

New data on the distribution of Large Golden Ringed Dragonfly (*Cordulegaster heros* Theischinger, 1979) (Odonata) in Zselic hills

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CSORDÁS, L., FERINCZ Á., LÖKKÖS A., ROZNER GY.: *New data on the distribution of Large Golden Ringed Dragonfly (Cordulegaster heros Theischinger, 1979) (Odonata) in Zselic hills.*

Abstract: The earliest record of this species is dated back to 2005. Intensive investigations, habitat mapping and ecological research of *C. heros* were started in 2008. Our researches were focused on the larval instars and also on the conservation of the habitats. Most of the discussed *C. heros* populations were strong with high abundance. In the present study, we publish the results of the records done in 2008 and 2009.

Keywords: Zselic, dragonflies, *Cordulegaster heros*, faunistic

Introduction

The Large Golden Ringed Dragonfly (*Cordulegaster heros* Theischinger, 1979) is our only one strictly protected dragonfly species included in the Hungarian Red Book and also on the red lists and red books of several other nation's as well. It is also a Natura 2000 indicator species.

Eralier, AMBRUS et al. (1996) and KOVÁCS et al. (2004, 2006) reported the species from Western Transdanubia and TÓTH (2004, 2006a) from Mecsek and Zselic Hills.

In the Zselic Hills, firstly, TÓTH (2006) reported the species from Szenna: Denna forest on 17th of March, 2005. Two larvae were collected in Mátyás-kút (Mátyás well). In the same place, imagoes and exuviums were collected on 5th of July, 2006 (TÓTH 2006). In 2007, one specimen was captured in Gyűrűfű, during the Biodiversity Days (TÓTH 2009).

In 2008, we started the investigation of the distribution and breeding places of the species. Later, we extended our investigations for the ecology and general habitats as well.

Imagoes, are able to fly far from their breeding habitats and occur in distant places which are not suitable for reproduction.

For nature conservation point of view, the conservation of the breeding habitats is the most important, therefore we focused on these. In the present study, we discuss the collectings done in 2008 and 2009.

Methods and material

Imagoes were collected with 50 cm diameter net. After catching and identification, all imagoes were released. For exuviums, we checked the shoreline vegetation, tree trunks, bushes and artificial objects as well. For collection of larvae, we used 30 and 40 cm steel nets, depending on the size and depth of the waterflows.

Garmin Geko 201 and Trimble Juno ST GPS receivers used for localization and ArcPad software for data fixation. Data were processed with ArcGIS 8.0 software.

Results

The results are communicated in the following order: village, locality, date, (EOV X-coordinate, EOV Y-coordinate (Hungarian Grid)), number of individuals and stage of development.

Abbreviations:

larv. – larva

ex. – exuvium

* - these coordinates are not precise, only indicative. They mark the extension of the sampling site.

Imagoes:

Szena: Mátyás-kút, 23. 06. 2008., (Eov 545607, 101319)*, 2, 16. 06. 2009, 3, Gálosfa: Csepegő-forrás, 25. 06. 2008., (Eov 563240, 99298)*, 2, Kaposvár: Gyertyános-völgy, 17. 07. 2008., (Eov 553438, 110334), 1, Tormás: Hajnal-kút, 17. 07. 2008., (Eov 566790, 93694), 1, Ibafa: Gyertyán-kút (Sormás-patak), 17. 07. 2008. (Eov 567034, 91267)*, 4.

Larvae and exuviums:

Bükösd: Gorica, (Rudolf-kút), 22. 07. 2009 (Eov 569430, 88853), 1 larv., (Eov 569470, 89309), 1 larv., Dinnyeberki: Sándor-árok, 11. 10. 2008, (Eov 564042, 85526), 1 larv., 18. 06. 2009., (Eov 564036, 85379), 1 larv., Dinnyeberki: Isten-kút, 11. 10. 2008, (Eov 564000, 85482), 2 larv., Ibafa: Gyertyán kút (Sormás-patak), 10. 11. 2008., (Eov 566743, 91157)*, 4 larv., Ibafa: Gyertyánkút (Sormás-patak), 04. 03. 2009, (Eov 566971, 91232)*, 9 larv., 04. 03. 2009., (Eov 566738, 91085), 2 larv., Ibafa: Gyűrűfű (Isten-kút), 08. 03. 2009., (Eov 563997, 85481), 1 larv., Ibafa: Gyűrűfű (Sándor-patak), 08. 03. 2009, (Eov 564193, 86066)*, 6 larv.,; (Eov 564037, 85530), 4 larv., Ibafa: Sormás-patak, 18. 06. 2009., (Eov 566702, 90769)*, ex., 17; Szena: Mátyás-kút, 23. 06. 2008., (Eov 545838, 101355)*, 13 ex., 17. 07. 2008, (Eov 545882, 101424), 1 ex., 09. 03. 2009., (Eov 545911, 101564)*, 49 larv., (Eov 545896, 101461)*, 9 larv., 16. 06. 2009. (Eov 545736, 101372)*, 14 ex., 30. 06. 2009, (Eov 545784, 101327), 1 ex., Zselickisfalu: Kardosfa-puszta, Márcadó-árok, 16. 06. 2009., (Eov 550432, 99923), 1 ex., 1 larv.

