THE BRITISH HERPETOLOGICAL SOCIETY

BULLETIN



No. 41 Autumn 1992

THE BRITISH HERPETOLOGICAL SOCIETY

c/o Zoological Society of London Regent's Park, London NWI 4RY

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The British Herpetological Society was founded in 1947 by a group of well-known naturalists, with the broad aim of catering for all interests in reptiles and amphibians. Four particular areas of activity have developed within the Society:

The Captive Breeding Committee is actively involved in promoting the captive breeding and responsible husbandry of reptiles and amphibians. It also and advises on aspects of national and international legislation affecting the keeping, breeding, farming and substainable utilisation of reptiles and amphibians. Special meetings are held and publications produced to fulfill these aims.

The Conservation Committee is actively engaged in field study, conservation management and political lobbying with a view to improving the status and future prospects of our native British species. It is the accepted authority on reptile and amphibian conservation in the UK, works in close collaboration with the Herpetological Conservation Trust and has an advisory role to Nature Conservancy Councils (the statutory government bodies). A number of nature reserves are owned or leased, and all Society Members are encouraged to become involved in habitat management.

The Education Committee promotes all aspects of the Society through the Media, schools, lectures, field trips and displays. It also runs the junior section of the Society – THE YOUNG HERPETOLOGISTS CLUB (YHC). YHC Members receive their own newsletter and, among other activities, are invited to participate in an annual "camp" arranged in an area of outstanding herpetological interest.

The Research Committee includes professional scientists within the ranks of the Society, organises scientific meetings on amphibian and reptile biology and promotes The Herpetological Journal, the Society's scientific publication.

Meetings

A number of meetings and events take place throughout the year, covering a wide range of interests.

Publications

The BHS Bulletin, Herpetological Journal and YHC Newsletter are all produced quarterly. There are in addition a number of specialised publications available to Members and produced by the various Committees, such as notes on the care of species in captivity, books and conservation leaflets.

Subscriptions

All adult subscriptions become due on the first day of January each year. Payment by Banker's Order is much preferred.

Ordinary Members Full Members	£20 £25	(Receive Bulletin only) (Receive Bulletin and Journal)
Family Members	£30/£37.50	(Without/with Journal)
*		Family members with children also receive the YHC
		Newsletter
Student Members	£18	(Receive Bulletin and Journal)
Institutional rates YHC (Age 9-18):	£36	(Receive Bulletin and Journal)
Basic Membership	£5	(Receive YHC Newsletter)
Bulletin Membership	£10	(Receive Newsletter and Bulletin)
Group Membership		For Schools, Youth Groups etc.
* *		Contact Education Officer (Address on inside of back cover) for details)

Correspondence, Membership applications, subscription renewals and purchase orders for publications should be addressed to the Secretary (address as at page top) EXCEPT for YHC matters. YHC Membership and renewal details are available from the Education Officer (address on inside of back cover). PLEASE INCLUDE A STAMP-ADDRESSED ENVELOPE WHEN WRITING TO THE SOCIETY.

The Society does not, as a body, hold itself responsible for statements made or opinions expressed in the Bulletin; nor does the Editorial necessarily express the official opinion of the Society.

The Bulletin is edited and produced by

John Pickett and Simon Townson.

Contributions and correspondence arising from the Bulletin should be sent to:

John Pickett, 84 Pyrles Lane, Loughton, Essex IG10 2NW

Adult Male Natal Midlands Dwarf Chameleon, Bradypodion thamnobates. See article on the reproduction of this species in captivity by Bert Langerwerf, p.15. photo: Stephen Peltz

REMAINING SOCIETY MEETING FOR 1992

DECEMBER 5th (Saturday) Special Saturday Meeting organised by the Captive Breeding Committee 2 p.m. to 5.30 p.m. at Birkbeck College, Malet Street, London WC1. Mr. Bert Langerwerf (Alabama, USA) will be speaking on farming reptiles in outdoor vivaria.

Also Inaugural Scientific Meeting. See Programme on p. 2.

BRITISH HERPETOLOGICAL SOCIETY MEETINGS FOR 1993

All Members are welcome to attend the meetings outlined below, further details of which will appear n the Bulletin in due course. Reserve these dates in your diary!

March 20th	ANNUAL GENERAL MEETING, Birkbeck College London. This will include three talks: Breeding European herps in outdoor vivaria, by CHARLES SNELL Some African herpetofauna and the impact of tsetse control insecticides on lizards in Zimbabwe, by MIKE LAMBERT The amateur herpetologist's role in breeding programmes, by PAT WISNIEWSKI
May 1st	JOINT CONSERVATION/EDUCATION COMMITTEE MEETING, Brenscombe Farm, Corfe Castle, Dorset. Tours of three important reptile nature reserves guided by local experts.
May 14th	CAPTIVE BREEDING COMMITTEE MEETING, Denham. Lacertas in outdoor reptiliaries, by CHRIS DAVIS
July (to be finalised)	CAPTIVE BREEDING COMMITTEE MEETING, Birkbeck College, London. Caring for and acclimatising animals in captivity. A talk for beginners, by MARK GEACH.
September 25th	CAPTIVE BREEDING COMMITTEE MEETING, Birkbeck College, London. Breeding reptiles in captivity, by HENK ZWARTEPOORTR.
October 16th	AUTUMN GENERAL MEETING, Birkbeck College, London. There will be three talks during the afternoon: Long-term studies: the role of the amateur in herpetology, by LEIGH GILLETT Round Island's reptiles are under new management, by DAVID BULLOCK The thermal ecology of lacertid lizards, by ROGER MEEK.
October 31st or November 7th	CAPTIVE BREEDING COMMITTEE MEETING. Annual Members' sale.
December 4th	RESEARCH COMMITTEE MEETING Details to follow.

