

**A NOTE ON THE CAPTIVE MAINTENANCE AND BREEDING OF THE
PYRENEAN MOUNTAIN SALAMANDER
(*EUPROCTUS ASPER ASPER* [DUGÈS])**

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The nominate subspecies of the Pyrenean Mountain Salamander is an inhabitant of rocky, montane streams at an altitude of 600m or more in the Pyrenees of Spain, Andorra and south-west France, where it spends much of its life in water or beneath waterside stones. Several authors (e.g. Steward, 1969) have considered this and other montane urodeles impossible to maintain under captive conditions because of their low temperature and high oxygen requirements.

Two pairs of *E. a. asper* were obtained in November 1981 and housed in 30 x 20 x 20cm plastic tanks, one pair per tank. Each tank was fitted with a polystyrene and glass lid, the layer of polystyrene allowing the entry of an air-line but preventing the escape of the salamanders. A thin layer of coarse gravel was used as a substrate and each aquarium was filled to a depth of 8cm with well-matured tap water. Several small, sloping pieces of slate and plant pot were placed on each tank bottom to serve as retreats whilst land areas were provided by supporting large flat slates upon rocks. Vigorous aeration was provided and the tanks placed at floor level in a cool, dark corridor. Temperature varied with the ambient temperature, between a minimum of 0°C (aeration prevented freezing) and a maximum of 18°C (mean temperature 9.5°C). The salamanders, although sluggish at all times, remained active throughout the year. Tank cleaning was kept to a minimum, the water being changed once a month and each animal was fed individually once a week, thus avoiding undue disturbance.

All specimens accepted food readily, taking small pieces of earthworm (always rejecting pieces larger than about 2cm) and ox-heart enriched with Vionate. Various small aquatic invertebrates i.e. *Chironomus riparius* larvae, *Asellus aquaticus* and *Ephemeroptera* spp. were also taken. Feeding occurred only in the water and these specimens have been observed to spend very little time on land.

Mating behaviour, as described by Ahrenfeldt (1960) has occurred in every month of the year and is prolonged, pairs often feeding whilst coupled. On 10.6.82, three, creamy white eggs were found attached to the underside of a submerged piece of slate, although one egg had unfortunately been crushed. In addition, two clear jelly masses were found close to the eggs. On 23.6.82, the same pair produced a further five eggs. Mean temperature during the month of June was 15°C. All eggs were moved to a well aerated bowl of matured water. The first two eggs hatched on 11.7.82, approximately one month after laying. Of the second batch, one egg hatched on 17.8.82, one egg disappeared and was presumably eaten by one of the tadpoles and the other three were infertile and were attacked by fungus (*Saprolegnia* sp.).

The tadpoles were fed upon *Paramecium* and *Cyclops*, these having been cultured in 'green' water enriched with "Liquify No. 2". As they grew, they also accepted small *Culex* sp. larvae and chironomids. Three months after hatching, the largest tadpole attacked the two smaller tadpoles, killing one individual and mutilating the other, such that it died of its injuries three days later. Clearly, youngsters will have to be separated in future, although similar species e.g. *Salamandra s. salamandra*, have not proven to be so aggressive towards their peers (Wisniewski & Paull, in prep.).

The remaining youngster, a male, now measures 4cm at the age of six months and is feeding well upon whiteworms (Enchytraeidae).

Both adults and tadpoles have proved to be reasonably hardy, even when their aeration system

failed during hot weather. Under conditions of minimal disturbance, cool temperatures and high humidity it should be possible to breed this species regularly.

REFERENCES

- Ahrenfeldt, R.H. (1960). Mating behaviour of *Euproctus asper* in captivity. *British Journal of Herpetology* 2, 11.
- Steward, J.W. (1969). *The tailed amphibians of Europe*. David & Charles: Newton Abbot.