



PROTECTION
OF THE GREAT
CRESTED
NEWT

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The Great crested newt *Triturus cristatus* is a dark, lizard-like amphibian with body length of up to 14 cm or above. 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. The species has been named after the tall undulating crest appearing on the back of males during the spring breeding season. 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.

The Great crested newt occurs mainly in northern and central Europe, north of the Alps. In the north the distribution area stretches up to Finland. Finland and Estonia make up the northeastern region of the distribution range of this newt species inside European Union.



**THE MALE OF THE GREAT
CRESTED NEWT HAS
A CREST IN THE BREEDING
SEASON**

**DISTRIBUTION IN EUROPE
(Arnold E. Nicholas 2002. A
Field Guide to the Reptiles
and Amphibians of Britain and
Europe)**





THE LARVAE OF THE GREAT CRESTED NEWT

LIFE CYCLE

In late March and April the adult newts leave their hibernating sites and return to water bodies to breed. An original courtship ritual takes place here: the male shows off by “dancing” in front of the female, shaking its bent tail and pointing it at her. The female lays up to 400 small white eggs, attaching them singly to the underside of water plant leaves. The leaves are folded around the egg so that the eggs are firmly hidden (siia võiks panna määrajas kasutatud pildi volditud lehega). After breeding, adults progressively leave the ponds. The larvae stay in the breeding ponds until July-August, in Finland even till October.

HABITAT

The Great crested newt lives in aquatic and terrestrial habitats. It requires suitable, densely situated water bodies that are surrounded by terrestrial habitats of good quality, such as unfertilised grassland, deciduous or mixed woodland.



SAUNA POND IS THE HABITAT OF THE GREAT CRESTED NEWT

Aquatic habitat

It is preferably a small to medium size breeding pond with an area of about 50-250 m² in Estonia and Denmark, and up to 2000 m² in Finland. The smaller ponds can be used more successfully where they occur in clusters.

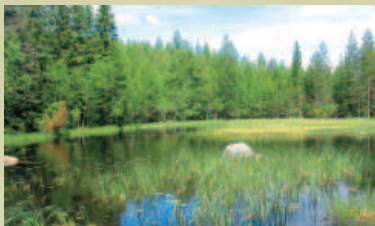
In Estonia, the Great crested newt is found primarily in artificially created ponds, such as sauna and garden ponds, but it also occurs in sand quarries, forest ponds, in small lakes and beaver-floodings.

In Finland, the species occurs mainly in natural lakes and in forest and mire ponds. In Denmark, the Great crested newt is found in artificially created ponds near human settlements, in small natural depressions on agricultural land or meadows as well as in small ponds in the forest.

Breeding ponds should support aquatic vegetation for egg



SAND QUARRY IN ESTONIA



FOREST POND IN FINLAND

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. The pond has to be at least partially exposed to sunshine, as the hatching rates of eggs as well as the development of larvae are dependent on water temperature.

Terrestrial habitat

Although the Great crested newt is a fairly aquatic newt, it needs terrestrial habitat for daytime refuges, nighttime foraging and hibernation.

The newt often takes daily 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 daily refuges, underground crevices or cracks, such as voids in tree stumps, rock piles, mammal

burrows, dead wood or old walls. In Estonia, the Great crested newt hibernates very often in cellars; in Finland it spends the winter in woodland, where the tree canopy and litter layer helps buffer the ground from exposure and freezing.



UNFERTILISED GRASSLANDS ARE GOOD FORAGING AREAS FOR THE GREAT CRESTED NEWT

The habitat favourable for the Great crested newt favours also other amphibians.

Throughout its distribution range, the suitable breeding ponds of the Great crested newt are often inhabited by many other amphibian species. Therefore the protection of the ponds where the newt breeds often allows protecting other rare or threatened amphibian species as well. In Finland for example, the Great crested newt shares ponds with the Moor frog *Rana arvalis*.

WHAT ARE THE THREATS FACING THE GREAT CRESTED NEWT?

Lack of suitable small water bodies

constitutes one of the main reasons for the diminishing numbers of the Great crested newt in Europe.

Overgrowth of ponds. Depressions on semi natural grasslands, garden ponds and village ponds, have been subject to regular maintenance to prevent succession. Without management these ponds will overgrow with bushes and dense vegetation, silt up, reduce in depth and eventually disappear.

When a breeding pond silts up and overgrows with high dense vegetation, the submerged vegetation important for egg laying disappears near the banks of the pond. Muddy overgrown ponds lack the oxygen necessary for the development of eggs and larvae.

When bushes cover the banks of a water body, it falls into shadow and water temperature remains low. High water temperature is crucial for the development of amphibians' eggs and larvae.

Consequently, it is no longer possible for amphibians to breed successfully in such ponds.



MUDDY OVERGROWN POND

Fish introduction. As several breeding ponds of the Great crested newt are situated near human dwellings, it is very common that people introduce fish into them. Although fish do not eat grown-up newts and toads, they do feed on eggs and larvae. As the tadpoles of the Great crested newt feed in the open parts of ponds, constituting an easy prey for fish.

Fish also have a negative impact on water quality. As fish eat all the zooplankton in small ponds, the water becomes unclear and fills up with algae.

Infilling of ponds. Small wet natural depressions on agricultural land are filled in with the aim to enlarge the area suitable for crop growing or haymaking.



WHEN BUSHES COVER THE BANKS OF A WATER BODY, IT FALLS INTO SHADOW AND WATER TEMPERATURE REMAINS LOW

Desiccation of ponds. Land desiccation carried out in the forests of Finland and Denmark in the second half of the 20th century has destroyed a number of small-size forest water bodies, which have functioned as breeding ponds for the Great crested newt. The ditching of agricultural land and semi natural habitats in Estonia and Denmark damaged the natural water regime of these areas. As a result, small depressions in fields and on meadows dried up.

