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Larval habitats and distribution of *Culicoides segnis* (Diptera: Ceratopogonidae)

Биотопы развития личинок и распространение *Culicoides segnis* (Diptera: Ceratopogonidae)

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KEY WORDS: Ceratopogonidae, *Culicoides segnis*, larval habitats, new record, distribution.

КЛЮЧЕВЫЕ СЛОВА: Ceratopogonidae, *Culicoides segnis*, биотопы личинок, новая находка, распространение.

ABSTRACT: *Culicoides segnis* Campbell & Pelham-Clinton, 1960 is reared from the water margin zone (marsh floating shore of a lake) in Leningrad Province. The species is recorded for the first time from northern European Russia. Data on the known larval habitats and on the distribution of *C. segnis* are reviewed.

РЕЗЮМЕ: *Culicoides segnis* Campbell & Pelham-Clinton, 1960 выведен из зоны уреза воды (сплавина озера) в Ленинградской обл. Вид впервые отмечен с Севера европейской части России. Приведён обзор всех биотопов, в которых отмечалось развитие *C. segnis*, а также обзор данных по распространению этого вида.

Culicoides segnis Campbell & Pelham-Clinton, 1960 is a widely-distributed but not abundant species. It is known from ten countries in Central and Southern Europe [reviewed by Szadsiewski & Borkent, 2004]. In Northern Europe, the species was recorded from Denmark [Nielsen, 1963] and Finland [Delécolle et al., 1983]. In the European parts of the former USSR, *C. segnis* was recorded from Lithuania [Remm, 1966], Estonia [Remm, 1979], Belorussia [Trukhan, 1975], Ukraine [different regions: Shevchenko et al., 1973; Shevchenko & Zhdanova, 1976; Shevchenko, 1977], and several regions of European Russia [Ivanovo Province: Isaev, 1975; Pskov Province: Brodskaya, 1992]. Gutsevich [1973] and Glukhova [1989] listed this species from Siberia. In the collection of the Zoological Institute, St.-Petersburg, there are several males and females of *C. segnis* collected by Monchandsky near Krasnoyarsk (re-examined). In addition to these regions, Remm [1988] listed the species from Armenia, and recently, it was recorded from China [Yu et al., 2005].

In this paper, the first reliable record of *Culicoides segnis* is given from Leningrad Province and from northern European Russia (the latter region according to the Catalogue of Palaearctic Diptera: Soós & Papp, 1988).

NEW MATERIAL. 3 ♀, Russia, Leningrad Province, Vyborg District, Lake Bol'shoe Rakovoe, 60°37'N 29°25'E, water margin zone, site 1; all adults emerged 14.I.2002 from substratum collected 31.X.2001 (leg. A. Przhiboro, deposited in the Zoological Institute, St.-Petersburg). The substrata collected were kept at a temperature about 5°C till late November, and then were placed to 15–20°C.

Thus, the range of *C. segnis* extends from Western Europe to Eastern Asia, and from the northern to the southern parts of the temperate zone of the Palaearctic.

LARVAL HABITATS. The bionomics of *Culicoides segnis* is poorly studied. Larval habitats were recorded in several papers but, unfortunately, these data were not mentioned in major works reviewing the ecology of larvae of Palaearctic *Culicoides* [Gutsevich, 1973; Glukhova, 1979, 1989].

Apparently, Nielsen [1963] was the first who discovered larval habitats of *C. segnis*. He used conical field emergence traps installed on the ground and obtained five adults during June, from three sites in a boggy locality in Denmark (a reed marsh; a forested and an open bog, both dominated by *Sphagnum* and grasses).

Skierska [1973] reported on solitary larvae of *C. segnis* she collected in spring from wet habitats in three localities in Poland; in two localities, the habitats were reed stands. She also mentioned that larvae were recorded from marshy places in France, but gave no references.

Havelka [1976a, 1976b] recorded adults of *C. segnis* emerging since June till August from the rhithral zone of two streams in Germany. However, he used a greenhouse technique [Illies, 1971] that did not enable one to identify larval habitats with certainty. Probably, the larvae developed at the shores of the streams.

Szadziewski in a review of Polish *Culicoides* [1985] indicated that larvae of *C. segnis* occurred in the shores of reservoirs and also in moist soil; however, no references or original data were given.

Stöhr [1991] studied Ceratopogonidae from streams and adjoining wet habitats in northern Germany using

box- and roof-shaped field emergence traps installed on the ground. He was the first who discovered the habitat of mass emergence of *C. segnis*. The species was collected from four sites. At one of them, a forested wetland dominated by *Alnus glutinosa* (L.) Gaertn., *C. segnis* emerged since early June till late July and constituted 21% of the Ceratopogonidae adults. At three other sites (a marsh shore and two forested wetlands), only solitary adults emerged.

The habitat from which *C. segnis* has been reared by me is a marsh floating shore of the lake near the open water edge. The floating shore is about 100 m wide, thick, gradually turning into a bog. The substrata were collected from the points characterized by predominating *Calliergon cordifolium* (Hedw.) Kindb., *Carex* spp., *Glyceria* spp., *Meyanthes trifoliata* L., and *Comarum palustre* L. (total cover no less than 50% per m^2). The site abounds in mounds and small pools between them; a peaty turf of medium density and the litter layer have developed.

So, the larvae of *Culicoides segnis* develop in different-type non-flooded and short-term flooded freshwater wetland habitats. These habitats mostly include marshes, bogs, forested riparian wetlands, and shores of permanent water bodies. Apparently, overwintering takes place as late-instar larvae.

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