

A NEW RECORD FOR *THEOPHYLEA SUBCYLINDRICOLLIS* HLADIL, 1988 (COLEOPTERA: CERAMBYCIDAE) IN SERBIA

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Abstract

During field research in 2011 in Banat and Bačka only one male of *Theophylea subcylindricollis* Hladil, 1988 was found in a field northeast of Lake Palić. This is the third record of it in our country, with one of the two previous recorded sites destroyed by a building construction. This paper gives an overview of the factors threatening this strictly protected species in Serbia.

KEY WORDS: *Theophylea subcylindricollis*, protected species, Lake Palić

Introduction

Theophylea subcylindricollis is a small longhorn beetle, 7-10 mm in size, with a discreet blue metallic sheen. It is the only species of the genus *Theophylea* known in Europe where it has so far been recorded from: Russia (KRASNOBAYEVA, 2008), Ukraine (BARTENEV & TEREKHOVA, 2011), Republic of Moldova (CHYUBCHIK, 2010; SERAFIM, 2010), Romania (DASCALU, 2005), Slovakia (KALIVODOVÁ *et al.*, 2006; JENDEK & JENDEK, 2006), Serbia (PIL & STOJANOVIĆ, 2009) and Hungary (HORVATOVICH, 1992, KOVÁCS *et al.*, 2001; HEGYESSY & KOVÁCS, 2003; ROZNER & ROZNER, 2009, SAR *et al.*, 2009). Serbia represents the southwestern limit of the species' distribution range in Europe.

The species inhabits grasses and plant communities in the flooded areas of the forest-steppe region (CHEREPA NOV, 1990; HORVATOVICH, 1992), and also in the real steppes and steppes on loess (BARTENEV & TEREHOVA, 2011). Larvae develop in the stems of grasses, particularly in *Elymus repens* (KOVÁCS & HEGYESSY, 1995, DASCALU, 2005), *Poa angustifolia* and *Dactylis glomerata* (CSEHÓ, 2009). Adults have very short lives, living from mid May to June, and are weak fliers. According to REJZEK *et al.* (2001) adults also feed on *Elymus repens*.

A new species for Serbia recorded by PIL & STOJANOVIĆ (2009), it was found only at two localities in Vojvodina: in 2004 in a small meadow in the town of Novi Sad (which was subsequently destroyed by building construction) and in 2008 in a salty meadow along the southern edge of Okanj Lake. It is a strictly protected species in Serbia (REPUBLIC OF SERBIA, 2010).

Material and Methods

During 2011, the field studies were carried out in steppe and salty meadow habitats at 16 sites in Banat and north Bačka. A single specimen was collected with an entomological net in a depression west of the zoo (at the end of Riječka Street near Palić Lake). The identification was made using the key of BENSE (1995).

Results and Discussion

Given the distribution of the host plants in Vojvodina it was expected that this species would inhabit salty meadows and steppe habitats. However, in 2011 during our field research, this species was found only in one locality along Lake Palić (1♂, 12.05.2011., leg. N. Pil) (Fig. 1).

It is a spatially limited mosaic of ash swamps alternating with swampy type groves. In 1996, one part of the site had recently developed hygrophilous fresh meadows *Molinion caeruleae* Koch and *Orchis laxiflora palustris*. The recent field research did not confirm the presence of rare species of orchids in the above-mentioned locality, while the meadow vegetation community was represented by *Festucetum pratensis* Soó. This indicates that in the past 15 years the degradation and disappearance of the original vegetation of wet meadows occurred and probably the disappearance of the species *Orchis laxiflora palustris* as well. As part of meadow plant communities all the known host plants of *Theophylea subcylindricollis* were recorded.

Disturbing factors and protective measures

Since host plants for this longhorn beetle species are very widespread, it is unusual that *T. subcylindricollis* is so rare in our country. According to KONSTANTINOV *et al.* (2009) the main reason for the disappearance of primeval steppes is the expansion of agricultural land, which is certainly the greatest disturbing factor for this species in Serbia.

In order to preserve populations of *Theophylea subcylindricollis* it is necessary to preserve natural habitats like steppes because of the great impact of anthropogenic factors on habitats other than natural and seminatural ones where host plants can be found. The range of this species seems to coincide with the spread of steppe areas in the western Scythian biogeographic subregion (EMELJANOV, 1974), from Central Asia to the forest-steppe area of the Pannonian Plain (Fig. 2).

At the same time Vojvodina Province's Pannonian steppes are almost cut off from the eastern steppe region by the Carpathian massif, which leads this species here to a direct dependence on the conservation of steppe habitats. In Vojvodina, the less pronounced continental climate with small temperature amplitudes and higher humidity in the area of the Asian steppes has developed a special steppe vegetation of the loess and sand in the Pannonian province of Pontic South-Siberian region (STEVANOVIĆ *et al.*, 1999). The original steppe vegetation of Vojvodina is now largely destroyed, primarily due to the transformation of its habitat into agricultural land, and to a process of degradation caused by over-grazing, trampling, spread of invasive

species and pollution. Also responsible for the habitat destruction is the succession in the direction of shrubs due to the abandonment of traditional ways of using natural resources. The original steppe vegetation in Vojvodina survived mostly on soil types of poor quality (sand, salt marsh) in the form of more or less fragmented remnants (SZABADOS *et al.*, 2009) or in places unfavorable for soil cultivation and other common forms of land use (steep loess walls).



