

## Amphibians of Germany - Part 2

### Herping for amphibians in Germany.

*Text and photos by Gerlinde Höbel*

[Back to Part 1](#)

#### The Brown Ranids

There are six (well, five) species of true frogs of the family Ranidae in Germany: three brown ranids and three (actually two as you see later) green ranids. The three species of brown ranids are all explosive breeders in early spring. Their breeding season generally lasts less than a month. The green ranids have quite different life histories. They inhabit ponds and lakes, and are actively calling and reproducing throughout late spring to fall.

Among the first amphibians coming out of hibernation and starting their migration to the breeding ponds is the common frog (*Rana temporaria*). This relatively large species reaches around 4 inches in length. They may start calling and breeding when there are still ice sheets on parts of the pond. Although generally nocturnal outside the breeding season, in early spring they often call during the day when temperatures are somewhat higher. They often aggregate in huge choruses in the shallow parts of ponds or flooded meadows. The eggs are deposited in large clumps of several hundred eggs.

The common frog is one of the most common amphibians in Germany. They only gather in large choruses during their very short breeding season in early spring, however. For the rest of the year, they disperse and can live in a variety of habitat types, including forests, meadows and agricultural lands. Due to their secretive and nocturnal habits, they are not easily encountered outside the breeding season.

There are two other brown-colored ranids in Germany, but they are much less common. The moor frog (*R. arvalis*) is 2¼ inches. They gather in early spring to breed in boggy areas. The males are pretty spectacular because they turn a blue coloration during breeding season. Sadly, this species is threatened by extinction because most bogs have been drained for agriculture and only a very few suitable breeding habitats remain in their natural state.

Finally, there is the agile frog (*R. dalmatina*). Very similar in appearance to the common frog, the agile frog is somewhat smaller, more slender and with longer legs. Its habitat preferences are more selective than those of the common frog. Agile frogs prefer to make their home in large tracts of deciduous forest.

#### The Green Ranids

Some time after the breeding season of the brown ranids is concluded, the green ranids start calling. They emerge in late spring and then continue calling during late summer and early fall. The largest of the green ranids found in Germany is the lake frog (*R. ridibunda*). This species reaches 4 to 5½ inches in length and can be considered the ecological equivalent of the North American bullfrog. They inhabit mostly larger bodies of water like lakes and will even enter slow-flowing rivers.

Growing to a maximum of 2½ inches, the pool frog (*R. lessonae*) is the smallest green ranid found in Germany. They prefer small water bodies like ponds or ditches with lots of aquatic vegetation as their prime habitat.

The most common species of green ranid, the edible frog (*R. kl. esculenta*), is actually not a real species at all. It is a cross between the lake frog and the pool frog, and as such is intermediate in size, appearance and habitat preferences. It is one of the most common and hardiest frogs. It adapts to many kinds of habitats and is one of the few species that colonizes ornamental garden ponds in urban areas.

Mating between a male and female edible frog is generally not successful. To reproduce, the edible frog has to mate with one of its parent species, in a complicated reproductive mode called "hybridogenesis." During this process, either the pond frog or the lake frog part of the genome that each hybrid frog carries is discarded during the formation of the eggs. In areas where edible frogs live together with pool frogs, the pool frog genome is discarded and the lake frog genome remains. In a few populations where *R. kl. esculenta* is associated with the lake frog, it is the pool frog genome that is retained. The other half of the genome has to be substituted each year by backcrossing with the parental species.

This mode of reproduction is rare among vertebrates and has only been described for a few species of fish and amphibians. To identify such hybrid animals, the scientific name contains a "kl." after the genus. It stems from the Greek

word kleptos, meaning “thief,” and relates to the fact that hybrids have to “steal” the genome of one of the parental species to be able to procreate.

Lately another green ranid has been added to the German herpetofauna, the American bullfrog (*R. catesbeiana*). Although fears of the predatory bullfrog decimating populations of native amphibians have not yet been conclusively verified, it is never a good thing to have exotic species getting established in a habitat they don't belong.

