

REPEATED SPAWNINGS IN *HYPEROLIUS MARMORATUS*

CHRISTOPHER MATTISON

138 Dalewood Road, Beauchief, Sheffield, 8

Hyperolius marmoratus is a polymorphic reed frog from southern Africa. Adults are usually coloured brown and cream, the colours being arranged either as brown mottling on cream, or as brown stripes on cream (i.e. 'humbug-style') but occasional males apparently retain the plain brown juvenile markings into maturity. In an attempt to investigate the genetics and significance of these variations, a small group of adults was obtained from Mtuzini in Natal. Unfortunately, the work was never completed but the reproductive data obtained may be of some interest.

12 adults from the same locality had the following markings:

males — 6 striped; 1 brown
females — 3 striped; 2 mottled

All possible combinations of these markings were paired, but the brown male never attempted to breed and was not heard to call — this may or may not be significant.

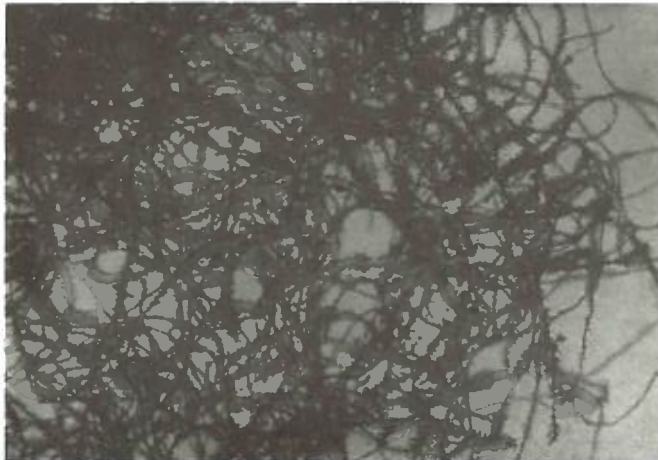


Plate 1. Eggs of *Hyperolius marmoratus* on Java Moss.

The animals were originally housed in large plastic lunch boxes containing a pad of damp filter paper and a small petri-dish of water. This method was used successfully by Richards (1977) to breed *H. viridiflavus*, the only previous report of captive breeding in *Hyperolius*. However, both productive pairs laid infertile clutches on the bottoms of these boxes and were subsequently moved to larger cages. These consisted of glass aquaria measuring 18 x 10 x 10 inches, containing about 2.5 inches of water. A thin styrofoam platform was wedged across the tank at surface level to give a dry area (for the introduction of food) without affecting the volume of water. A small clump of Java moss (*Vesicularia dubyana*) was placed in the water and this was changed each time that spawning occurred. The adults were fed daily on crickets and houseflies dusted with 'Vionate', a powdered vitamin-mineral supplement.

Temperature was kept at a constant 72 degrees F and the photoperiod was 14 hours light: 10 hours dark. As the room received no natural lighting only a single fluorescent lamp, a covered desk lamp was left on permanently in order to avoid total darkness at night.

Males (whether paired or not) began calling soon after 'lights-out' each night, usually while clinging to the glass sides of the aquarium. The call was a high-pitched 'peep-peep-peep', best likened to a squeaky wheelbarrow being moved about. Spawning was never observed and invariably occurred during the night, the spawn being deposited in several small clumps, attached to the Java moss, each containing about 20 eggs.

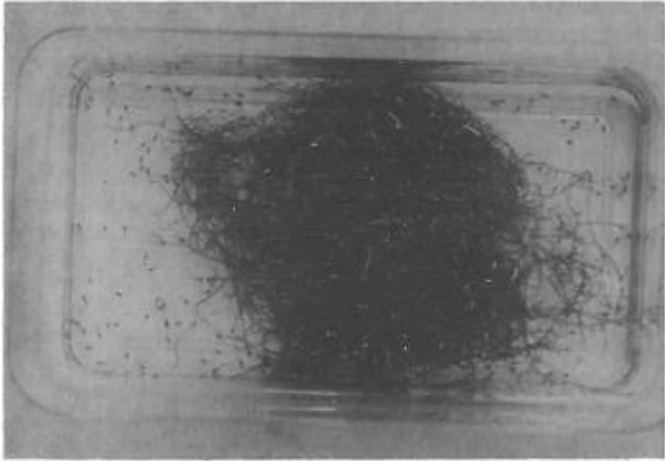


Plate 2. Young larvae of *Hyperolius marmoratus* in rearing container.