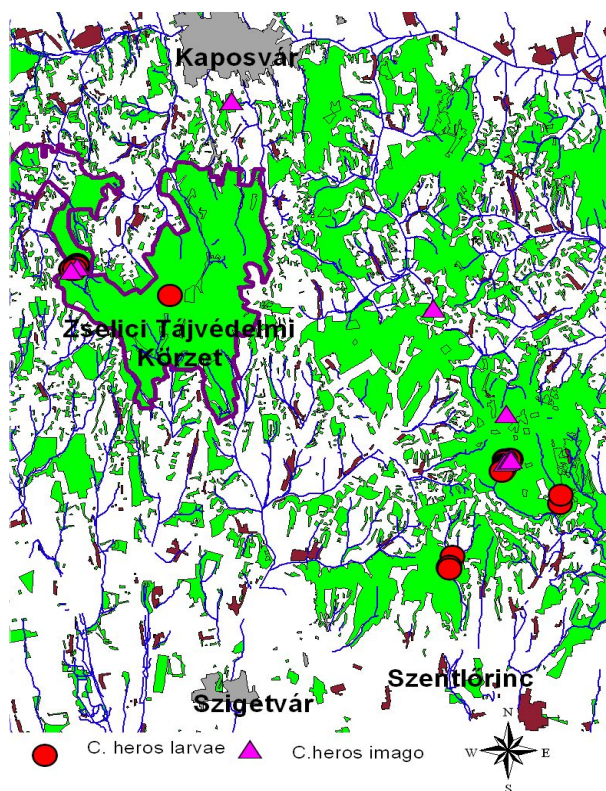


Fig. 1: Larva and imago collected data in Zselic hills

Discussion

There are several significant differences between brooks of the Northern and the Southern Zselic. The Southern brooks have high and constant flowrate till the Northern brooks have low and fluctuating, most of them get dry time by time. Since the larva of *Cordulegaster heros* has long, even 5 years development period, the species has need brooks with constant waterflow.

- The dragonfly populations are strong in the brooks of South Zselic like Sormás-patak or Sándor-árok. In future, further habitats are likely to be discovered in this region. .

- In the northern area, waterflows have fluctuating flowrates and frequently dries out. Protection of these habitats are still important, since minor populations were also detected here and in wet climatic periods, these habitats may maintain small populations. Good example for this the Márcadó-árok. This brook is very small, its water-depth is only few centimeters, 20-30 cms wide and its total length on surface is not longer than 100 m. Even in this small brook, we were succeed to find exuvium and larva as well. Based on the small number of larvae and exuviums found, the population density could not be larger than 1 or 2 specimens in this 100 m section. In spite of small population density, the protection and conservation of these minor habitats is still important. This finding

calls for further research of the minor watercourses of the region like Csepegő-forrás (Csepegő spring) or Gyertyános-völgy (Gyertyános Valley) near Kaposvár.

The present populations of the Large Golden Ringed Dragonfly (*Cordulegaster heros* Theischinger, 1979) is strong with locally high abundance. For the conservation of this, we propose the followings:

The breeding habitats shall always be covered by forest. The clear cutting of forests shall be prohibited in these areas. On the habitats of the strongest populations, forest reservations shall be established. Selective woodcutting is proposed for the other habitats of the dragonfly.

Larvae are sensitive for drying and hardly able to escape from direct radiation. Therefore, the forest-cover of these areas shall be protected. Furthermore, the flowrates of the brooks shall always be checked and done the maintenance work whenever necessary.

Larvae could not live in slow water with low oxygen level. Therefore we should preserve the original condition of the watercourses and also keep them free of toxic materials and agricultural nutrition.

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References

- AMBRUS A., BÁNKUTI K. & KOVÁCS T. 1996: Lárva és imágó adatok Magyarország Odonata faunájához. - *Odonata stadium larvae* 1: 51-68.
- KOVÁCS T., AMBRUS A., JUHÁSZ P. & BÁNKUTI K. 2004: Lárva és exuvium adatok Magyarország Odonata faunájához. - *Folia historico-naturales Musei Matrensis* 28: 97-110.
- KOVÁCS, T., AMBRUS, A., JUHÁSZ, P. 2006: Lárva és exuvium adatok Magyarország Odonata faunájához II. *Folia Historico Naturalia Musei Matraensis* 30: 167-179.
- TÓTH S. 2004: Komló környékének szitakötő-faunája, III. A mecsekpölöskei horgásztó szitakötői (Odonata). - *Folia comloensis* 13: 79-86.
- TÓTH S. 2006a: A Mecsek szitakötői (Odonata) - *Folia comloensis* 15: 35-42.
- TÓTH S. 2006b: A ritka hegyiszitakötő (*Cordulegaster heros* Theischinger, 1979) előfordulása a Zselicben, *Natura Somogyiensis* 9: 141-144.
- TÓTH S. 2009: Gyűrűfű szitakötő (Odonata) faunája a Biodiverzitás Napok gyűjtései alapján *Natura Somogyiensis* 13: 77-80.