

The European pond turtle *Emys orbicularis* (L.) in Hungary

B. FARKAS

Abstract

The current knowledge about the European pond turtle *Emys orbicularis* (L.) in Hungary is summarized. Although large self-sustaining populations still seem to exist, *E. orbicularis* is more and more exposed to a decreasing availability of suitable habitats. Detailed autecological studies are missing. In recent years, several conservation and monitoring programs were initiated for this protected species.

Key words

Testudines: Emydidae: *Emys orbicularis*; Hungary.

Taxonomy

The taxonomic status of Hungarian pond turtles remains questionable. According to FRITZ (1992), FRITZ & OBST (1995), and FARKAS et al. (1998), specimens of the so-called Danube population are distinct morphologically (considerably smaller and lighter in colouration) from northern conspecifics assign-

Fig. 1:
Dark-coloured male from the Boronka landscape protection area, Dúna-Drávy National Park
(Photo: B. ÚJVÁRI).

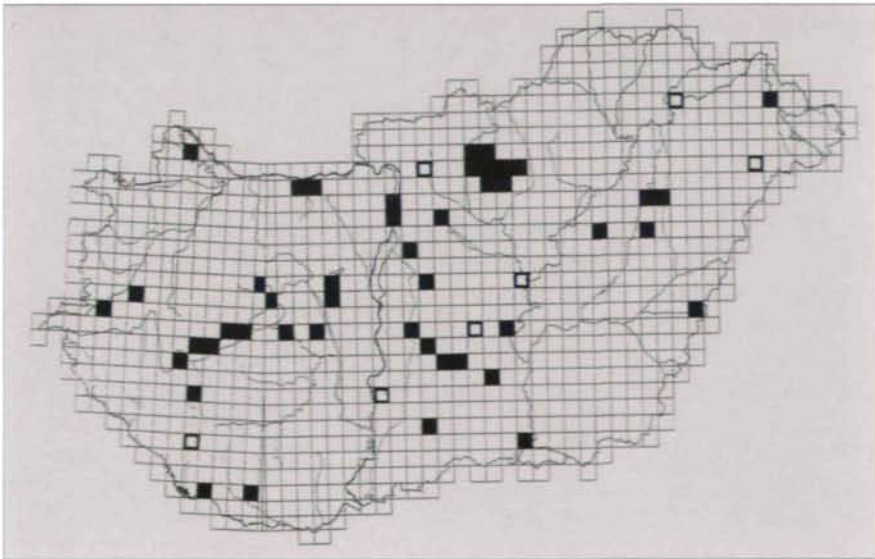


Fig. 2:
Distribution of *Emys orbicularis* in Hungary, modified after BAKÓ et al. (1992). Open squares represent "old" (up to 1970), filled squares "new" or "newly confirmed" (after 1970) records.

ned to *Emys orbicularis orbicularis* (LINNAEUS, 1758). However, LENK et al. (1998) have shown that some populations in the western part of the range occupied by the nominate form share the same mitochondrial haplotype with the Danube population. In case the latter population will be given subspecific rank in the future, the name *E. o. sparsa* (DURIGEN, 1897) must be applied (FRITZ 1998).

Morphology

According to DELY (1978), in Hungary males of the European pond turtle grow to 111.7-195.0 mm carapace length (CL), while females reach 101.8-173.2 mm CL, whereas in most other parts of the distribution area females are larger than males. The largest male reported by FARKAS et al. (1998), deposited in the Magyar Természettudományi Múzeum, Budapest, measures 164.0 mm CL, while the CL of the largest available female is 183.0 mm, corresponding fairly closely with data provided by RÖSSLER (1999) for an Austrian population.

As suggested by FARKAS et al. (1998), European pond turtles from Hungary are generally lighter in colouration than northern conspecifics. Especially females tend to possess a predominantly yellow plastron and throat. The iris of males is often reddish.

