



New life to Europe's oldest reptile and amphibians

LIFE-Nature project "Protection of *Emys orbicularis* and amphibians in the North European lowlands" (LIFE05NAT/LT/000094)

Photo: Norbert Schneeweiß

The European pond turtle, a relict from the earliest time.

Representing a group of reptiles mainly distributed in warmer regions, The European pond turtle (*Emys orbicularis*) appears a rather exotic part of the North European lowlands native fauna. The northern part of the turtles distribution range reaches from its north-eastern border in Lithuania and Latvia over Poland, where the species occurs in the eastern parts of the country as well as near Odra river, to the north-western distribution border in Northeast Germany.



Adult European pond turtle

Photo: Norbert Schneeweiß

The adult's dark body colour is a characteristic feature of European pond turtles living close to their northern distribution limit. Another species' character are yellow dots and patches on head and legs, which sometimes form broad stripes on the front legs. The females carapace can grow up to 20 cm long, the males up to 18 cm. Generally, the males iris has a reddish colour, whereas the females iris is yellowish or brownish. The males plastron shape is slightly concave, and the females flat.



Hatchlings of turtle

Photo: Žydrūnas Sinkievičius

In central and northern Europe, the European pond turtle counts among the zoological treasures, since only small relict populations in few semi-natural regions have managed to survive to this day. The species has suffered from persecution in centuries, partly because of false accusations of preying on fish, partly because it was hunted for food.

Most habitats of the European pond turtle are now protected by law. Threats like fish traps, in which turtles risk to drown, are not used any more in these areas. Another, more dangerous threat is intensive agriculture and forestry. Many ponds inhabited by the European pond turtle have been drained and egg-laying sites afforested, ploughed up or destroyed by game keeping or hunting activities. Furthermore, the starting climate change and air-born eutrophication accelerates overgrowth of ponds.

Road traffic represents a rather new threat to turtles. Another actual problem are predators to which

European pond turtles have never before been exposed in their natural range. These are species introduced by humans, like Raccoon dog and American mink. Finally, pond turtles are threatened by illegal capture as well as introduction of foreign pond turtles (e.g. introduced diseases).



Egg-laying site

Photo: Norbert Schneeweiß



Summer pond

Photo: Agena

Native European pond turtles have only survived in semi-natural landscapes which are rich in wetlands and waters. They occur in fens and mires around overgrowing lakes and ponds. Light sedge-dominated vegetation, reed and sunny edges of alder swamp forests are preferred habitats. It's important to have climatically favourable egg-laying places close to the inhabited waters.

The Fire-bellied toad, a representative from the Jurassic period.

The Fire-bellied toad (*Bombina orientalis*) represents the oldest amphibian group still existing in Europe. Its earliest relatives are known from the end of the Jurassic Period some 150 million years ago, when the dinosaurs were inhabiting the Earth.

The Fire-bellied toad is probably most known due to its sounds resemblance of church bells. From late April to early July the distinctive call of the Fire-bellied toad can be heard on warm days and evenings. If a large number calling from the same pond are heard from a distance, the calling resembles the chiming of distant church bells.

The orange, black and white belly patterns of the Fire-bellied toads are as unique as human fingerprints. This makes it possible to trace individual toads and it has been proved that Fire-bellied toads can live to 13 years of age. When threatened, the Fire-bellied toad turns over on its



Male of the Fire-bellied toad

Photo: Lars Ch. Adrados



Summer pond of toads

Photo: Lars Ch. Adrados

back to reveal its orange warning colours. The bright pattern is intended to scare off predators, which seldom eat more than one Fire-bellied toad, as the toad has poison glands in its skin, making it taste unpleasant.

The Fire-bellied toad is a lowlander, which has a North-Eastern distribution in Europe, its Western border following a line from Bulgaria over Vienna to Lübeck with an arm into Schleswig-Holstein. A close relative is the mountain species, the Yellow-bellied toad, which has a South-Western distribution in Europe. Where the species meet, the Fire-bellied toad can be confused with the Yellow-bellied toad, the later however having a yellow instead of orange belly.

