

The European pond turtle in Romania

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THREATS:

Present situation:

In Romania *Emys orbicularis* has been the target of very few herpetological studies. In the most comprehensive list of herpetological publications, which comprise the works of 19th and 20th century authors, of 825 titles just 6 titles dealt exclusively with *E. orbicularis* (COGĂLNICEANU & ANDREI 1992, ANDREI & TÖRÖK 1997). The species is considered common where suitable habitats exists (FUHN & VANCEA 1961, FUHN 1969, KISS 1985, IFTIME 2005) and, respectively, relatively rare, where its habitat requirements are not optimally fulfilled (e.g. COVACIU-MARCOV et al. 2006). Most faunistic studies report the presence of the species based on a few observed specimens, without or with only scarce ecological observations. Recent comprehensive herpetofaunistic treatments of Transylvania consider *E. orbicularis* rare in this part of the country (GHIRA et al. 2002). From a total of 1046 investigated localities belonging to 14 counties the presence of *E. orbicularis* was proven for only 187 (GHIRA et al. 2002). The comparison is relative as not all localities provide suitable habitats for the species. The greatest abundance of pond turtles was reported for the Danube Delta (FUHN 1971, TÖRÖK 1998). Although no nation-wide population survey has ever been carried out, the Romanian population is estimated to comprise "perhaps tens of thousands of specimens" with its status considered vulnerable and regionally declining (IFTIME 2001, 2005). However, the actual situation is poorly known.

Predation on eggs:

According to FUHN (1971) and KISS (1982, 1985) the hooded crow (*Corvus cornix*) raids the nests of pond turtles. The signs of such lootings are frequently observed throughout the Danube Delta. Another predator listed is the East European hedgehog (*Erinaceus concolor*; KISS 1982, 1985). According to IFTIME (2005) birds (not specified), feral dogs and foxes (*Vulpes vulpes*) also feed on turtle eggs. On floodplains the frequent changes of water level could be a real threat to nests. Females lacking

nesting sites due to flooding were observed using haunts in willows (*Salix* spp.) filled with earth and other organic material (ANTIPA 1911). These unusual nesting sites are even safer, at least concerning attacks by terrestrial predators.

Predation on juveniles:

According to different authors juveniles fall victim to fish (IFTIME 2005), such as pikes (*Esox lucius*) and other predatory species (KISS 1985), birds (not specified; IFTIME 2005), such as *Corvus* sp., *Ciconia* sp., *Ardea* sp. (KISS 1985) and pheasant (*Phasianus colchicus*; Sz. J., Daróczy, pers. comm.), mammals, such as *Rattus* sp. (KISS 1985), otters (*Lutra lutra*; FUHN 1969), raccoon dogs (*Nyctereutes procyonoides*; KISS 1985), foxes (*V. vulpes*; KISS 1985, IFTIME 2005) and feral dogs (IFTIME 2005). It is unknown whether these reports are based on actual observations or have merely been extracted from literature. KISS (1982, 1985) and KISS et al. (1997) did not report on the evidence of *E. orbicularis* remains in the stomach contents of investigated birds from the Danube-Delta.

Predation on adults:

IFTIME (2005) states that fully grown turtles have no natural enemies. In 2007, I found a mutilated adult turtle on the beach of Vadu (Eastern Dobruđa) that carried bite marks caused by some mammalian predator.

Habitat destruction:

Deterioration and destruction of habitats result from water management activities, such as damming, regulation, drainage, etc. (IFTIME 2001, 2005). As reported in 1993, over 80% of the Danube Valley area and 17% of the Danube Delta were lost due to such activities during the last 30 years (COGĂLNICEANU & VENCZEL 1993). As these zones represent the hot spots of *E. orbicularis* occurrence in Romania, a drastic population decline could be predicted. Furthermore, habitat losses on a smaller scale occur throughout the country (see e.g. SOS 2007a). The expansion of industrial, residential and touristic in-

frastructure is another factor negatively affecting *E. orbicularis* habitats (IFTIME 2001). In several cases hydrotechnical and hydroenergetical constructions could contribute to the increase of populations (COGĂLNICEANU & VENCZEL 1993), but the destruction of neighbouring wet habitats, and the lack of suitable nesting sites work against these positive effects. Industrial, agricultural and domestic pollution of water is another poorly-understood factor limiting the distribution of the species in Romania (IFTIME 2001, 2005). By retreating into small river valleys as a refuge, turtles become extremely vulnerable (GHIRA et al. 2002).