BRITISH HERPETOLOGICAL SOCIETY

SCIENTIFIC MEETING

Inaugural Meeting of the Research Committee, Organized by Professor T.R. Halliday, Chairman

To be held on

Saturday, 5th December 1992

at

Birkbeck College (University of London), Malet Street, London WC1

PROGRAMME

- 10.30 11.00 Arrival and refreshments
- 11.00 Introduction by Professor John Cloudsley-Thompson (President) Opening of meeting by the Earl of Cranbrook (Chairman, English Nature)
- 11.05 11.45 Dr Richard Griffiths (Durrell Institute of Conservation & Ecology, University of Kent)

Effects of temperature and acidification on newts

11.45 - 12.25 Dr John Baker (Biology, The Open University)

Amphibians in new farm ponds

12.25 - 12.30 Dr Michael Lambert (Natural Resources Institute, Chatham)

Presentation on behalf of BHS to the Earl of Cranbrook (President, 1981-1991) in appreciation of his contribution to herpetology in Britain

- 12.30 14.00 LUNCH
- 14.00 14.40 Dr Richard Tinsley & Dr Karen Tocque (Biology, Queen Mary & Westfield College, London)

Temperature dependent sex determination in crocodilians

15.20 - 16.20 General Discussion, led by:

Professor Tim Halliday (Biology, The Open University) and **Dr Trevor** Beebee (Biology, University of Sussex)

Global amphibian declines: real phenomenons or false alarm?

The colour plates of Uromastyx acanthinurus in the Summer 1992 issue of the Bulletin were by Stephen Peltz.

PROVISIONAL MINUTES OF THE 45TH ANNUAL GENERAL MEETING OF THE BRITISH HERPETOLOGICAL SOCIETY, HELD AT 11.00 AM, SATURDAY MARCH 21ST, 1992 IN BIRKBECK COLLEGE, LONDON

The meeting was chaired by Dr. T.J.C. Beebee. There were thirty two attendees and apologies for absence were received from J. Cloudsley-Thompson, M. O'Shea, D. Bird and M. Swan.

- 1. Minutes of the previous AGM (23.3.91) were accepted nem. con.
- 2. Matters arising. There were none.
- 3. Annual Report.
 - This was circulated at the meeting.

(a) Attention was drawn to a small fall in the numbers of ordinary members compared with 1990, probably due to the economic recession. YHC and Corporate members, by contrast, were as high or higher than in 1990 and overall membership was still above 1000.

(b) It was pointed out that the Society Main account (audited, and precirculated with the winter Bulletin) showed an excess of income over expenditure during 1991, but that this was largely because only one edition of the Journal and three Bulletins were paid out of 1991 subscriptions. Income for 1992 under the new subscription schemes looks promising, however, with a high proportion of subscribers opting for Full Membership. Council has planned on the basis of funding the full complement of publications in the present year. The Society now has a total of seven bank accounts, all with positive balances at the end of 1991. The new Charity Act will require proper auditing of all BHS accounts in future. In response to a question, it was pointed out that the North-west England Regional Group does not currently run a BHS account.

(c) The new meeting arrangements were approved without discussion.

(d) It was reported that both the BHS regional groups had been active during 1991, and were continuing to arrange meetings and other events for 1992.

(e) The Journal editor was congratulated for his efforts in securing a £2,000 loan from the Royal Society for software to reduce publication costs and for initiating efforts to produce the Journal quarterly. Both Journal and Bulletin production ran smoothly during 1991, and the Bulletin editors made a plea for more submissions of articles on captive breeding. The YHC Newsletter editor was also congratulated on the great improvements to this Society publication effected over the past year. Finally, the ever-increasing range of colour leaflets produced by the Society were demonstrated and Members were reminded that all are entitled to one free copy of each upon request (stamped addressed envelope required).

(f) The librarian is in the process of sorting out the Society's books and journals, and moving them from the Linnean Society to his own home in Dorset. A proposal for the future of the library will come before a future AGM.

(g) The Captive Breeding Committee held its usual range of meetings during 1991, and the Conservation Committee maintained its high level of activity with financial support (via the Herpetological Conservation Trust) from English Nature and the Worldwide Fund for Nature. The Education Officer described the very extensive work of the Education Committee in 1991, including a range of meetings, the spring field trip, a host of media events and the change of name from J. Herps to YHC. There was acclaim for the important contribution of this expanding component of the Society. Finally, the chairman of the Research Committee confirmed that plans were underway for a scientific meeting on the topic of Conservation Biology to be held in London during November 1992.

The meeting accepted the Annual Report nem. con.

4. Changes to Society Rules.

Proposals circulated before the meeting were described by the Chairman, and a single modification inserted under paragraph 9 to include Student Members. The proposals (attached to Minutes) were then approved nem. con. A Complete revised set of rules will be published in a forthcoming Bulletin.

5. Election of Council 1992-1993.

The proposals of Council, listed below, were approved nem. con.

