

THE CARE AND BREEDING OF THE EDIBLE FROG (*RANA ESCULENTA*) IN CAPTIVITY

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DESCRIPTION, DISTRIBUTION AND HABITAT

The edible frog (*Rana esculenta*) is a large, handsome frog which can attain an overall length of 12cm, but a more usual size is 8-9cm for females and 6-7cm for males. This frog has a rather streamlined appearance; the snout is slightly pointed while the long back legs are very powerful. Markings and colouration vary considerably, in fact, no two specimens are ever identical. The back is usually green, brown or a combination of the two; dark brown spots and blotches are usually present on the back and sides and many individuals possess a yellow or green vertebral stripe. The rear part of the thighs is marbled with dark brown and yellow or orange; the underside is white, speckled with grey. There is no dark brown temporal area characteristic of most *Rana* species.

The edible frog is found throughout Western Europe ranging as far as Southern Sweden, Western Russia, Rumania and Hungary. It seldom strays far from water, being extremely aquatic in its habits; it will bask for long periods on the sunny bank of a pond, lake, stream or ditch, splashing into the water with a prodigious leap at the approach of danger. Because of its liking for sunshine it is not usually found in thickly wooded areas.

Although the edible frog is not now thought to be indigenous to Britain, many thousands of adults caught in France and Belgium were released in various localities in East Anglia during the last century. These introduced frogs formed colonies which usually thrived for a few years before disappearing completely. However, I know of an extant colony in the Breckland area of Norfolk which is still thriving; this particular area has contained breeding communities of edible frogs for over one hundred years.

CARE IN CAPTIVITY

In view of the large size of this frog, coupled with a nervous disposition, plenty of room in a large vivarium is essential for its successful maintenance. Added to the above traits, its sun loving propensity means that it should be kept in an outdoor vivarium, be it a reptiliary, greenhouse or large cold-frame.

Whatever type of enclosure is used a pond is an essential feature, the larger the better, but certainly no smaller than 60cm x 60cm x 45cm. It should be well stocked with submerged aquatic plants and several large rocks or stones should be placed around its perimeter on which the frogs can bask in the sun. The arrangement of the vivarium as regards plants and general layout is, of course, a matter of personal choice, but there should be plenty of ground-cover in the form of low growing vegetation. The depth of soil on the base of the vivarium should be sufficient to ensure a frost-proof retreat during the winter months. I would add that the edible frog is extremely hardy, being well able to endure the severest weather, even when quite small.

Feeding

This can be rather a problem as, with very few exceptions, edible frogs do not become tame. They will dive into their pond in fright whenever their vivarium is approached; however, there are exceptional individuals which do become tame; I have one specimen which is confident enough to be approached and hand-fed without taking fright. I have, as yet, never encountered an edible frog which will allow itself to be handled or touched.

A further problem is that edible frogs are mainly nocturnal in their feeding habits; it is therefore advisable to introduce large numbers of earthworms, slugs, woodlice, etc., into the vivarium. These will soon reproduce themselves, forming colonies for the frogs to prey upon naturally. The vivarium should be watered each evening to bring out the worms and slugs during the night.

Another useful idea is to grow plants with strong scented flowers in the vivarium to attract flying insects on which the frogs will readily prey. I have often observed my own edible frogs seize and devour bees or wasps without showing signs of having been stung. Presumably they are either immune from or impervious to the sting of these insects.

Breeding

Under the conditions described above, breeding should take place regularly each year; spawning does not occur immediately after emergence from hibernation in mid April but is usually delayed until late May or early June. During the first few weeks after emergence from hibernation both sexes remain fairly inactive, sitting listlessly around the pond or in the water with heads protruding. As the weather becomes warmer the frogs are progressively more active and the males commence their loud, raucous call. They are extremely vociferous during the breeding season, calling throughout the day and night in chorus; one male will start up, triggering off all the others. Where large numbers are present the noise is quite deafening and can be heard from a considerable distance; a passing aeroplane, lawnmower or even thunder will also start them calling.

When thus engaged, the males swim excitedly around in the water seizing any female or male they encounter; a male that is seized emits a "grunt" which is the signal for the other male to release him. Amplexus is axillary but the grip of the male is not particularly tenacious; the pair will usually separate if disturbed or handled. They should therefore be left alone during spawning.

The spawn, usually laid in the early hours of the morning, is deposited on underwater vegetation to which it adheres. It is laid in several small clusters about the size of a golf ball and the eggs themselves are smaller than those of *Rana temporaria*. The vitelline sphere is light brown in colour on the upper surface, white below. The white area gradually diminishes in size until the whole egg is brown, by which time it has become elongated in shape. Within a few more hours the head and tail of the developing embryo are clearly discernible; development is rapid, the tadpoles usually hatch within 48 hours of the spawn being laid. The newly hatched tadpoles are remarkably small resembling minute brown-grey slugs. They cling to the spawn for about 2 days before becoming free-swimming, when they browse actively on algae or other soft, underwater vegetation.

Rearing the tadpoles

During the first three weeks after hatching, edible frog tadpoles are most vulnerable. Mortality can be at a very high level if the correct conditions are not provided during this critical period of development. These conditions are, in fact, quite easy to provide; they are:

- 1) **Sunshine** — edible frog tadpoles are particularly fond of basking in sunlight just under the surface of the water, diving rapidly to the depths whenever disturbed.
- 2) **Warmth** — if the tank or receptacle in which the tadpoles are kept is placed in a sunny position in the garden the water will become very warm during the day, to the liking of the tadpoles, but water temperature will drop considerably during the night.

To remedy this the tank can be brought indoors in the evening and taken out again each morning. Alternatively, an aquarium heater and thermostat set at about 24°C can be used, this will prevent rapid temperature changes. By the time the tadpoles have attained an overall length of 2cm, which they should have done within four weeks of hatching, they are hardy enough to be left outdoors, permanently without artificial heat.

- 3) **Space** — overcrowding must be strictly avoided. About 6 tadpoles per square metre is the optimum number. These tadpoles have enormous appetites, feeding voraciously on flaked fish food, "pond pellets", or pieces of raw or cooked meat and fish. I usually keep a few water snails with the tadpoles to eat any food that is not immediately devoured by the tadpoles.

If the above conditions are met, an overall length of 6-7cm, exceptionally 9cm, should have been reached by their seventh week after hatching. Five or six weeks later the front legs are visible and metamorphosis should be complete within another week. The average size of the froglets when they have absorbed their tails is 20-25mm. It follows that froglets of this size can tackle quite large

prey; they are quite capable of eating blowflies, small earthworms, or half-grown mealworms without difficulty.

Care and hibernation of the froglets

The froglets are also voracious, so growth is rapid. They can easily attain an overall length of 4cm by the time they are ready to hibernate in early November. They can therefore be allowed to hibernate outdoors naturally. They may well be sexually mature the following year but full size is not usually attained until the year after.

Although the edible frog is a highly excitable, nervous creature which seldom becomes tame, its large size and beautiful colours make it a very desirable inmate for the larger vivarium.