Figure 1. Locality of *T. subcylindricollis* finding in 2011, northwest of Palić Lake.

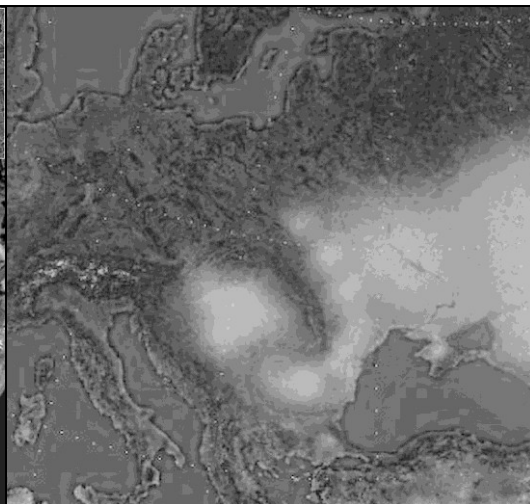


Figure 2. Propagation steppe area (whitish).
(source: http://upload.wikimedia.org/wikipedia/commons/7/79/Eurasian_steppe_belt.jpg)

Agricultural lands in Vojvodina were created at the expense of the steppes. The effects were most pronounced on the remains of steppe vegetation, which are surrounded by arable land and saline soils. The use of pesticides and fertilizers spreading through the wind and groundwater due to natural and steppe habitats, changing soil composition, botanical composition, and the use of insecticides is likely to impact the population of *Theophylea subcylindricollis*. Okanj Lake, for example, is surrounded by agricultural areas (Fig. 3).

The spread of the area of development of construction land adversely affects sites with relict steppe vegetation. Due to building construction, the first recorded steppe habitat of this beetle (Detelinara in Novi Sad) was destroyed. Also, the habitat near Palić Lake is under pressure from the construction of residential buildings nearby. Preservation of land use is a way to prevent the destruction of steppe fragments in Vojvodina.

The establishment of ecological corridors linking the steppe and salty meadows of Vojvodina is a solution to prevent the loss of this species in Serbia. Secondary steppe habitats, in abandoned vineyards and orchards, play an important role as ecological corridors linking isolated steppe fragments in the local ecological network.



Figure 3. Pressure of agricultural land to the coastal salty marshes of Okanj Lake.

References

- BARTENEV, A.F. & TEREKHOVA, V.V., 2011. Additions and comments to the fauna of longhorn beetles (Coleoptera, Cerambycidae) of Left-bank Ukraine and Crimea. The Journal of V.N. Karazin Kharkiv National University. Series: biology, Issue 13, No. 947, pp: 133-146. [in Russian]
- BENSE, U., 1995. Longhorn beetles. Illustrated Key to the Cerambycidae and Vesperidae of Europe. Margraf Verlag, Weikersheim, 512 pp.
- CHEREPANOV, A.I., 1990. Cerambycidae of Northern Asia-Lamiinae. Oxonian Press Pvt. Ltd., p. 300, New Delhi.
- CHYUBCHIK, V.YU., 2010. The annotated list of longicorn-beetles (Coleoptera: Cerambycidae) of Central Moldova. Russian Entomological Journal, 19(2): 111-118.
- CSEHÓ, G., 2009. Research of beetle fauna of the Danube-Drava National Park Gemenc and Béda-Karapancsa Region. Paeonia 2009 A Duna-Dráva Nemzeti Park Igazgatóság 2009. évi értesítője, 228 pp. [in Hungarian]
- DASCĂLU, M.M., 2005. *Theophilea subcylindricollis* Hladil, 1988 (Coleoptera: Cerambycidae) a new genus and a new species for Romania's fauna. Analele Științifice ale Universității "Al.I. Cuza" Iași, s. Biologie animală, Tom LI, pp.: 19-22.
- EMELJANOV, A.F., 1974. Proposals on the classification and nomenclature of ranges. Entomologicheskoe Obozrenie, 53: 497–522.
- HEGYESSY, G. & KOVÁCS, T., 2003. Data of the longhorn beetles fauna of southern part of Transdanubia (Coleoptera: Cerambycidae). Folia Historico Naturalia Musei Matraensis, 27: 161–196. [in Hungarian]
- HORVATOVICH, S., 1992. The Nature Conservation Area Karapancsa Béda-tail (Coleoptera: Cerambycidae). Dunántúli Dolgozatok Természettudományi Sorozat, 6: 133-140. [in Hungarian]
- JENDEK, B. & JENDEK, E., 2006. An analysis of the beetle conservation in the Slovakia based on the longicorn beetles (Coleoptera, Cerambycidae) as a model group. Folia faunistica Slovaca, 11(4): 15–28. [in Slovakian]
- KALIVODOVÁ, E., DAVID, S., ŠTEFFEK, J., KALIVODA, H., BULÁNKOVÁ, E., FEDOR, P., FEN, P., GAJDOŠ, P., HREŠKO, J., KAUTMAN, J., OLŠOVSKÝ, T., ORSZÁGH, I., ROLLER, L. & VIDLIČKA, L., 2006. Xerothermophilous habitats in Slovakia. Edícia Biosféra, 89 pp. [in Slovakian]