Destruction of pond clusters. A population of the Great crested newt is most abundant when it ranges across a cluster of ponds situated in close proximity. When one or more ponds in a cluster disappear or become unsuitable, not only is the amount of potential breeding habitats reduced, but also the probability of the colony's decline and extinction increases.

Intensive agriculture

Very often the ponds of Great crested newt are situated in the fields. During the migration the adult newt must cross the agriculture land and therefore the organic agriculture without use of agrichemicals is to prefer. Due to intensive agriculture the habitats of newt become fragmented.

Direct effect on the newt. The intensive agriculture is a threat for a newt since fertilizer directly kills the newts on migration if they get in touch with the fertilizer grain. The fertilisers stick to their moist skin and the salts dissolve. The fertilising-salts are absorbed through the thin skin of the newt and kill it. Intensive soil cultivation during migration time,

especially in spring, can also kill the newts. The use of pesticides can probably affect the migration animals if they get the pesticide on the skin.

Effects on the pond. An indirect effect of the intensive agriculture is that it affects the pond habitat severe in some cases. The fertilizer or animal dung can pollute the pond so the water quality becomes bad and full of green algae and the pond overgrows fast with cat tail and willow bushes. The pesticide can if used wrong end up in the ponds in large concentrations, and the insecticide can cause that many invertebrates are killed and that amphibian larvae and eggs suffer from deformities. The wrong use of herbicides can cause that bank vegetation in the pond dies and the pond ecosystem alters completely when the bank vegetation are dead since it can not filter the nutrients anymore and the water becomes eutroficated and full of algae.

The negative effects of intensive agriculture is seen mainly in Denmark nowadays and was a serious threat in Estonia in 1970ties and 1980ties. Today after the joining of the EU the intensification of agriculture is increasing in Estonia.



BREEDING POND ON INTENSIVELY MANAGED AGRICULTURAL LAND

Forestry

The Great crested newt does often forage and hibernate in forest habitats. It prefers the deciduous forest instead of coniferous forest, because the deciduous forest has more light to ponds and forest floor, more food and more hiding places for newts.

Intensive forestry where deciduous forest are cut down and replaced by coniferous plantations has usually a negative influence to the newt. Intensive forestry has in all cases a negative impact to Great crested newt than sustainable forestry. Intensive forestry can include methods like drainage and ditching in the forest, clear cutting, mechanical crushing of roots, deep soil treatment and ploughing or creating deep planting trenches for replanting.

The effect of intensive forestry is most visible in Finland, but in Denmark the ditching in the forest is also a serious threat.

WHY TO PROTECT?

Despite a widespread distribution, the numbers of the Great crested newt declined considerably during the latter part of the 20th century in all of Europe, primarily due to the loss of suitable habitats. Therefore the species has been listed in Annex II and IV of the Habitats Directive.



NEWLY METAMORPHOSED NEWT

HOW CAN THE LANDOWNER HELP?

- **Preserve small ponds and depressions.**

As shallow depressions often seem quite useless, they are filled in with soil or stones or even worse, turned into waste dumps. Every depression of this kind may constitute a potential breeding site for amphibians – the Great crested newt, the Common spadefoot and other species.

- Clean the edges of the ponds of high vegetation and shadowing trees and bushes.

As a result, about 50% of the water table would become exposed to sun.

- Do not introduce fish into ponds.
- Do not fill the ponds in.
- Restore and dig ponds.

When a pond is completely overgrown or silted up, excessive aquatic plants have to be removed, especially in the middle part of the pond, and the pond has to be cleaned of



mud. As existing breeding ponds are often isolated from one another, it is necessary to create suitable new ponds in the vicinity of the existing ones, thus producing clusters of ponds.

- Create buffer zones.

Uncultivated buffer zones of at least 5 m should be left around ponds on agricultural land.

- Do not establish plantations around the ponds.

In case of forest ponds, buffer zones of at least 20 m should be left around ponds. When it comes to plantations, deciduous trees should be preferred over coniferous trees.



NEW POND DUG FOR THE GREAT CRESTED NEWT



LIFE-NATURE PROJECT - THE PROTECTION OF THE GREAT CRESTED NEWT

To save the small and isolated populations of the Great crested newt from extinction in the extreme north-eastern part of its distribution range in Estonia and Finland and to secure the species' favourable conservation status in Denmark, a LIFE-Nature project "Protection of *Triturus cristatus* in the Eastern Baltic region" was launched in 2004.

The project involves restoration and establishment of small water bodies and maintenance of terrestrial habitats in all three countries.

In Estonia the Great crested newt's populations will be preserved and further increased in 12 areas, which cover 97% of the total population size. To that end, 80 breeding ponds will



be restored and 160 new ones created; additionally 650 ha of the species' terrestrial habitats will be managed.

In Finland, natural forest and mire ponds with the Great crested newt's populations will be preserved. This should guarantee the survival of 95% of the total size of the known Finnish population.

In Denmark, the habitats of the Great crested newt will be maintained and restored at the demonstration sites representing semi-natural habitats, forests and mosaic landscapes with extensive agriculture.

In addition, a monitoring methodology and the criteria for assessing the favourable conservation status of the Great crested newt will be elaborated. Also the Action Plans for the species will be compiled in all countries.

The whole project - the elaboration of theoretical foundations as well as the implementation of practical activities - is based on a tight co-operation and exchange of knowledge and experiences between the Estonian, Finnish and Danish experts. The corresponding information and experiences will be forwarded to Latvia and Lithuania.

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