President:	Prof. J. Cloudsley-Thompson
Chairman:	Dr T.J.C. Beebee
Secretary/Treasurer:	Mrs M. Green
Journal Editor:	Dr R.A. Griffiths
Bulletin Co-editors:	Mr J. Pickett
	Dr S. Townson
Librarian:	Mr D. Bird
Development Officer:	Mr B Banks
Legal Officer:	Mr P. Curry
Education Officer:	Mr C. Fitzsimmons
(and Education Committee Chairman)	
Chairmen of Captive Breeding Committee:	Mr T. Thatcher
Conservation Committee:	Mr W. Whitaker
Research Committee:	Prof. T.R. Halliday
Regional Group Representatives -	
North-West:	M ^r R. Paul
Scotland:	M ^r A. Darby
Ordinary Members:	D ^r J. Baker
	M ^r J. Gaughan
	M ^r L. Gillett
	D ^r M. Lambert
	M ^r M. O'Shea
	D ^r M. Swan

6. Any Other business.

(a) Professor J. Cloudsley-Thompson had proposed that Dr Harold Fox, a previous editor of the British Journal of Herpetology, be made an honorary member of the Society. This was approved nem. con.

(b) Mrs Monica Green was first elected to serve as Secretary to the Society on March 22nd 1952. A presentation was made in appreciation of her sterling and unstinting efforts over the past forty years. There was general acclaim, and hope was expressed that she would continue in her post for many years to come.

(c) Dr Mike Lambert drew Members' attention to a compilation of tributes and appreciative letters being prepared for presentation to Lord Cranbrook, recently retired BHS President, and asked for signatures to a contribution from Members before the end of the day.

(d) There was some discussion about relations between BHS and other UK herpetological societies. It was agreed that it was in the interests of all herpetologists in Britain that these be as close as possible, and Council is committed to improving them as opportunities permit. Good relations already exist with many herpetological societies abroad.

The meeting closed at 12.00 AM, and was followed by the "Herp Quiz" and a series of three separate talks during the afternoon.

REPORT OF BHS NORTH WEST MEETING – 26TH MAY 1992

The main subject for the meeting was a talk given by Brian Banks, covering the work of the BHS Conservation Committee. The talk centered on 2 particular areas, the conservation of herptiles on the southern heathlands, and the conservation of Natterjack Toads.

The southern heathlands are under threat from increasing pressure for building land, and from change in agricultural use. An example of Poole Council was quoted where planning permission for building was given on an ideal reptile site. Following representation from the BHS and other conservation groups the Secretary of State for the Environment overruled the application. Fortunately Poole Council are now very co-operative in considering conservation when considering planning applications.

The change in agricultural use was described as primarily being changes in grazing patterns. This has permitted major scrub and bracken encroachment. The habitat of Sand Lizards needs to include areas of open and very low planted ground. The same was said of Natterjack Toads, which hunt in open ground, whereas Common Toads adopt a more sit and wait policy in more covered ground. Examples were shown of the Conservation Committee's work in clearing scrub, and of the beneficial open ground produced in constructing fire breaks in the heaths. A grazing trial was reported to be under way at Woolmer Forest to study the effect of cattle grazing in producing suitable herptile environment.

The section on Natterjack Toads covered a large number of points, but concentrated principally on work carried out on the Cumbrian and Solway coasts. A number of slides were shown and discussed, including the old iron works at Millom, showing a rubbish strewn derilect area providing apparently ideal terrestrial habitat; Sellafield with the ponds created to give controlled flooding; tidal pools on the Solway coast showing salt water flooding.

The slides of Natterjack Toads and their environment illustrated their requirements. Their apparent death-wish, breeding in ponds prone to drying out and salt water flooding, was discussed. The drying out of pools and the salt water flooding prevents build up of Great Diving Beetles and Dragonfly Nymphs. This also discourages Great Crested Newts and Common Toads. An example was quoted of a female Great Crested Newt eating 60 Natterjack tadpoles in quick succession. The description of the effect of Common Toad tadpoles is particularly interesting and is the subject of on-going investigation. The Common Toads spawn earlier than the Natterjacks. An organism in the tadpole faeces inhibits the growth of the tadpoles and in particular, later smaller tadpoles which could include Natterjack tadpoles.

A brief report of this type fails to convey the wealth of subject matter covered. The members present were enthusiastic in their response to the slides and discussions. Formal thanks were made by the Chairman.

THE BRITISH HERPETOLOGICAL SOCIETY CONSERVATION COMMITTEE REFLECTIONS FROM THE NEW CHAIRMAN ELECT

JAN CLEMONS

34, Montalt Road, Cheylesmore, Coventry CV3 5LU

Among our native herpetofauna the main concern is for the three rarest species, the Smooth Snake (Coronella austriaca), Sand Lizard (Lacerta agilis) and Natterjack Toad (Bufo calamita) whose numbers have rapidly declined over the last forty years. The Leicester Polytechnic / NCC National Amphibian and Reptile surveys for the period 1980 to 1990 have shown that the status of the common species has also changed. The Warty Newt (Triturus cristatus) has the lowest amphibian status due mainly to loss of breeding ponds and lack of success in colonising garden ponds. The Common Frog (Rana temporaria) has the highest amphibian status during the study period. The Smooth Newt (Triturus vulgaris), Palmate Newt (Triturus helveticus) and Common Toad (Bufo bufo) have an intermediate status but all show evidence of decline. The four common reptile species namely the Viviparous Lizard (Lacerta vivipara), Slow Worm (Anguis fragilis), Grass Snake (Natrix natrix) and Adder (Viper berus) show an overall decline due to habitat loss. This was most noticeable in southeastern England.