Spawn and tadpoles were raised in small plastic boxes containing 'their' Java moss; aeration was provided via a hypodermic needle attached to a plastic air line. The tadpoles were fed on a good quality tropical fish flake and were kept clean by periodically changing about 30 per cent of their water. Local tapwater (Ph 6.6) was used throughout. At metamorphosis they were transferred to an 18" x 10" x 10" aquarium lined with moist tissue and fed on small crickets. Although they grew rapidly, it was necessary to dispose of the colony before any reached reproductive size. All juvenile *Hyperolius marmoratus* are brown in colouration.

HYPEROLIUS MARMORATUS -BREEDING DATA

	Date laid	Date hatched	No.	Date first metamorphosed
Female 1	29.12.81	infertile*		
	16. 1.82	infertile*		
	26. 1.82	30. 1.82	200	7. 4.82 (66 days)
	5. 2.82	9. 2.82	241	Died
Female 2	4. 1.85	infertile*		
	22. 1.82	26. 1.82	333	31. 3.82 (64 days)
	1. 2.82	6. 2.82	230	12. 4.82 (65 days)
	13. 2.82	17. 2.82	190	24. 4.82 (66 days)
	28. 2.82	3. 3.82	186	10. 5.82 (61 days)
	11. 3.82	15. 3.82	179	26. 5.82 (62 days)
	22. 3.82	26. 3.82	—	
	6. 4.82	10. 4.82	—	
	16. 4.82	infertile**		
	26. 4.82	infertile**		
averages	11.2 days	inter-clutch	223	64 days

* clutches of eggs laid in plastic boxes
 ** male died shortly after the last of these two infertile clutches

DISCUSSION

Hyperolius marmoratus breeds readily and prolifically under simple conditions (although I have since been unable to induce commercially obtained specimens to reproduce or even to stay alive for any great length of time). Their enormous breeding potential and polymorphism could be of value to geneticists and behavioural ecologists (as well as to persons requiring large numbers of small frogs as snake-food etc.). It would be of great interest to see if this reproductive potential occurs in the wild as well as under controlled conditions — if so, this, and other similar species undoubtedly contribute a significant biomass to the lower and middle trophic levels of the eco-system.

ACKNOWLEDGEMENTS

The animals were collected for me in South Africa by Arthur Stevenson of the University of Wales, Cardiff.

REFERENCES

- Richards, C.M. (1977). Reproductive potential under controlled conditions of *Hyperolius viridiflavus*, a Kenyan reed frog.
Journal of Herpetology 11 (4): 426-428.

Advertisement

CONSERVING SEA TURTLES

by Nicholas Mrosovsky

Published by the British Herpetological Society

Description:

"Conserving Sea Turtles" is a critical review of the current problems and controversies of sea turtle conservation. In the words of the author: "Sea turtles are beautiful complex creatures, mysterious enough to become addicting for the biologist, absorbing for anyone to watch, and of great value for their eggs, meat, shell and leather. This book is not concerned with demonstrating that sea turtles are worth preserving; that is taken for granted. It is concerned with the methods being used to achieve that end; it argues that much is wrong. If my criticisms can be refuted, then current activities on behalf of the turtles — and the turtles themselves — will emerge all the stronger. If my criticisms stand, then it is time that a strong light was shone into the dark corners of the conservation biology of these species — and of others too perhaps. I am also convinced that the intentions of those active in sea turtle conservation are irreproachable. It is only the means of proceeding that I wish to debate"

It is written in a clear and uncomplicated style, and will be of interest to the general reader as well as the specialist biologist. The principles discussed are currently of crucial political importance, not only for sea turtle conservation but applied generally to the conservation of the world's fauna.

Contents:

Foreword — Preface — Turtles are Big — A Brief Life History — The Tagging Reflex — Head Starting: The Heart Has Its Reasons — Operation Green Turtle — The Styrofoam Box Story — Kemp's Ridley in a Technological Fix — The Anathema of Farming — Four Thousand Unwanted Turtles — Dangerous Categories — The Alarmist Strategy — Problem Resolving — Splitting: Strategy or Science? — An Egg-Laying Machine — Abbreviations — References — Index.

Specifications:

176pp. Paper Cover. Lacquered. ISBN 0 9507371 1 9. Publication date: February 1983.

Price:

U.K. £5.00 + 75p postage (surface mail) or £2.80 (air mail).

U.S.A. \$10.00 + \$1.00 postage (surface mail) or £5.00 (air mail).

International Money Orders and Cheques should be made payable to the British Herpetological Society. Orders should be addressed to Dr S. Townson, British Herpetological Society, c/o Zoological Society of London, Regent's Park, London, NW1 4RY, England.