For breeding, the Fire-bellied toads often prefer rather large, sun-exposed, shallow temporary ponds, where the males select territories and can form large choruses. The ponds must have a well developed underwater vegetation with plenty of vertical structures suitable for egg-laying.

For foraging the Fire-bellied toad often use other ponds than those used for breeding. Foraging ponds can have all types of water quality except the acidic ones. It's not unusual that the foraging ponds have muddy bottom and very eutrophic water or are partly overgrown or shadowed. Preferred ponds are rich in structures with different vegetation zones and dead woods and tree trunks.

In the last part of the summer, a part of a population leaves the water and seeks shelter and food in moist fens and meadow-like habitats, which are sun-exposed due to natural conditions or managed by graz-

ing or mowing. Later in the season, especially when hibernation time approaches, habitats as forest with laying dead wood or stone fences and hedgerows are often used.

In Lithuania and Poland the Fire-bellied toad is a declining and threatened species. Locally it is still common and in Poland viable populations occur among others in places where also the European pond turtle exists. However, the last 10 years of monitoring in the agriculture landscape around Bialowieza Forest show many local extinctions as agriculture intensifies on moraine soils and completely stops grazing and mowing of river valleys and floodplains. The Fire-bellied toad may face a strong decline in near future if Lithuanian and Polish landscapes develop as Danish landscapes have developed the past decades.

In Germany, the Fire-bellied toad is in danger to go extinct in several states as Schleswig-Holstein and Niedersachsen, and is in decline in all former states of East Germany (e.g. Brandenburg). The loss and overgrowing of ponds and intensive agriculture are the main causes.

The Great crested newt, a representative from the Eocene epoch.



Colored Triturus male in breeding season

Photo: Merike Linamagi

The Great crested newt (*Triturus cristatus*) represents a rather old amphibian form as well, as the Triturus genus is known from the Eocene Epoch some 40 million years ago.

The Great crested newt is a dark, lizard-like amphibian with a body length of up to 16 cm. Its skin is rough like that of toads; the upper side is black, dark

brown or blackish grey, whilst the belly is bright yellow or orange with black spots. In the breeding season, it develops tail crests along the upper and lower sides of the tail, and the males develop a high vaulted undulating crest at the back. At the basis of the tail there is a gap between the back crest and the tail crest.

The Great crested newt is often confused with the Smooth newt. The latter is very common and widespread and is much smaller and smooth-skinned. Sometimes the Great crested newt is also confused with the Alpine newt. The later does not have black spots on the belly.

For breeding, the Great crested newt prefers ponds in or near to woodland, but it is also found in artificially created ponds near human settlements, in small natural depressions on agricultural land or meadows. Breeding ponds should support aquatic vegetation for egg laying. It appears that the newt prefers ponds with clear water, with both submerged and floating plant cover and with open water areas. The open water areas in the middle of the pond are very important for larvae because they gather to feed there.

Although the Great crested newt is fairly aquatic, it needs terrestrial habitat for daytime refuge, night time foraging and hibernation. The newt often takes daytime refuge under logs and rocks, where invertebrates gather. Newts forage mostly at night. Foraging appears to take place in such habitats where invertebrate prey is abundant, such as unfertilised grasslands, gardens and deciduous and mixed woodland. The Great crested newt's hibernation sites include, similarly to daytime refuges, underground crevices or cracks, such as voids in tree stumps, rock piles, mammal burrows, dead wood, old walls or cellars.

The Great crested newt occurs mainly in northern and central Europe, north of the Alps. In the north the distribution area stretches up to the southern part of Finland. Nearly everywhere populations are declining, mainly due to anthropogenic habitat deterioration, however the species seems not quite as vulnerable as the Fire-bellied toad in the North European lowlands.