The pressures and threats facing populations of both rare and common British herpetofauna is cause for concern and effective strategies to improve their status must be developed. The Conservation Committee and the Herpetological Conservation Trust (HCT) are working together to address these problems and foster working solutions.

The extent to which attitudes to our native amphibians and reptiles have changed over the last forty years was highlighted by an old book I recently acquired. Titled 'British Reptiles and Amphibians' of the Black's Young Naturalist's series, it was first published in 1954. The four colour plates showing endearing meetings between our native herpetofauna would obviously appeal to children and the text written by Richard L.E. Ford contained many surprises.

The author briefly outlines the status of species which could disappear. The Natterjack Toad has a restricted distribution and small populations compared with other amphibians species, but there appear to be no threats which could threaten its existence here. The Sand Lizard is also restricted and suffers as a result of heath fires due to the increase in number of cars and consequent picnics, conifer plantations and military activity. Sounds familiar? Concern about the Smooth Snake is outlined. As a snake it is either persecuted or caught by collectors and is the species most likely to vanish.

The bulk of the text deals with the individual species and their natural history with emphasis on how to catch and keep them in captivity. Anecdotes such as observing Warty Newts through the side of a jar and methods of preparing skeletons, are dispersed throughout the text. As a school library book it was no doubt a useful reference for the young herpetologist but the word 'conservation' was not used in its nature context in those days. A school today would have its own pond for amphibian studies and dissection would be a thing of the past.

Today, the need for conservation of our native herpetofauna has never been greater. The synergistic effects of man's activities on this planet are becoming ever more apparent. The mysterious global amphibian declines have warranted the founding of an international task force that will co-ordinate a long term monitoring programme of amphibian populations. The only way this can be accomplished is by individuals in every nation surveying local populations. The green slogan 'Think globally but act locally' makes sense when you think how important just one set of long term monitoring records would be.

The threats to our existing herpetofauna have continued to escalate. The unforeseen threats in 1954 to the Natterjack Toad, namely loss of habitat due to housing estates and holiday developments coupled with long term loss of their breeding ponds, has led to their decline. Since 1954, 64% of the remaining Dorset Heathland, which supports large populations of Sand Lizards and Smooth Snakes, has been lost to urban development, agriculture, afforestation, mineral extraction and the ever present military activity. All three species are now protected under the Wildlife and Countryside Act 1981. However their habitat is not so well protected from destruction, neglect and ignorance. In a report part-funded by the WWF and published by Wildlife Link it is estimated that 5% of SSSI's are destroyed or damaged annually. Changes in legislation and increased funding for those organisations involved in the protection and management of SSSI's is essential to effectively safeguard these valuable areas. This can only be achieved by influencing those in political power. The Conservation Committee and the HCT continue to campaign for the protection of our native herpetofauna species on a national and international level.

The efforts and achievements of the Conservation Committee and Society members in practical conservation work, has resulted in a greater understanding of population dynamics and the development of skilled habitat management strategies. The dedication and commitment of our voluntary task force cannot be underestimated in terms of the progress made so far, but more volunteers are needed to help with the committee's work as the threats facing our reptiles and amphibians continue to intensify. There is a lot of hard work that needs to be carried out if we are to effectively conserve and protect our British species. Society members who are willing or able to contribute so such conservation work are most welcome.



Members of the Young Herpetologists Club from Rugby High School representing the British Herpetological Society are presented with a cheque for £5,000 from Mr. D. Taylor, Marketing Manager for the Birmingham Midshires Building Society at a site in the Midlands where Natterjack Toads were introduced from Cumbria. The BHS advised on the creation and management and supplied the spawn. The group are pictured by a newly excavated scrape.

Site purchase is essential to secure important reptile and amphibian sites. For example, voluntary management work is wasted if the landowner is not sympathetic with positive heathland management and allows the site to revert to woodland. The appeal to raise money for the Land Fund to help us acquire nature reserves has generated many donations. The Birmingham Midshires Building Society have contributed £5,000 for the use of a frog in a new account campaign. Individuals opening an account were eligible for a prize holiday to the United States with the caption 'Hop across the pond'. For each account opened, £1 would be donated to the Land Fund. This money has been used to complete the purchase of a BHS reserve which supports the last unprotected native Sand Lizard population in Surrey. This densely populated lizard colony is being threatened by lack of management and consequent pine invasion. Now that the site is being managed by the BH and HCT the original heathland habitat is becoming established.

The Conservation Committee is also working closely with the Education Committee to give Young Herpetologists the opportunity to carry out valuable conservation work and raise awareness of the problems that threaten our reptiles and amphibians. At the Midland Natterjack site Young Herpetologists, under licence from English Nature monitored the amphibian populations present and discussed suitable reserve management plans with the county ecologist.

Further reading:

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WWF News Spring 1992, page 11.



NOTES ON THE HERPETOLOGY OF NORTH SINAI SHERIF M. BAHA EL DIN

c/o E. B. S., Cairo Marriott Hotel, PO Box 33 Zamalek, Cairo, Egypt

Despite the fact that Sinai is, herpetologically, one of Egypt's better covered regions, there is still much to be learnt about its reptiles and amphibians. Sinai being part of a transition or integration zone between several zoogeographical influences: Saharo-arabian, Irano-tauranian and Saharan, is of great interest herpetologically. Several records and observations made in the course of the past few years, add to our knowledge of the reptiles and amphibians of the region; these are reviewed below:

Rana ridibunda

The species was found for the first time in Sinai in the vicinity of Rafah in June 1989, where it was found commonly breeding in stagnant ditches amongst cultivated coastal dunes. The species probably colonised the area recently following the increase of cultivation in the region and the increased availability of fresh water.