- KONSTANTINOV, A.S., KOROTYAEV, B.A. & VOLKOVITSH, M.G., 2009. Insect biodiversity in the Palearctic Region. *In*: Footitt, R.G. & Adler, P.H. (eds.): *Insect Biodiversity: Science and Society*. Blackwell Publishing Ltd., 642 pp.
- KOVACS, T. & HEGYESSY, G., 1995. Foodplants of Hungarian longhorn beetles (Coleoptera, Cerambycidae). *Folia Historico-Naturalia Musei Matraensis*, 20: 185-197. [in Hungarian, with English s.]
- KOVÁCS, T., HEGYESSY, G. & BORSOS, S., 2001. Somogy county longhorn beetles catalog. *Natura Somogyiensis*, 1: 213-220. [in Hungarian]
- KRASNOBAYEVA, T.P., 2008. The list of the Longicorn Beetles (Coleoptera: Cerambycidae) of Samarskaya Luka. *Russian Entomol. Journ.*, 17(3): 295-298.
- PIL, N. & STOJANOVIĆ, D., 2009. *Theophilea subcylindricollis* Hladil, 1988 a new longhorn beetle (Coleoptera: Cerambycidae) for Serbian fauna. *Acta entomologica serbica*, 14(1): 125-128.
- REJZEK, M., SAMA, G. & ALZIAR, G., 2001. Host Plants of Several Herb-feeding Cerambycidae Mainly from the East Mediterranean Region. (Coleoptera: Cerambycidae). *Biocosme Mésogéen (Nice)*, 17(4), 263-294.
- REPUBLIC OF SERBIA, 2010. Ordinance to designate and protect strictly protected and protected wild species of plants, animals and fungi. *Službeni Glasnik RS*, 5/2010.
- ROZNER, G. & ROZNER, I., 2009. Phytophagous beetles (Coleoptera: Phytophaga: Cerambycidae, Chrysomelidae and Bruchidae) collected on the Biodiversity Days at Gyűrűfű (Hungary). *Natura Somogyiensis*, 13: 119-126. [in Hungarian]
- SÁR, J., MERKL, O. & SZALÓKI, D., 2009. Data to the beetle fauna of a planting of red oak in Kétújfalu (Hungary, Baranya county)(Coleoptera). *Natura Somogyiensis*, 15: 102-115. [in Hungarian]
- SZABADOS, K., PANJKOVIĆ, B., KIŠ, A., STOJŠIĆ, V., DOBRETIC, V., TIMOTIĆ, D., DELIĆ, J., STANIŠIĆ, J., GALAMBOŠ, L., TUCAKOV, M., KICOŠEV, V., STOJNIĆ, N., PIL, N., KOVAČEV, N. & PERIĆ, R., 2009. The establishment of ecological networks in Vojvodina Province-examining, analysis and features. Institute for Nature Conservation of Serbia, Novi Sad, 97pp. [in Serbian]
- SERAFIM, R., 2010. The catalogue of the palaeartic species of Lamiinae (Coleoptera: Cerambycidae) from the patrimony of "Grigore Antipa" National Museum of natural history (Bucharest) (Part V). *Travaux du Muséum National d'Histoire Naturelle «Grigore Antipa»*, Vol. LIII, pp.: 235-272.
- STEVANOVIĆ, V., JOVANOVIĆ, S., LAKUŠIĆ, D. & NIKETIĆ, M., 1999. Characteristics of the flora of Serbia and its phytogeographic position on the Balkan Peninsula in Europe, *In*: Stevanovic, V. (eds.): *Red Book of Flora of Serbia*, Vol. 1. Ministry of Environment of the Republic of Serbia - University of Belgrade, Faculty of Biology - Institute for Nature Conservation of Serbia, Belgrade, pp.: 9-18. [in Serbian]

НОВИ НАЛАЗ ВРСТЕ *THEOPHYLEA SUBCYLINDRICOLLIS* HLADIL, 1988
(COLEOPTERA: CERAMBYCIDAE) У СРБИЈИ

НАТАША ПИЛ и РАНКО ПЕРИЋ

Извод

Током теренских истраживања у 2011. години у Банату и Бачкој пронађен је само један мужјак *Theophilea subcylindricollis* на ливади североисточно од Палићког језера. Ово је трећи налаз ове врсте код нас, с тим да је један локалитет налажења већ уништен градњом. У раду је дат и преглед угрожавајућих фактора за ову строго заштићену врсту у Србији.

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