MISCELLANEOUS NOTES ON EUROPEAN TREE FROGS, EDIBLE FROGS, CRESTED NEWTS AND WALL LIZARDS

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(i) SEXUAL MATURITY IN 12-13 MONTHS IN THE EUROPEAN TREE FROG *(HYLA ARBOREA)* AND EDIBLE FROG *(RANA ESCULENTA/LESSONAE)*

I read with interest T. Beebee's account of sexual maturity in the Common Frog *(R. temporaria)* & Common Toad *(B. bufo)* 2 years after spawning. This would bear out my own observations.

Even more dramatically I would like to report sexual maturity after only 12-13 months (from spawn date) for the European tree frog *(H. arborea)* and the Edible Frog *(R. esculenta)*.

(a) Edible Frog.
I was given a pair of these in June 1981 and passed them on to someone else after 2 weeks. In the meantime, however, they had spawned in a garden pond. This would have been in the last week of June 1981. The offspring of this mating measured between 2½cm and 4cm on emergence from hibernation. The biggest on the 18th July 1982 was about 7cm (nose to anus), the largest being females. The males had been sexually mature and calling since late May. On the 18th July I noticed the first spawn. However, this was the first day I made a thorough search of likely places in the garden ponds. This was, however, only about 10 months from the time of metamorphosis.

(b) Tree frogs *(Hyla arborea)*
These are a free living colony in wasteland & gardens. The young of 1981 left hibernation in early May 1982 at 1cm to 3cm in length. The 3cm individuals reached sexual maturity in mid-June and have spawned regularly since in 2 separate ponds. Some 1981 young were put in an escape proof vivarium and have similarly achieved rapid maturation.

Females kept in a vivarium spawn approx. every 1½ to 2 weeks dependent upon day temperatures: warm spells produce spawn about every 10 days from the same female (from May to August). Some females originate from different localities but show the same polyseasonal activity.

Many books suggest that *H. arborea* are full-grown and sexually mature after 3 years. This is certainly not the case with free living individuals in S.E. London!

The books I have so far read also suggest that *H. arborea* mates only once in the early Spring. This is also not the case.

Much literature also suggests that Edible Frogs need 2-3 years to mature.

Perhaps they are all quoting some original source.

(ii) BOMBINA MYSTERY

Are *Bombina variegata, Bombina bombina* and *Bombina orientalis* separate species or a cline of subspecies?

I ask this question as B.H.S. member Dr. A. Millwood has hybridized *B. variegata* with *B. orientalis*. These hybrids produced fertile spawn in the care of D. Billings of Norfolk.

Dr. Millwood kindly passed on some female hybrids to me, as my 5 *B. orientalis* were all males.

I now have a fair number of *B. orientalis* x (*B. orientalis* x *B. variegata* hybrids) tadpoles and toadlets.

Surely, a main criterion of separate species status is the fact that hybrids should not be able to breed?

A look at the distribution maps would suggest that a cline of sub-species is not out of the question. Or is it another peculiar mechanism as in *Rana lessonae/ridibunda/esculenta?* Trouble here is that no 2 hybrids look alike to be able to fall into anything like a European green frog genetic mechanism where the 3 can be distinguished.

(iii) TREE FROGS, GREAT CRESTED NEWTS, 50,000 SLOW-WORMS PER HECTARE AND A CONSERVATION POND

A pond has been built by volunteers from Friends of the Earth (Greenwich) and Greenwich Nature Conservation Society on British Telecom property (with their permission!), Birdbrook Road, Kidbrooke, London S.E.3.

The pond will replace a pond destroyed in the past. Funding for the venture came from local people, Greenwich F.O.E. and Greenwich N.C.S.

The pond measures 26 foot x 24 foot with a 24" maximum depth and is ideally suited for the site's unique collection of amphibia (using garden ponds for breeding since the original pond loss). The site contains native species of amphibia including the protected Great Crested Newt as well as introduced and breeding (since 1977) Edible Frog, European Tree Frog *(Hyla arborea)* and Yellow-Bellied Toad.

It has been reported that the only tree frog colony in Britain is in the New Forest and consists of a maximum of 20 individuals (Sir Christopher Lever, British Herpetological Society Bulletin. 1982).

As the 1982 population on the "Telecom" site exceeded this, it would seem to rate as the largest in the country for this species at the moment.