Hyla arborea

A single specimen of this species was collected from the vicinity of Sheikh Swaied (Abd El Shakour 1990). This is the first known record of the species from Sinai and Egypt. No further animals were found at that locality. However, Mr. Waheed Salama (pers. com.) reported to me that he had observed the species previously in orchards in the vicinity of El Arish. This represents nearly a 50 km extension westwards of the known limit of the species at Gaza.

Testudo kleinmanni

The status of this threatened species in Sinai (as well as throughout its entire range) is becoming increasingly precarious. A single specimen was found with a local inhabitant at El Teloul, on the southern shore of Lake Bardawil. The man claimed he had found the animal wandering just outside his house. Almost all bedouins from North Sinai questioned about this species stated that they no longer encounter it. However, there are two unconfirmed reports from the vicinity of El Gorah and 20 km south west of El Arish of single animals. There are also unconfirmed reports of a small population on the island of Um El Rumiat, Lake Bardawil.

A further record of interest concerning this species is the finding of remains of a single animal in a Brown-necked Raven's, *Corvus ruficollis*, nest, located in a tributary of Wadi Digla (about 50 km SE of Cairo) on 5 July 1991. Buskirk (1985) regarded the specimen from Bir Gindali (a few kilometres east of the above locality) reported by Marx (1968) as an introduction "well outside the natural range of *T. kleinmanni*". Mendelssohn (in Groombridge 1982) stated that the species does not occur further than 60 km inland from the Mediterranean. Bir Gindali is about 175 km from the Mediterranean.

Dermochelys coriacea

The species is reported in literature only from South Sinai coasts (Frasier and Salas 1984). Between 1985 and 1991 three large dead examples were found along the Mediterranean coast of Sinai; one of which was found at Zaranik, the two others at El Arish.

Trionyx triunguis

Baha El Din and Salama (1992), report the first record of a live specimen of this species from Sinai, which was caught in the Mediterranean off El Arish on 9 October 1990. Werner (1982) regarded the species as absent from Sinai due to the lack of suitable habitats. Kasparek and Kinzelbach (1992) suggest that the marine wanderings of this species in the eastern Mediterranean are part of its natural foraging pattern, rather than accidental strays.

Ophisops elegans

The occurrence of this species in Sinai has been debated for a long time. Hoofien (1965) argued that the locality "Furweila" where Barbour (1914) reported the species from Sinai,



Map of North Sinai showing most locations mentioned in the text

is actually in Jordan. Both Flower (1933) and Schmidt and Marx (1956) included the species amongst Sinai's herpetofauna based on this record; and Werner (1982) did not include the species in his review of Sinai's herptofauna, even though he expected the species to be found in Sinai.

A sizeable population was found at Qusiema, in north east Sinai, for the first time on 4 May 1990. The animals found appear to be assignable to *O. e. ehrenbergi*, which is found in the Negev.

Mesalina rubropunctata

A specimen was collected 35 km south west of El Arish on 27 April 1992, representing the eastern most record of the species in Sinai.

Mabuya vittata

A single specimen was collected from El Arish, representing the first record of the species from Sinai (Abd El Shakour 1990). Werner (1982) doubted the occurrence of the species in Sinai based on the apparent lack of suitable habitats in the peninsula.

Ablepharus kitaibeli

A single specimen was collected on 1 August 1990 at El Qusiema, north east Sinai. The species was previously only known from the mountains of South Sinai.

Large scale agricultural projects (in progress and planned for the near future) will change the ecology of large tracts of desert land in North Sinai. These projects, which are irrigated with Nile water, will probably lead to the spread into Sinai of the reptile and amphibian taxa associated with the Nile in Egypt, such as *Bufo regularis, Ptychadena mascareniensis*, Mabuya quinquetaeniata and Psammophis sibilians. Already a parallel trend can be observed with avian species. The above taxa have, over the past century, colonized the Suez Canal zone which was similarly supplied with Nile water, after the construction of the Suez Canal. It would be interesting to see how successful they will be in spreading into Sinai.

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HYLA MERIDIONALIS FROM THE LATE PLEISTOCENE (LAST INTERGLACIAL AGE: IPSWICHIAN) OF BRITAIN

J. ALAN HOLMAN

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INTRODUCTION

Hallock et al. (1990) reported Hyla sp. from the Late Pleistocene sediments of the Itteringham Gravel Pit (National Grid Reference 139305) in Norfolk. The detritus muds that contained the Hyla remains (as well as other small vertebrates) were interpreted as representing the Last Interglacial Age (Ipswichian) of the Pleistocene. Other exotic herptiles in the Itteringham fauna were Rana "esculenta" or ridibunda and Emys orbicularis.

At the time the Interringham amphibian and reptile fossils were reported, only two modern skeletons of European Hyla (both H. arborea) were available to authors. In August, 1992, I studied at the Museo National Ciencias Naturales, Madrid, Spain, where I was able to examine four additional modern skeletons of Hyla arborea as well as eight skeletons of the other European species, H. meridionalis. After the study of the new material, I suggest that the Interringham fossil represents H. meridionalis.

