsk provinces and in Tuva) and *A. parthenope* (in

Tuva) demonstrate diurnal activity. In West Siberia, only three species are crepuscular: *Aeshna grandis* (L.) (KOSTERIN et al., 2001) and *A. juncea* (L.) (BERNARD & KOSTERIN, 2009) facultatively and *A. viridis* almost obligatorily: scarce ovipositing females and territorial males appearing at daytime only in overcast weather conditions (KOSTERIN, 1996; KOSTERIN et al., 2001; BERNARD & KOSTERIN, 2009). However, in Russian odonatological literature more attention was paid to exceptional diurnal activity of the latter species than to its regular crepuscular activity. This gap is especially substantial since BELYSHEV (1973), in his famous Siberian monograph, did not emphasize the crepuscular flight of *A. viridis*.

Hereby I present my old (1978) observations of a regular crepuscular flight of *A. viridis* near Artyn village, Muromtsevo district, Omsk province. The locality is situated at about 56°09.5'N-74°47'E, 70 m above sea level, in the southern forest (subtaiga) zone of the West Siberian lowland.

Observations and discussion

The systematic observations were made on August 4-5, 1978. Every evening an enormous num-

ber of *A. viridis* and very much fewer *A. grandis* individuals swarmed on a meadow of about 0.6 ha. It was outlined by the small (about 4 m wide) Artyon river (with a lot of emerging *Sparganium*), with willow trees growing on its bank, and by the south-exposed slope of its valley, covered with birch-pine forest. The active period lasted only for 40-60 minutes, but the time of initiation and termination of flight varied: first individuals (which almost all were males) appeared at 20:10-20:50 (most frequently at 20:20-20:40), a mass flying started at 20:30-21:10; at 21:20-21:40 the flight ceased (Tab. I). (The sunset time changed during the study period approximately from 20:45 to 20:00. Note that in Russia an hour is added to the standard (zone) time, thus the conventional standard time in Omsk province, which is close to the local apparent time in the site considered, is by 6 hours greater than the Greenwich Mean Time). The dragonflies began flying at the height of 4-5 m, later, as the illumination decreased, they flew just above the grass. No individuals flew over the river or the southern slope, but 'sleeping' individuals were rarely found on the slope at daytime. The variation of the flying time seemed to reflect the meteorological factors (which, unfortunately, I was not able to record). The flying commenced earlier during a drizzling rain (two cases), while the arising of mist over herbage (two cases) and the

rain at daytime (one case) shifted the flying to about 30 minutes later. At daytime, only scarce *A. grandis* were observed at this site. Only on August 8, this was actually the first day of mass hatching of *Loxostege sticticalis* (L.) moths (a well-known serious pest), several *A. viridis* individuals were observed flying at 15:00 h. It should be noted that the mentioned moths were the main prey in the described trophic activity of *Aeshna*. Every moth was eaten in the first 30 seconds after it had got into the air. After the dragonfly flight had ceased, numerous flying moths appeared in the meadow. Prior to their appearance the main prey were most probably abundant mosquitoes.

A. viridis had most probably developed in an oxbow of the Artyon river, 6-7 km off, which was full of *Stratiotes aloides*, to which this dragonfly species is rather strictly connected in its larval development, both in Europe (MÜNCHBERG, 1956) and West Siberia (KOSTERIN et al., 2001; SUKHACHEVA et al., 2003). When this site was revisited in August 1983, only few *A. grandis* and *A. viridis* individuals were observed.

References – BELYSHEV, B.F., 1973, *Dragonflies of Siberia*, Nauka, Novosibirsk; – BELYSHEV, B.F., A.Yu. HARITONOV, S.N. BORISOV, Z.D. SPURIS, G.A. MAZOKH-

Table I. – Registry of the crepuscular flight of *A. viridis* on a meadow at Artyon village, Omsk province, on August 4-15, 1978 (no data for August 7)

Dates (Aug 1978)	First flying individuals	Mass appearing	Flight cessation	Comments
4	no data	no data	21:30	
5	20:10	21:00	21:35	
6	20:20	21:00	21:40	
8	20:30	20:30	21:20	several individuals at daytime; mass appearing of <i>Loxostege sticticalis</i>
9	20:30	20:56	21:20	
10	20:58	21:10	21:30	rain at daytime
11	20:20	20:47	21:15	rain since 21:15
12	20:50	21:00	21:10	fog since 20:20
13	20:50	20:50	21:45	fog since 20:30
14	20:43	20:43	21:18	
15	20:00	20:30	21:05	drizzling rain at about 19:40-20:00, 20:20-20:50, 21:00-21:50

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