Distribution and habitat

Most Hungarian authorities consider *E. orbicularis* (Fig. 1) a widely distributed species that occurs in "almost all flatland stagnant and flowing waters with a slow current" (DELY 1978). Habitats in Hungary include ponds and lakes, irrigation channels, side-arms of rivers, swamps, marshes and their vicinity. Fish ponds often harbour substantial populations of pond turtles. According to DELY (1996) "it is not present at higher altitudes unless the water bodies inhabited by it have a muddy or sandy bottom". There are records from altitudes of 280 - 300 m in the Pilis (Csikos- and Rekettyés-tó, SZABÓ 1955; Csikóvári-tó, Cs. GULYÁS KIS pers. comm.), the Bakony (Gyula-firátót, MARIÁN 1988) and the Mátra mountains (Gyöngyösoroszi, SOLTÍ & VARGA 1984), but these populations seem to have been introduced and are probably extinct today (with the likely exception of that of Csikóvári-tó), as are those that formerly occupied the great Hungarian plain (MARIÁN 1998). It is also speculated that *E. orbicularis* from Lake Balaton was at least in part introduced (cf. MARIÁN 1998). BAKÓ et al. (1992) suggested that the distribution area of *E. orbicularis* in Hungary is relatively well known (Fig. 2).

Although new sites became known, recent data suggest that populations are seriously declining throughout the country. *Emys orbicularis* has disappeared e.g. from huge parts of the Kiskunság National Park (Figs. 3, 4) within a few decades. Most interestingly, it does not seem to thrive even under apparently optimal conditions (PÉCHY & HARASZTHY 1997).

Fossil records

Pleistocene remains assigned to *E. orbicularis* are known from Dunaalmás, Kisláng, Budapest and Uppony (SZALAI 1934, MEYNARSKI 1966, FRITZ 1995). Subfossil material of this species has been recovered from e.g. Avar and Longobard cemeteries in Balatonszékplak-felső, Bányog and Vörs, respectively (DELY 1952, 1965, FRITZ 1996). *Clemmys mehelyi* KORMOS, 1911, for a long time considered a synonym of *E. orbicularis*, described from the Early Pleistocene of Süttő, was shown by FRITZ & FARKAS (1996) to belong to the genus *Clemmydopsis*.

Population size

No estimates are available about the size of current populations, neither on a regional nor local level (KORSÓS 1997). Nevertheless, PÉCHY & HARASZTHY (1997) believe the country population as a whole to be sufficiently large and sustainable for long-term viability.

Fig. 3: Basking European pond turtle in its habitat at Dubas, Kiskunság National Park (Photo: Z. Korsós).



Fig. 4: Adult female *Emys orbicularis* from Dabas, Kiskunság National Park (photo A. GÖR).

Habits and ecological aspects

No comprehensive biological and ecological studies have ever been performed on European pond turtles in Hungary. Observations on the local natural history is included in more general faunistic literature.

According to DELY (1978), the activity period of *E. orbicularis* lasts from mid-April

Fig. 5). RÖSSLER (1999) reported that in Austria hatchlings occasionally hibernate in the nest and leave their underground chamber by early April at the latest.

Mating (Fig. 6) takes place in May, when "males are fiercely fighting for their dominance" (PÉCHY & HARASZTHY 1997). However, MARIÁN & SZABÓ (1961) observed mating pond turtles all summer in their study area at Lake Baláta in the vicinity of Somogyzomb. They concluded that the location of nests depended on the humidity of the soil and thus its relative elevation, its compactness, and its orientation. In drier areas particularly favoured by females, nests were sometimes located only a few centimeters from each other. Nesting chambers were 80-90 mm in depth and 70-80 mm in width. The uppermost eggs were covered by an approximately 50 mm thick layer of sand. In the area concerned, nesting activity was observed in June and, more rarely, in the first days of July. The number of eggs per nest was 4-9 (6 in average). Eggs measured 30-41 mm in length and 17-23 mm in width, and hatched in August or September. Hatchlings had a CL of 23-26 mm, a plastron length of 19-23 mm, and a tail length of 17-20 mm. Their mass was 2.7-3.5 g. Elsewhere in Hungary, the maximum number of eggs per nest is given as 11 (DELY 1978) or 12 (PÉCHY & HARASZTHY 1997), which is less than reported by RÖSSLER (1999) for an Austrian population (min. = 10, max. = 15). The average CL of Austrian hatchlings (2.65 mm) closely matches that of the Somogy hatchlings, while the average mass (5.26 g) significantly surpasses that given by MARIÁN & SZABÓ (1961).

MARIÁN & SZABÓ (1961) suggested that at the end of July or early in August a second clutch might be produced, but did not indicate whether these eggs might hatch in the same or in the subsequent year.