SYSTEMATIC PALAEONTOLOGY

Class Amphibia Linnaeus, 1758 Order Anura Rafinesque, 1815 Family Hylidae Gray, 1825 Genus Hyla Laurenti, 1768

The Family Hylidae is represented in Europe by only two species, both in the genus Hyla. Modern Hyla arborea may be distinguished from H. meridionalis by its prominent lateral stripe which is missing in the latter species.

Hyla arborea occurs widely on the European continent, but there is a gap in its distribution in southern France and it does not occur in southeastern Iberia (Arnold and Burton, 1978; Escriva, 1987). Hyla meridionalis has a more restrictive distribution and occurs in southern France, extreme northeastern Spain and extreme northwestern Italy; then with a gap in Iberia except for about the southwestern one-third of the peninsula (Arnold and Burton, 1978; Escriva, 1987).

Neither species occurs naturally in Britain today, although *Hyla arborea* has been introduced from time to time in southern England and on the Isle of Wight, but in only one or two cases have there been any extended periods of breeding (Frazer, 1983).

Hyla meridionalis Boettger, 1874

Material. - Right ilium, Cromer Museum, Norfolk, Itt. No. 3.

Remarks. — Terminology used here follows Chantell (1964) who refers to the elevated structure on the ilium of the Hylidae that lies above the acetabulum as the **dorsal prominence** and the rounded structure tghat occurs on the lateral side of the dorsal prominence as the **dorsal protuberance** (Fig. 1a).

In the six modern skeletons of *Hyla arborea* and eight modern skeletons of *Hyla meridionalis* studied it was obvious that the dorsal prominence/protuberance complex differed in the two species. In *Hyla arborea* the prominence is low and the protuberance is elevated above the

prominence (Fig. 1b). In *Hyla meridionalis* the prominence is higher and triangular in shape and the protuberance occurs lateral to the prominence (Fig. 1a). The ilium from the Itteringham fossil locality resembles *Hyla meridionalis* in this character (Fig. 1c).



Fig. 1: Ilia of Modern and fossil Hyla. A. proximal left ilium of modern Hyla meridionalis (male), Museo National Ciencias Naturales No. 16226. B, proximal left ilium of modern Hyla arborea (male), MNCN 16219. C, proximal right ilium of fossil Hyla meridionalis from the Late Pleistocene (Ipswichian Interglacial Age) of Itteringham, Norfolk, Cromer Museum Itt. No. 3. A and B are from camera lucida drawings, C is from Hallock et al. (1990). Structure 1 is the dorsal protuberance. Structure 2 is the dorsal prominence. The line equals 1 mm and applies to all figures.

Assuming that *Hyla meridionalis* and *Hyla arborea* were both restricted to areas south of the Pyrenees during the Wolstonian Glacial Age, Engelmann et al. (1987, p. 14) indicate an eastern route around the Pyrenees that both species could have utilized to have invaded southern France and thence into England during the Ipswichian Interglacial Age.

Oddly, considering present ranges, it would seem that *Hyla arborea* rather than *Hyla meridionalis* might have been more likely to have reached England during Pleistocence Interglacial Stages (compare map 34 with map 35 in Arnold and Burton, 1978).

Hyla meridionalis is the species with the most southern general distribution in Europe today to have invaded the British Isles during any of the Pleistocene Interglacial Ages. Moreover, the occurrence of Hyla meridionalis in England (along with Rana "esculenta" or ridibunda and Emys orbicularis) during the Last Interglacial Age (Ipswichian) would indicate a warmer climate than occurs in Norfolk today.

The only other *Hyla* remains that have been recorded from the British Pleistocene consists of a distal humerus from deposits at Cudmore Grove, Mersea Island, Essex, that represent the Last Interglacial Age (Hoxnian) of the Middle Pleistocene. Unfortunately, I was unable to discern any differences between the distal humeri of *Hyla arborea* and *Hyla meridionalis* so that a specific identification could not be made.

ACKNOWLEDGEMENTS

I wish to thank Dr. Borja Sanchiz and Collection Managers Carolina Martin and Jose Gonzales for allowing me to study the *Hyla arborea* and *Hyla meridionalis* skeletons under their care. Michigan State University provided funds through a Research Institution Grant for me to study osteological material in Spain in 1992.

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THE REPRODUCTION IN CAPTIVITY OF THE NATAL MIDLAND DWARF CHAMELEON, BRADYPODION THAMNOBATES

BERT LANGERWERF

10514 Chilton Road 73, Montevallo, Alabama, 35115, U.S.A.

INTRODUCTION

The Herpetological Association of Africa invited me to their second Symposium held in Bloemfontein, 8-11 April, 1991. I gave a slide show there and met several interesting herpetologists from South Africa. One of them was Lynn Raw, from Merivale, Natal. He invited me to his home and introduced me to a dwarf chameleon, *Bradypodion thamnobates*, described by him as a new species in 1976. When I looked at its habitat around houses and in gardens, and when I obtained information about the local climate, it appeared to me that I was dealing with a species which would be easily kept in captivity. At the locality where we were the animals were abundant, so that it was easy to collect a breeding group of 20 animals within an hour. Thanks to the help of wildlife authorities in Pietermaritzburg, Natal, I received CITES export permits. I promised to give information if I succeeded in breeding this species, which I do by writing this article.