Human consumption:

In the feudal system (e.g. in the 17th century), building and maintaining turtle ponds and delivering specimens to the landholder, as a sort of tribute, were considered serfs' obligation (KISS 1985, FARKAS 2003). Apparently, *E. orbicularis* was a rare delicacy reserved for nobles (KISS 1982, 1985). The 17th century cookbook of the Mother Superior of Transylvania, Anna Bornemissza, featured eight exclusive recipes for preparing *E. orbicularis* dishes (BORNEMISSZA 1680). At that time turtles were collected even for healing purposes. The dried turtle was used for curing pulmonary diseases, such as tuberculosis (KISS 1982, 1985). No data on turtle consumption in present times are available.

Collecting for trade:

Despite being illegal, specimens can occasionally be found in petshops (see below), but their numbers there have decreased in recent years (pers. obs.). However, on local markets, where the law is even less enforced, wild-caught specimens still appear (IFTIME 2005, e.g. in Bucureşti, Timiştara, Iaşi, Suceava; V. Cioflec, L. Pârvolescu, A. Strugariu, pers. comm.).

Other human influences:

People most frequently encountering *E. orbicularis* are fishermen and anglers, who often cause deliberate or accidental death to the animals. Turtles frequently get entangled in nets used for fishing, e.g. in the Danube Delta (KISS 1982, 1985, IFTIME 2005). Specimens are occasionally killed when crossing frequented roads (L. Pârvolescu, K. Kiss., pers. comm., pers. obs.). A practice posing a real threat to local *E. orbicularis* populations is seasonal reed bur-

ning. In 1992, near Cefa (Bihar district, northwestern Romania) more than 100 specimens died as a result of this activity (COGĂLNICEANU & VENCZEL 1993). Recently, in 2007, a single burning of an approximately 2-3 ha area in the Histria-Sinoe lagoon system (East Dobruja) caused the death of at least 108 turtles (S. Grigore, pers. comm.).

Additionally, red-eared sliders (*Trachemys scripta elegans*) released in the wild may compete with *E. orbicularis* contributing to its local decline. This alien species is already present in large rivers, such as Dâmboviţa (Cioflec, V., pers. comm.), Someş (A. Mihalca, pers. comm.), Târnava Mare (Hartel, T., pers. comm.), Mureş (L. Köbölkuti, pers. comm.) and the backwaters of the river Olt (I. Urák, pers. comm.). The most critical zone is certainly the Danube Delta, where the presence of the *T. s. elegans* was reported from near Tulcea. Because of its adaptability this species is likely to survive and to establish itself in the Danube Delta (SOS 2007b).

Another threat represented by *T. s. elegans* was revealed by recent bacteriological investigations on both species (L. Köbölkuti and G. Cziráj, pers. comm.). A comparison of the cloacal bacteriological flora of specimens kept together at the Târgu-Mureş Zoological Garden and from a native *E. orbicularis* population revealed that sliders could potentially serve as a vector in transmitting diseases to *E. orbicularis*. *Klebsiella* spp., *Serratia* spp. and *Citrobacter* sp. were reported to be common in the bacterial flora of *T. s. elegans*, causing septicemic cutaneous ulcerative disease (SCUD; EBANI & FRATINI 2005).

CONSERVATION:

Legislation, protective measures, organisations:

Emys orbicularis is protected by Romanian law number 13/1993, which contains the ratified laws of the Bern Convention, and appears in Annex 2 as a protected species. Recently, the species has been included in Annexes 3 and 4A of the Order No. 57, demanding the establishment of special reserves and being a species of public interest in need of strict protection. The habitats in the "Natura 2000" web could represent a higher level in its protection, as several core areas were proposed for this species in Romania. The Danube Delta Biosphere Reservation is probably among the largest sanctuaries for this species in all of Europe.

As an initiative of the Amphibian and Reptile Protection Workgroup of the Milvus Group, Association for Bird and Nature Protection, a coalition dealing with the *Trachemys* problem in Romania, called "Trachemys Adoption - Romanian Coalition" was set up in collaboration with other associations and societies from Romania. It is aimed, among others, at protecting *E. orbicularis*. The coalition's first goal is to evaluate the magnitude of the problem and to propose solutions (e.g. stopping the release of turtles by adopting unwanted specimens). At the same time the current distribution and status of *E. orbicularis* in Romania are being mapped and monitored by members.

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