

## A NEW LOCATION OF TADPOLE SHRIMP (*TRIOPS CANCRIFORMIS* L.) IN LITHUANIA

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Tadpole shrimps (*Triops cancriformis* L.) were registered on 10 August 2007 and during the repeated observation on 8 September 2007 (Fig. 1). Only two habitats of this species of triops are known to exist in Lithuania (Rašomavičius 2007). To date no records of *T. cancriformis* have been reported from the northern part of Lithuania (Rašomavičius 2007). The habitat of these rare crustaceans (Red Data Book of Lithuania category 2 (V), MoE 2007) has formed in quite an unexpected place – at the sodden edge of a rape field situated at a distance of 5.5 m from the carriageway side (Fig. 2). From the viewpoint of administrative division, the habitat of *Triops cancriformis* L. is in Pasvalys region, on the left side of the No. 150 motorway (Šiauliai–Pakruojis–Pasvalys), 59.7 km from Šiauliai. The nearest settlement Meškalauskis lies 3.70 km south-west of the location. Coordinates of the location are 24°16'11.2" east longitude and 56°01'53.0" north latitude (error – 6 m). In the north of the habitat there is a 150 m wide tract of a rape field with a medium-aged mixed forest behind it. Approximately 50 m east of the habitat, there is a mature deciduous forest and a wheat field (*Triticum* sp. L.) to the south of it (on the other side of the above mentioned motorway).

Suitable conditions for the development of *T. cancriformis* in the rape field formed for several reasons, water accumulation being of the primary importance. The location is situated in the lowland of central Lithuania, in a moderate descent of the flat landscape relief, just 41 m above sea level. However, the presumption that the habitat is supplied with groundwater has to be ruled out, for 45 m north-east of the site there is a ~10 m wide and ~5 m deep drain ditch which drains underground water. The only source of moisture for this temporary water body is precipitation. Thus, the second prerequisite for the formation of the *T. cancriformis* habitat comes out. It is specificity of soil. According to Miliauskas and Nedzinskas (2000), soils in these areas are periodically dry. Hence, soil moisture regime is mainly preconditioned by the amount of precipitation. Surface layers of carbonate-rich

morenic clay loam and clay have formed a natural hydrological barrier (Galvydytė 2000). In 2007 the amount of precipitation was sufficient for the formation of a perennial puddle and development of *T. cancriformis* eggs. The fact that a number of water plants, plants of damp sites and algae managed to root and even to flourish there – some of them reaching generative and senile stages, proves that the terrain has been sodden for a long period of time (Vilkonis 2001). Among such plants the following should be mentioned: great reedmace (*Typha latifolia* L.), common reed-grass (*Phragmites australis* (Cav.) Trin. Ex Steud.), marsh woundwort (*Stachys palustris* L.), murr marigold (*Bidens tripartita* L.), marsh cranesbill (*Geranium palustre* L.), common water-plantain (*Alisma plantago-aquatica* L.), common mudwort (*Limosella aquatica* L.), muskgrasses (*Chara* sp.) (Gudžinskas 1999; Vilkonis 2001). The following water animals managed to inhabit the temporary water reservoir: pond scatter (*Gerris* sp.), great diving beetle (*Dytiscus marginalis* L.), and a lot of fire-bellied toads (*Bombina bombina* L.).



Figure 1. Tadpole shrimps (*T. cancriformis* L.) on 10 August 2007 (photo by R. Matulaitis).

The sodden terrain covers an area of 1,740.64 m<sup>2</sup>. If we eliminate the area of humps formed by agricultural machinery and rising above the water level, the totally submerged area will be equal to 900 m<sup>2</sup>. According to the data of the monitoring conducted on 8 September 2007, the deepest sodden site was only 20 cm deep. The density of *T. cancriformis* recorded on 10 August 2007 approximated 3 ind./1 m<sup>2</sup>. By 8 September 2007 the season of *T. cancriformis* development had nearly come to an end and only three individuals (females) were detected. The rest of them had already perished. The major part of the perished *T. cancriformis* had already decayed (their existence being witnessed by existent carapaces), while others were still decaying. Having surveyed the sodden territory, we estimated that the mean density of carapaces of the perished *T. cancriformis* fluctuated between 0 and 10 carapaces/1 m<sup>2</sup>. Taking into consideration the area of the submerged territory and the mean density of carapaces, we presume that in this location the *T. cancriformis* population could have reached 4,500 individuals in the course of the season.

Having measured bodies of five mature *T. cancriformis* individuals, we determined the following parameters: the mean length of the body (anterior/telson length) – 4.78 cm (with caudal rami – 7.46 cm), the mean width (at the widest part of the carapaces) – 2.28 cm, the mean length of the carapaces – 3.62 cm (Kelber 1998). During the monitoring conducted on 8 September 2007, on the bodies of all the three females we detected, thin-walled chitin capsules full of ruddy eggs laterally located on the 11<sup>th</sup> pair of legs. Each female has two



Figure 2. Location of *T. cancriformis* on 8 September 2007 (photo by R. Matulaitis).

capsules with approximately 140 eggs maturing in each of them. So, if all eggs were viable, a female would produce over 200 new individuals. As eggs can survive in silt for several years, in the next season we can expect a new abundance of *T. cancriformis* in the habitat, which we have found. The main sources of threat to the habitat are drought and the anthropogenic effect.

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