#### German Toads

Three toad species occur in Germany. The first to breed each year is the common toad (*Bufo bufo*), a brown toad that grows to about 4 inches. As the weather warms up in spring, toads start their breeding migrations. Because they are quite stubborn in their determination to return to their natal ponds to breed, many perish because they are overrun by cars as they try to cross roads that intersect their habitat. This prompts many nature protection groups each spring to set up fences and pitfall traps along roads to try to minimize the road fatalities.

Male common toads don't wait to pair up with females until they reach the pond. While traveling, they often stop, rise up as high as they can on their short little legs and look out for females they may intercept on their way to the pond. Once they find a female, they pair up and let the females carry them the rest of the way to the breeding site. Only males that did not get lucky along the way join the breeding chorus that eventually forms at the pond.

In my humble opinion, the European green toad (*B. viridis*) is the most beautiful toad in the world. They are 3½ inches and sport light green markings on a beige background. As a species adapted to steppe habitats, they prefer warmer climates, and in Germany are often found in sand and gravel pits.

Reaching only 2½ inches, the Natterjack toad (*B. calamita*) is the smallest toad found in Germany. This toad is easily identified by the yellow stripe that runs along the spine. Natterjack toads are unusual among toads because reproduction is not limited to one strong effort in spring, but can occur several times throughout the summer.

Whenever heavy rainfall fills up the ditches and puddles that they prefer to lay their eggs in, breeding may commence again. The partitioning of reproductive effort into several attempts a year is probably an adaptation to their choice of breeding habitat. Small ditches and puddles have the advantage that they heat up quickly and thus accelerate development of cold-blooded tadpoles. Also, they are generally free of fish, which are among the most dangerous predators to tadpoles.

On the other hand, there is always the danger that the puddles will dry out before the tadpoles complete their development. Tadpole development consequently is very quick, and under optimal conditions metamorphosis can be reached within one month. But even if the first batch of tadpoles dries up, by dividing their reproductive output into several batches, Natterjack toads have a better chance that at least some clutches make it each year.

#### Fire-Bellied Toads

There are two species of fire-bellied toads in Germany. The yellow-bellied toad (*Bombina variegata*) reaches a size of 1½ inches. This species occurs in the central and southern parts of Germany. They prefer small, muddy puddles and ditches that heat up quickly in the sun. Their dorsal coloration matches the sandy-tan color of their preferred habitat, and their bellies are mottled gray-black and yellow.

When threatened by a predator, they arch their back and draw back their arms and legs, exposing the yellow throat coloration of their bellies that announces that they are distasteful. This behavior, which is shown by all fire-bellied toads is called the “unken reflex,” unken being the German word for fire-bellied toads.

The second species, the European fire-bellied toad (*B. bombina*), is slightly smaller (1¼ inches). Their back coloration is a darker brown, and their bellies are mottled black and orange. They prefer heavily vegetated ponds and shallow lakes at lower elevations and are found only in eastern Germany.

#### Midwife and Spadefoot Toads

These two species do not occur in my corner of the country, so I have never seen them in the wild. Given their natural history, they are high on my like-to-find list.

The midwife toad (*Alytes obstetricans*) is a 2¼-inch, squat, brownish toad. This species practices an unusual type of parental care. Oviposition occurs on land, and the male winds the egg strings around his hind legs. There the eggs remain for three to six weeks while they undergo their early development. Once larvae are ready to hatch, the male carries them to water where they finish their development.

The common spadefoot (*Pelobates fuscus*) reaches up to 2½ inches and is another rather squat-looking, brownish toad. During the breeding season in late spring, males sit at the bottom of ponds and call under water. The tadpoles of this species are special, because they can grow to 4 inches, in some cases even 9 inches in length! The young toadlets are more moderately sized, measuring about 1 to 1½ inches upon metamorphosis. The common German name for this species translates to “garlic toad,” for the smell of their defensive secretion.

I have had a great time looking for herps in the United States while I was studying in Missouri. If you ever get to Germany, why don't you take along a flashlight and try your luck at finding some of the cool amphibians that live across the big pond!

[Back to Part 1](#)