

A NOTE ON THE MAINTENANCE OF THE RED-SPOTTED NEWT IN CAPTIVITY

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The red-spotted newt, *Notophthalmus viridescens*, is a common salamandrid urodele of the eastern states of North America, and intensive research has been focused on its ecology (Gill, 1978), sexual behaviour (Arnold, 1972; Verrell, in press) and endocrine physiology (Zimmer & Dent, 1981 and references therein). The physiologists such as Dent and his co-workers have reported that within a few weeks of their introduction into the laboratory, male newts lose their secondary sexual characteristics and also their willingness to court females. I here describe a regimen which has enabled me to maintain newts in breeding condition in the laboratory for up to eight months.

Two groups of animals were captured in ponds in Tennessee, USA, and were sent to England by aeroplane in February, 1979 and November, 1980. The newts were already in breeding condition when caught, and when they arrived at my laboratory, were separated by sex and placed in aquaria measuring 122 x 38 x 38cm, with not more than 20 same-sex individuals per tank. The water in these tanks was aged tap-water and was not aerated. Its temperature was held more or less constant at 10C. Water weeds were planted when available, and the newts were given a liberal diet of chopped-up earthworms, *Daphnia* and *Tubifex*. The animals were kept under a photo-period schedule of 16 hours light: 8 hours dark (lights on at 0600 hours) to mimic spring; the illumination was provided by 'Truelite' fluorescent tubes, which produce the same mix of wavelengths as is found in natural sunlight.

Under these conditions, the two groups of newts were observed to court until July, 1980 and July, 1981 respectively. The two most obvious secondary sexual characteristics of the male, the tail fin and hindlimb nuptial pads, showed sporadic regression but this was easily reversed by supplying more food. In all, 80 females were inseminated at least once, and many of these were found to contain ovulated eggs in their oviducts upon dissection. However, few eggs were deposited in the vegetation in the tanks, and of the very few larvae produced, none survived beyond a couple of days.

This maintenance regimen differs from others that have been published in several potentially important respects. First, my newts were kept at 10C, compared with the 20-22C used by other workers. Secondly, my newts were fed live prey, whereas fortified ground, lean beef has been used elsewhere. In common with many other species of newt, the red-spotted newt only takes moving prey. Thirdly, the density of animals in each tank was probably low enough to avoid any detrimental effects of social stress, such as competition for food.

In summary, my regimen maintains red-spotted newts in breeding condition for long periods. Perhaps with some modification, it may be of use in the induction of successful reproduction in captivity in this species.

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