Another surprising find on the site was the discovery of 31 Slow-Worms during the excavation, which were all buried between 4" and 1 foot (10 to 30cm) below ground level in an area of $1\frac{1}{2}$ x 4 metres. (The excavation was in November — hibernation time — 1982). This was the only area of top soil removed in creating the pond as for the most part it was in a natural hollow. If the density is similar elsewhere in suitable places on the site (i.e. approx. 5 Slow-Worm per square metre although presumably the figure must be far lower on average), the potential population is enormous. The soil was in fact removed from the top of a bank facing W.S.W. — which runs for over 100 metres.

Also uncovered in the same area were 3 Smooth, 2 Palmate Newts and 2 Common Frogs. The week following this a further excavation of approximately one square metre revealed 2 more Slow-Worms, a Great Crested Newt (male) and a Tree Frog. All were of course in the ground for hibernation purposes. The breeding success in Spring is now more secure for the amphibia.

(iv) WALL LIZARD COLONY IN S.E. LONDON (SOME OBSERVATIONS)

Readers may recall mention of this breeding colony of *Podarcis muralis* in Kidbrooke, London S.E.3 in previous articles. The colony is now about 5 years old and thriving. Favoured habitats are low walls with a canopy of herbage at the base in which to retreat, dead tree stumps (result of Dutch Elm disease) and the hot favourite which is a brick and slate rubble covered area with low and sparse vegetation.

A thing these places have in common is dryness and elevation into the sun with little or no shading.

Hibernation quarters for the majority is a mystery, but certainly some hibernate above ground in stag beetle tunnels in elm stumps (quarters they share with numerous Slow-Worms and young toads!). They can be seen entering and leaving these in early Spring and late Autumn to bask. Some individuals even appeared on New Year's Day 1982 to cash in on winter sun between the snow showers of that winter.

Plate 1. Tree Frog *(Hyla arborea)* at Kidbrook, S.E. London, June 1982.

Plate 2. Wall Lizards in Kidbrook, S.E. London. Communal basking in spring sunshine.

The origin of this colony is N. Italy and both males and females have a ground colour of bright green with the usual black & white reticulations and occasionally a row of blue scales laterally. As well as occasionally appearing in mid-winter they show other opportunistic and "adventurous" traits. When the sun is low, such that trees cause the only direct sunshine to be high on buildings or houses, it is possible to see the occasional lizard under the eaves of buildings or even on the roof. Another took up residence under a wall mounted security light (temporarily) when its automatic switching was faulty and it stayed on by day and provided the individual with free light and heat.

The agility is also surprising. They spend a great deal of time in the warmer summer days exploring their territory, climbing is a particularly favoured activity and no post, stake, fence, shed, etc., is left unexplored. In fact, I occasionally obtain specimens in outdoor vivaria this way as entrance via shrubs is possible but exit more difficult. However, some have managed and I still cannot discover how. When on such forays of "exploration" I have often seen them jump from post to post horizontally across gaps of up to 1 foot.

One particular male took up residence both inside and outside my garden shed this year (1982) occasionally basking inside when sun came through a window.

Eggs obtained from a female kept in one of the vivaria hatched after only 31 days at 24°—27°C. This short incubation time must provide a key to part of their success here. 2 clutches per year are normal, specimens in captivity seem to consistently lay 5-6 eggs per clutch.

The wild colony was subject to some disturbance during Midsummer 1982 when their favoured rubble and slate site was cleared for re-fencing and eventual building of an industrial estate.

This disturbance caused migration away from this area. My rear garden is some 60 yards from the nearest part of the site, and during this period lizards passed through the garden at the rate of a few a week. They were visible for a few days and then their places were taken by others. Sometimes 5 were visible at one time. As the lizards are so variable in hue and markings, and vary in age from brownish juveniles to full grown greenish adults, telling them apart is relatively easy. This made it a simple task to tell that, during the period of disturbance, the garden population changed. To estimate the total population is, however, not possible as their range extends over one public (the once favoured area) two private government owned areas and numerous gardens. It must be added that during the hottest weather, even without disturbance, some lizards made passage through the garden to reach outlying areas (in respect of the main colony) but these are predominently very young individuals or mature males that have possibly been driven out by more dominant ones.

Whether the new areas they eventually colonise will be as beneficial to their survival as their original remains to be seen. Because of cats, the gardens are not really suitable. Railway banks (about ½km away) should prove suitable if they can extend that far before a motorway, planned to start in Autumn 1983, cuts them off!

The photograph shows the Wall Lizards basking communally on an Elm stump in Spring.