In Lithuania and Poland the Great crested newt is a declining and threatened species. Locally it is still common, among others in places where also the European pond turtle exists. The last 10 years monitoring in the agricultural landscape around Bialowieza Forest in Poland has shown a few local extinctions but more stable population trends in forested areas. The species may face a decline in near future, if the Lithuanian and Polish landscapes develop as West European landscapes have developed the past decades.



The Great crested newt during hibernation period

In Germany, the Great crested newts are in decline. Loss of ponds, overgrowing of ponds and intensive agriculture are the main causes.

Why protect Europe's oldest reptile and amphibians?

Why invest time and resources in the protection of Europe's oldest reptile and amphibians? There are two main answers. From an ecological point of view, it's a question of securing the European biodiversity. And



The Great crested newt: larvae and adult



Turtles and amphibians use small ponds as "stepping stones"

from an ethical point of view, it's a question of respect for old living forms. The European pond turtle (*Emys orbicularis*), the Fire-bellied toad (*Bombina orientalis*) and the Great crested newt (*Triturus cristatus*) have so far survived many millions of years as part of nature, but are now threatened because of a number of factors related to our modern way of living. It is our responsibility to manage their habitats in order to increase the possibility that these species will survive tomorrow as natural species in the North European lowlands.

An approach to reach this objective is a cross-European project, where organisations from Lithuania, Poland and Germany from 2005 to 2009 co-operate on the project "Protection of European pond turtle and amphibians in the North European lowlands", which aims at securing the long-term survival of the Euro-



Restored pond

pean pond turtle in Germany, Poland and Lithuania. The project also foresees to ensure a favourable conservation status for the Fire-bellied toad and the Great crested newt in areas where they occur together with the European pond turtle.

The measures will be pond digging and restoration, improvement and creation of turtle nesting sites, creation of hibernation sites, establishing a grazing management and management of terrestrial habitats, rearing of turtles to support small populations and small-scale genetic investigations in order to separate authentic turtle populations from genetically polluted populations in West-Poland and Germany.

The partners involved in the implementation of the project are, from Lithuania: Lithuanian Fund for Nature, Žuvintas Biosphere Reserve, Veisiejai Regional Park, and Meteliai Regional Park; from Poland: Północnopodlaskie Towarzystwo Ochrony Ptaków (PTOP), Białowiecki Park Narodowy, and Klub Przyrodników; from Germany: Arbeitsgemeinschaft Natur- und Artenschutz e.V., Landschaftsförderverein Oberes Rhinluch e.V., and Georg-August-Universität Göttingen. To use the Danish experience on pond digging and management of international projects, Amphi Consult is contracted as overall project consultant.



Drive carefully-amphibians!



Managed pond for turtles

The European Commission (EC) has agreed to contribute 49.5% of the total project cost and the remaining 50.5% is matched partner funding and co-financier funding, from Lithuania: Nature Heritage Fund; from Germany: Klara Samariter-Stiftung, Heinz Seilmann Stiftung, Deutsche Umwelthilfe e.V., Landkreis Barnim, and NaturSchutzFonds Brandenburg.

For further information:

Lithuanian Fund for Nature
Pranas Mierauskas
Algirdo st. 22-3
03012 Vilnius
Lithuania
Tel: +370 5 2310700
Email: pranas.m@glis.lt
<http://www.glis.lt/life/>
<http://www.glis.lt>



Published by the LIFE-Nature project "Protection of *Emys orbicularis* and amphibians in the North European lowlands" (LIFE05NAT/LT/000094)

Text: Lars Christian Adrados,
Norbert Schneeweiß
Translation: Sabine Stosiek
Photos: Will wait until layout team select the pictures
Layout: Rima Jonytė
Printed: JSC Petro ofsetas,
Žalgirio g. 90, LT-09303 Vilnius, Lithuania
priemimas@petroofsetas.lt
© Lietuvos gamtos fondas, 2006