Plate 1. - Adult female Bradypodion thamnobates

photo: Stephen Peltz

CLIMATIC DATA

I obtained information on the local climate from *Climatic change and variability in Southern Africa* by P.D. Tyson, University of the Witwatersrand, Johannesburg, Oxford University Press, Cape Town. The following data I extracted by locating the range of *Bradypodion thamnobates* on the climate maps by Tyson:



Plate 2. - Adult male Bradypodion thamnobates

photo: Bert Langerwerf



Plate 3. - Four different ages of *Bradypodion thamnobates* on onne branch, from left to right: adult male; 3 months old; 5 weeks old; new born; 3 days old. *photo: Bert Langerwerf*

- (a) Mean annual rainfall: 100 cm
- (b) Above 80% of rainfall in summer
- (c) 120 days of recordable rain
- (d) Between 20 and 30 days with over 10mm rain
- (e) Frequency of 4-day rainy spells: 10
- (f) Days with thunder: 60
- (g) Days with hail: between 4 and 6
- (h) Days when the temperature exceeds 30°C: 30
- (i) Days when the temperature falls below 30°C: about 5.

From all this we learn that this chameleon must be able to live at temperatures above 30°C and to be able to survive days with nightfrost, when they probably hide deep in high weeds and bushy vegetation.

The climate of Alabama is characterised by abundant rainfall also, by hot summers with many days when the temperature rises above 30°C. In winter here the temperatures are comparable to those of March and April in England. Night frosts of -10°C are possible, but also days where the temperature reaches 25°C may occur. However, most days average about 15°C during the day, with more sunshine than in England.

ACCOMMODATION

The terraria in which I keep the chameleons in Alabama have a surface area of $1\frac{1}{2} \times 2\frac{1}{2}$ m. They are inset into the ground and face south. The rear third is covered by a sheltering layer of concrete, overlaid by a 30 cm depth of earth. This feature gives extra protection against excessive heat or cold. Looking at pictures of the habitat, one can easily see that this animal in nature always has the possibility of hiding in shade or weed cover. Therefore these terraria are filled with weeds and fine branches in such a way that the branches extend from beneath the concrete cover to the open, sunny $\frac{2}{3}$ of the terrarium. As the amount of weeds and branches affords plenty of living space for the chameleons, I had no problem keeping up to 2 males and 5 females in one terrarium.

The chameleons live all year round in these terraria. Only when there is a chance of nightfrost I cover them at night with old rugs. A tomato plant placed inside the terrarium is an indicator to check if it remains frost free. In January we had over 100 cm of snow.



Plate 4. - Habitat of B. thamnobates at Merivale, Natal, April 1991. photo: Bert Langerwerf

REPRODUCTION

At the end of April, 1991 I returned to Alabama with my breeding group of Chameleons. It was immediately clear that I was dealing with a hardy animal, as between capture in Natal and arrival in Alabama was an interval of about 10 days, yet in spite of this all the animals survived. Only one male was later lost to disease, probably caused by stress. Also some may have escaped during a spring-time tornado when flying pieces of trees destroyed the wire-mesh at night.

During 1991 the females appeared gravid but no births were noted either here or in California (Sean McKeown of Fresno Zoo, who accompanied me to Natal, also kept some of the chameleons there). I discovered the first young on March 9, 1992, when somebody from Knoxville Zoo was visiting me and we were observing the terraria. There were about 15 new-born. Later, during March, April and May of this year, all 7 females I have gave birth, producing a total of 106 young. Also, the animals kept by Sean McKeown gave birth in May.

At birth the young are 20+20mm – 21+21mm in length. The best fed and strongest females gave birth to the largest young. The largest female gave birth to 20 young (21+21mm) on 29 May.

	Number born	Date	Female
Note: All terraria were	15	9.3.92	1
thoroughly searched, but	17	24.4.92	2
it is always possible that	16	2.5.92	3
I failed to find all young	8	14.5.92	4
so that these figures may	16	22.5.92	5
be slightly higher.	14	22.5.92	6
	20	29.5.92	7

Table 1

Chameleon births in 1992

The young started to feed on fruitflies (*Drosophila*) and have been maintained in terraria of $1m^3$, 20-30 individuals to each terrarium. After several weeks I checked the terraria at night and removed and separated the 2 or 3 individuals which lagged behind in growth. The terraria are all covered with mesh screen and filled with twigs and weeds. The big leaves of the weeds provide shade for these small creatures. After some weeks small crickets (*Gryllus*) were added to the diet. No vitamin or mineral supplements were given as the animals were raised outside.

The growth rate is fabulous: those born in March reached adult size in June, and I expect all those born this spring will themselves breed next spring.

The adult chameleons are given a mixed diet of fruitflies, flies, crickets, and small "giant" mealworms (Zophobas).

ACKNOWLEDGEMENTS

I wish to express my thanks to all my South African friends, who were so helpful to me, especially Mr. O. Bourguin, Mr. R. Douglas, Mr. A. Lambiris, Mr. J. Marais and Mr. L. Raw.

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NATTERJACKS AREN'T ALL THE SAME TREVOR J.C. BEEBEE 434 Falmer Road, Woodingdean, Brighton BN2 6LG

Although the Natterjack Toad (*Bufo calamita*) is widely distributed across Europe, ranging from Spain and Portugal to the Baltic states, no subspecies have ever been recognised and these toads look pretty much the same everywhere. There is some variation – natterjacks from Iberia tend to be larger than those from northern Europe, and more frequently lack the yellow vertebral strip – but certainly nothing to write home about.

