

# An unexpected recapture of European pond turtle *Emys orbicularis* (Linnaeus, 1758) in the Barcs Juniper woodland (Hungary)

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PURGER, J. J., & MOLNÁR, T. G.: *An unexpected recapture of European pond turtle *Emys orbicularis* (Linnaeus, 1758) in the Barcs Juniper woodland (Hungary).*

**Abstract:** Little is known about the lifespan of free-living freshwater turtles in Hungary, because no long term monitoring has been conducted with such purpose. We captured a European pond turtle with markings on its carapace, at the dam of the lakes along the Rigóc stream in the Barcs Juniper woodland area on June 9, 2022. This female had been marked 16 years earlier, on July 17, 2006 in the framework of a genetic research project. At the time of marking it was 10 years old based on its growth rings, body mass was 630 g and carapace length was 151.6 mm. This individual was recaptured only 75 meters away from the place where it had been marked, thus it has been living in the same place for at least 26 years.

**Keywords:** basking, habitat fidelity, lifespan, sexing, Somogy County, wetland

## Introduction

The European pond turtle (*Emys orbicularis*) is a long-living freshwater turtle native to the Western Palearctic (FRITZ 2003). Their lifespan can reach up to 40-50 years (GIBBONS 1987, SCHNEEWEISS 2004), and some estimate that they can live even longer (ROGNER 2009). However, data on the real age and survival chances of free-living individuals can only be collected through long-term monitoring, which is an increasingly difficult task. One of the most important factor is the vulnerability and rapid disappearance of wetlands. European pond turtles in Hungary primarily populate suitable wetlands (see FARKAS 2000, PUKY et al. 2005, KOVÁCS 2014, HUNGARIAN NATIONAL AMPHIBIAN AND REPTILE MAPPING PROGRAM 2022). During nearly two decades of work carried out within the frame of the Hungarian Biodiversity Monitoring System in five of the nine examined regions slightly more than 500 specimens were observed, but no marking of individuals was done (KISS et al. 2019). Due to the planned construction of a hydroelectric power plant along the upper section of the Drava River, baseline study began in 2000, but monitoring lasted only a few years (e.g. KOVÁCS 2002, KOVÁCS & ANTHONY 2005). However, from 2017 Duna-Drava National Park Directorate has provided background for the monitoring of turtles in the wetlands along the Drava River. The aim was to collect data on the occurrence of the European pond turtle and monitor the occurrence and spread of alien turtles.

This work aimed to highlight the importance of capturing, marking and recapturing turtles since this is the only way to obtain reliable data on their survival chances and age structure.

## Material and methods

The Barcs Juniper woodland is a habitat complex of sand area and marshlands with special natural values. It is situated in Somogy County and belongs to the Duna-Drava National Park. The wetlands of the Barcs Juniper woodland attracted the attention of herpetologists in the seventies of the 20th century, and they reported a large population of European pond turtles in the area (KÁRPÁTI 1980, MARIÁN 1981). The largest natural wetland in the area is Nagyberek, though along the Rigóc stream an approximately 70-hectare fishpond system was built in the 1930s. Fish farming ceased in the 1980s, allowing the pond units to gradually lose their open water surfaces and become marshy (FENYŐSI & HORVÁTH 2004). The dams are regularly maintained and mowed by the employees of Duna-Drava National Park Directorate which provide suitable egg-laying places for turtles. Monitoring of the European pond turtle as a NATURA 2000 indicator species has been ongoing since 2018. We have been surveying the lakes along the Rigóc stream in the Barcs Juniper woodland area 3-4 times a year to collect occurrence data on the turtles living there and documenting the predated nests in the egg-laying places on the dams.



**Fig. 1: The habitat of the marked and recaptured European pond turtle, Aranyospusztai Pond, 9th July 2022 (Photo: J. J. Purger)**

## Results and discussion

During the survey along the Rigóc stream in the Barcs Juniper woodland area on 9th June 2022, we captured a European pond turtle on the dam of the Aranyospusztai Pond (Fig. 1).

Signs of marking were found on the left front and right back edges of the carapace of the female individual (Fig. 2). Based on the markings, it was proven that we recaptured one of the 21 turtles which were captured for genetic testing in the area in 2006 (MOLNÁR et al. 2011). The turtles were marked to avoid repeated tissue sampling from the same individual. The turtle recaptured in 2022 was identified as a female having the number 9; its body weight at the time of marking (on July 17, 2006) was 630 g, and its carapace length was 151.6 mm. Unfortunately we did not have the resources needed to repeat these measurements for comparison. The location of the capture and marking (46.006947 17.547611) was only 75 m away from the location of the recapture (46.007550 17.547251), which is not surprising, as European pond turtles are characterized by habitat fidelity (ESCORIZA et al. 2020).

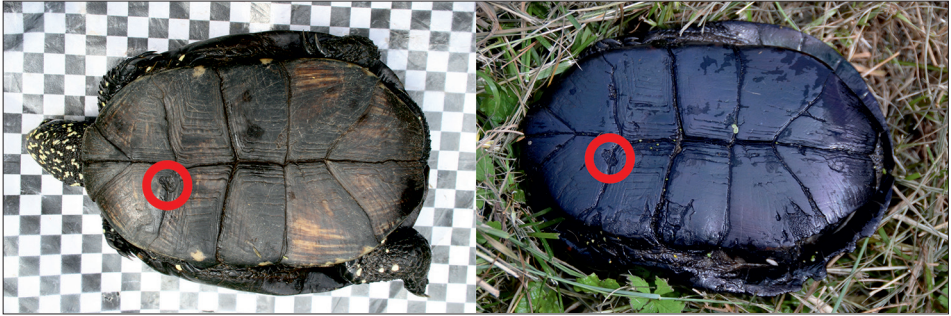


**Fig. 2:** The marked European pond turtle individual was basking on the mowed dam of the Aranyospusztai Pond on 9th July, 2022 (Photo: J. J. Purger)

The sex of young pond turtles cannot be determined with certainty before they are four or five years old (ROGNER 2009), but their age can be estimated with the help of growth rings (e.g., WILSON et al. 2003, MITRUS 2009). Based on these signs, the female turtle was ten years old at the time of capture (Fig. 3), which means that it has been living in the same place for at least 26 years. Female turtles generally live longer than males and more often reach 30 years of age (e.g., SCHNEEWEISS 2004, ESCORIZA et al. 2020).

There is limited information on the age structure of the Hungarian pond turtle populations and the survival chances of adult individuals, as well as on their lifespan (PUKY et





**Fig. 3: Some of the injuries on the plastron of the female European pond turtle were identified already on the day of the marking: left picture 17 July, 2006 (Photo: T. G. Molnár), right picture 9 July, 2022 (Photo: J. J. Purger)**

al. 2005, Kovács 2014), which is why this observation is significant. Due to the high level of habitat fidelity of the European pond turtles, it is very important to preserve wetlands and monitor the development of local populations. All of this is particularly relevant to the Barcs Juniper woodland, since the larger ponds and most of the other wetlands have completely dried up over the past several years, and the water level of the Aranyospusztai Pond, where the turtle we recaptured lives, has fallen below the critical level. If the drying process continues, the ponds and also the turtles will certainly disappear from this area.

### Acknowledgment

Mobility for the research was facilitated by Duna-Drava National Park Directorate - Drava Monitoring Programme.

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