British Herpetological Society Bulletin, No. 10, 1984.

HUSBANDRY AND CAPTIVE SPAWNING OF THE COMMON SPADEFOOT TOAD (*PELOBATES FUSCUS INSUBRICUS* CORNALIA)

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INTRODUCTION

Pelobates fuscus insubricus is a subspecies of *Pelobates fuscus*, which has a distribution extending from France to the Urals and North Balkans. *P. f. insubricus* is an endemic race of the Po Plain; recent research indicates that it is extinct in its former range in southern Switzerland. In Italy its area of distribution includes Piedmont, Lombardy, Venetia and Emilia. The Common Spadefoot is a specialised amphibian; it is nocturnal, hiding itself underground during the day. It therefore prefers environments with a sandy soil rather than dry. Such an ambient is heath, and in Italy this habitat was born after the destruction of ancient forests. In recent years *P. f. insubricus* has disappeared from many places where at one time it was common, a process generated by continuous human pollution. Because of this it was decided to start a program of captive breeding and subsequent reintroduction, using tadpoles and adult animals, in a locality where it is certain that the species was at one time widespread.

CAPTURE

The specimens were found near Novara (North West Italy) in May. I decided to search for the animals in this place after having been told of their presence by a friend. The entire area is subject to a gradual but continuous process of drainage which will in the near future kill all amphibian populations. The taking of specimens from this place has no contra-indication, I being careful also to capture only a few of them. The hunt was conducted during a cold night, as Spadefoots are totally nocturnal and fossorial, and only in the breeding period is it possible to find them in sunlight. I used a powerful torch to light up the little brooks running alongside the country roads.

The first Spadefoot to be found was a male trying to mate with a Green Frog (*Rana esculenta*). I think that the male didn't hear the right answer from the frog and so it "thought" that this was a female of its own species. Similar behaviour is common in the males of several other anurans like, for example, the Common Toad (*Bufo bufo*), often seen embracing any kind of object, from submerged roots to the hands of a man touching it.

The other Spadefoots were picked up along a fence surrounding a little artificial pool. The animals, three males and five females, were attracted by the presence of the water. Capture is relatively simple since these anurans don't try to escape when exposed under torch light, and so it is possible to easily pick them up by hand. When caught several Spadefoots released a sharp smell, very similar to that of garlic. In fact the German name of *Pelobates* is Knocker Kröte, Garlic Toad.

All nine animals were put into a plastic box with moss and fresh leaves.

GENERAL CARE

Husbandry of the Common Spadefoot is relatively simple. I put the animals in all glass terrarium with a surface of 60cm x 40cm and a height of 30cm, but this last dimension is not too important for breeding success since they are fossorial amphibians and don't climb. The floor of the terrarium was covered with a mixture of sand and clay to a depth of 10cm to allow the animals to cover themselves with sand. On one side of the terrarium I put a little basin full of water. Then I tried to feed the animals with living insects which they immediately accepted, eating them with a quick movement of the head.

SPAWNING

The Spadefoots, obviously in breeding condition, went immediately into the water and started to mate. Males, like Common Toads, tried to embrace the females but, since they outnumbered the females (6/3), there were some bachelors which wanted to dislodge a couple of males. All the males emitted a plaintive call, similar to "clock-clock"; the females also emitted a similar sound, but more acute. Amplexus in *Pelobatidae* is lumbar, as in other primitive anurans, unlike the families *Ranidae* and *Bufonidae* which have an axillar amplexus. The function of the strange humeral gland, distinctive in males, is unknown, but it may be useful in copulation. Coupled males defended themselves by kicking out with strength, but, since their hind legs have a hornlike spur, they often wound the "bachelors", or the embraced female.

Two females, obviously with eggs, accepted embrace, while the third one refused to mate. The two pairs, in order to avoid injury and tiresome interference, were separated and put in an aquarium 120 x 40 x 50 cm, one third full of water with some stones to provide the animals with a dry retreat. The water temperature was about 16°C. After being in amplexus for 24 hours the animals laid short strings of spawn, wound around submerged objects. The two couples spawned at different times: one pair at 9 a.m., the other at 12 noon.

The spawn strings were about 10cm in length. The eggs, grey in colour with the inferior pole white, had a diameter of about 3mm and were distributed irregularly in the jelly. They hatched in one week.

The tadpoles were very small (3mm) and remained attached to the spawn jelly for several days using a particular glandular structure. After this period they moved and suspended themselves on the sides of the aquarium. After five days they started to swim freely in the water with wave motions, feeding actively on the algae growing on the sides and bottom of the tank. At this point I filled the aquarium with water with the same characteristics and the same temperature. In addition to the natural growing algae I gave the tadpoles goldfish flaked food and boiled leaves. They grow very slowly. Some, after four months, have reached a length of 50mm, while others are only 20mm. They can reach a maximum length of about 180mm. Now, at this point, I would like to put a great number of these tadpoles in the mentioned pool, and I will keep in the aquarium only a small number in order to photograph the metamorphosis.

I will follow the progress of this new population and I hope to put the progeny of future spawnings in this new place. I will report results in this Bulletin.

Table 1.

Dimensions of the Common Spadefoots (*Pelobates fuscus insubricus*) referred to in the text.

Sex	Length, in millimetres	Weight, in grams
male	45	15
"	44	12
"	45	12
"	42	9
"	42	10
"	39	7
female	45	15
"	51	15
"	54	16

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