Predators include badgers (*Meles meles*), foxes (*Vulpes vulpes*), wild boars (*Sus scrofa*) and feral dogs (*Canis lupus familiaris*) that mainly prey on eggs and hatchlings, while adults are occasionally hunted by white-tailed eagles (*Haliaeetus albicilla*) (MARIÁN & SZABÓ 1961, DELY 1978, PÉCHY & HARASZTHY 1997).

Fig. 5:
Hatchling, photographed early May at Dabas, Kiskunság National Park (Photo: Z. Korsós).



Fig. 6:
Mating European pond turtles photographed in situ at Dabas, Kiskunság National Park. Note reddish iris of male (Photo: A. Gör).

until late October or early November, whereas PÉCHY & HARASZTHY (1997) recorded active pond turtles as early as 8 March (1997) at Kunadacs. The first basking individuals at Ócsa were observed on 15 March (1993, 1994) (pers. observ.), while at Dabas a hatchling showing no sign of growth was seen moving around on land on 9 May (1997;

No other birds, such as crows (*Corvus* spp.) have been reported as predators of pond turtles (as suggested by RÖSSLER [1999] for an Austrian population) in the Hungarian literature.

Conservation

Like all other reptile species native to Hungary, *E. orbicularis* is protected by law. Its "theoretical value" (i.e. the penalty to be paid when harming a single specimen) increased to HUF 10,000 (approximately ATS 555) in 1993 (source: Magyar Közlöny 1993/36. "A környezetvédelmi és területfejlesztési miniszter 12/1993. (III.31.) KTM rendelete a védett és fokozottan védett növény- és állatfajokról..."). While this law protects individual turtles it offers no protection against habitat destruction or alteration (cf. CORBETT 1989).

The European pond turtle mainly became endangered due to the disappearance of wetlands (KORSÓS 1997). BÁLDI et al. (1995), on the basis of a ranking system developed after MILLSAP et al. (1990), list *E. orbicularis* among the 74 most vulnerable terrestrial vertebrates in need of specific conservation action. However, PÉCHY & HARASZTHY (1997) believe that there is no need for such action (apart from the protecting of habitats), because the population as a whole is self-sustaining. With the permission of the National Authority for Nature Conservation of the Ministry of Environment, specimens were recently exported to Slovakia for a re-introductory project. Also WWF-Austria released a number of confiscated pond turtles illegally imported from Hungary (M. RÖSSLER in litt.).

Current projects

The "Toad Action Group" declared 1999 the "Year of the European Pond Turtle". However, no actual work was carried out, either because the fund-raising efforts were unsuccessful or the available financial resources were soon depleted (R.B. SALLAI pers. comm.). A mapping program initiated by the same group, supposedly logistically supported by "Nymphaea Egyesület" (= society), Túrkeve, has the task to investigate the River Ipoly,

Lake Velence, the Hortobágy-Berettyó regions, as well as the Körös river system. The aim is to identify egg-laying sites, to pinpoint possible sources of danger to the individual populations, and to set up educational projects.

Another program started 1998 by the Hungarian Ornithological and Conservation Society, Budapest, provided initial financial support for the location of suitable habitats and viable populations of European pond turtles in the Fertő-Hanság National Park, particularly in the vicinity of lake Fertő (= Neusiedlersee), but this project could not be continued in the subsequent year.

Studies conducted in the framework of the PHARE project No. HU 9203-W1/7/1992 "National Biodiversity Monitoring System", should concentrate on mapping at the country or regional level, and support local monitoring of populations inhabiting selected ponds, observation of individuals, and basking, nesting and overwintering sites (KORSÓS 1997).

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Zusammenfassung

Der gegenwärtige Kenntnisstand über die Europäische Sumpfschildkröte in Ungarn wird zusammengefasst. Obwohl große, lebensfähige Populationen existieren, nimmt der Lebensraum von *E. orbicularis* zunehmend ab. In den vergangenen Jahren initiierten mehrere Naturschutz- und Monitorprogramme Maßnahmen zum Schutz dieser bedrohten Tierart.

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Address of the Author:

Balázs FARKAS
Magyar Természettudományi
Múzeum Állattára
Pf. 137
H-1431 Budapest, Hungary.
e-mail: farkas@zoo.zoo.nhms.hu

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