

Apparent Competition by Grass Frogs (*Rana temporaria*) and Common Toads (*Bufo bufo*) for Breeding Sites

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Photographs by the author.

The Grass Frog (*Rana temporaria*; Fig. 1) is widespread throughout most of Europe, ranging from northern Spain to the Urals (absent from southern and central Iberia, much of southern Italy, and the Caucasus) and east to western Siberia and northern Kazakhstan through northern Greece and Bulgaria. The species has a patchy distribution in mountainous parts of the Balkans. It has been recorded from sea level to elevations approaching 2,700 m above sea level (asl) in the Pyrenees.

The Common Toad (*Bufo bufo*; Fig. 2) is widespread in Europe (excluding Ireland and most Mediterranean islands, although present on Sicily) and northern Eurasia, with populations in parts of western



Fig. 1. An adult male Grass Frog (*Rana temporaria*) approaching the breeding pond.



Fig. 2. An adult female Common Toad (*Bufo bufo*).



Fig. 3. The Bohemian forest pond where frogs and toads apparently competed for calling and mating sites.

Asia (Turkey, Syrian Arab Republic, and Lebanon) and northern Africa (Morocco, Algeria, and Tunisia). In Europe, the species is present in most areas (including the United Kingdom and Scandinavia), ranging as far east as northern Kazakhstan and eastern Siberia. In the Middle East, it is found through much of Turkey, northwestern Syrian Arab Republic, and has recently been recorded from two mountainous locations in Lebanon. In Africa, it has a very fragmented range in the more mountainous regions. The species has an altitudinal range of sea level to 3,000 m asl; however, in northern portions of the range the species occurs only at lower elevations.

I observed reproductive activity of Grass Frogs at a forest pond on the southeastern edge of the Middle Bohemian Region at an altitude of ~410 m asl (49° 48' N, 15° 21' E; Fig. 3). Once quite common in the region, populations of these frogs have recently been declining, with extended dry periods through the spring and summer of recent years playing a major role. Drought conditions leave frog broods with a low probability of surviving until metamorphosis.

Reproductive activity for local amphibians begins with spring warming trends. On 3 April 2009, large numbers of male Common Toads (*Bufo bufo*) appeared at the pond, and I observed egg-laying and fertilization during the following two days. The first vocalizing male Grass Frogs began to congregate on 6 April. Ovipositing began that evening and continued through the following day (Fig. 4).

On the morning of 7 April, a group of about 15 male Grass Frogs were interspersed with a rowdy collection of about 10 Common Toads. Males of both species were actively vocalizing. A skirmish ensued among the males of both species, leaving individual toads and frogs limping and injured. One battle between two Grass Frogs and one Common Toad (Fig. 5) was particularly heated, as these males apparently competed for prime calling and mating sites.



Fig. 4. Congregating Grass Frogs and egg masses.



Fig. 5. A heated conflict between two male Grass Frogs and one male Common Toad. Clutches of frog eggs are visible in the water.