Behaviour, however, is another matter. Whereas those of us living in central or northern Europe expect our Natterjacks to turn up at breeding ponds sometime in April, and hang around until midsummer, things are very different in Spain. In that country the rains, and the amphibians, tend to arrive in winter. Natterjacks not only breed much earlier there, usually in February, but also often do so explosively just like Common Toads in England. Breeding is concentrated in just a couple of weeks or so, with much fighting between males. By April the ponds are often close to drying up, so toadlets are emerging just as their more northerly cousins are starting to think about reproduction. Summer in the Iberian lowlands is so hot and dry that after this time, right through to autumn, conditions are hostile to amphibians and many species (including Natterjacks) spend long periods deep underground in a state tantamount to aestivation.

So it was with considerable interest that I took charge of seven adult male Portuguese Natterjacks, confiscated by Customs officers from an illegal shipment, in March 1988. All were goodsized by British standards, with the smallest at 61mm and the largest a gargantuan 87mm. One had no back stripe, and another virtually none; they looked different from male British Natterjacks in a variety of small, subtle ways difficult to put your finger on, but they all settled down well enough in a small greenhouse with fitted pond. Come the end of April, all 7 were transferred into an outdoor vivarium already containing some British Natterjacks (kept under licence as part of a captive-breeding programme).

And now to the real point of all this. It gradually dawned on me as the spring progressed that, simultaneous with increased activity by the native Natterjacks, I was seeing less and less of the foreigners. In fact my last sighting was on June 11th; naturally I feared the worst but quite suddenly, in mid-September, all 7 reappeared as if by magic. They were transferred to the greenhouse for the winter, and remained active (except during short spells of severe frost) right through to spring '89. By contrast, all the UK Natterjacks disappeared during late October or early November (including some kept in the same greenhouse) and didn't reappear until March. This pattern repeated itself in 1989, and again in 1990, with Brits active in summer and the Portuguese taking over for the winter shift. These animals regularly surprised mc; on January 22nd 1990, a very mild night revealed one of these Portuguese males, which I had given up for dead and not been able to move to the greenhouse, sitting in the vivarium pond in full breeding condition.

Gradually numbers have dwindled – I am now down to 4 of the original 7 – and, intriguingly, behaviour of the survivors has finally changed. I noticed during the summer of 1991 that 3 of them remained active well into July, and the following winter they disappeared into hibernation along with the Brits. Finally this summer (1992) all 4 have been active continually from March until late August, the time of writing – naturalised at last.

Seasonal behaviour patterns in Natterjacks are therefore difficult, but not impossible to change given enough time – several years in this case. For what amounts to nearly the lifetime of an average wild male Natterjack in Britain, the Portuguese animals insisted on aestivating even in a British summer, and coming out to breed in the middle of winter. It seems to me there is a message here about moving animals and releasing them distant from their origins (when trying to establish new colonies, for example). Hidden differences, which certainly include stereotyped behaviour, can occur and in this particular example would probably have proved disastrous if the individuals had simply been released into the wild.

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LETTERS TO THE EDITORS

Sperm storage in garter snakes

Dear Sirs,

A letter in Issue 38 of the Bulletin (1991-1992) from Mr. Peter Broadley reported a captive female garter snake of unknown species that had passed a baby snake, despite its not having been in contact with a male for five years. I am currently studying reproduction in the genus *Thamnophis*, and suggest that a likely explanation for the observation is sperm storage. Sperm storage lasting several months is common in garter snakes in nature, which often mate in the fall, and only achieve fertilization the following spring. In *T. sirtalis*, storage is known to occur in specialized receptacles of the oviduct, where the sperm are protected and nourished (L.H. Hoffman and W.A. Wimsatt (1972), Amer. J. Anat. 134: 71-96). A period of five years is not out of the question for sperm storage, although it may represent a new record for garter snakes; the longest report I have been able to locate in the garter snake literature is 53 months, for a captive *T. couchi* (G.R. Stewart (1972), Herpetologica 28: 346-347). As in Mr. Broadley's report, the snake fetus was born dead, so one might wonder if the sperm remained fully viable.

What is difficult to account for in Mr. Broadley's report is the suggested immaturity of the female when first isolated from the male. However, without knowing the species, it would be hard to estimate its age; among the close relatives to garter snakes (*Storeria, Tropidoclonion*) are species that give birth to young averaging 2.75 - 4 inches (7-10 cm) at birth. As for parthenogenesis, the phenomenon is exceedingly rare in snakes in general, and has never been documented in garter snakes or their North American relatives. I wish I could help resolve the issue more definitively, but perhaps this information may be of interest.

Sincerely yours,

Daniel G. Blackburn Department of Biology, Trinity College, Hartford, CT 06106 U.S.A.

Dear Sirs,

Finnish Herpetological Society

I am pleased to inform you about the existence of our local, recently established herpetological society, the Finnish Herpetological Society.

The keeping and breeding of animals such as reptiles and amphibians as a study or hobby is a relatively recent one and has no great traditions here in Finland. Our organization is the first official attempt to bring together the people involved in this hobby in our country.

At the moment, our primary interests are to seek contacts at home and abroad in order to expand our herpetological know-how; to increase the very limited number of species available to the hobbyists here at this time; to ensure the treatment and welfare of the animals kept and to encourage more accurate and planned attempts of breeding of the animals by the hobbyists.

We would very much like to hear from similar organizations and their members around the world; all correspondence and assistance is welcomed gladly. All answers can at this time be directed to the aforementioned address. We look forward to hearing from you.

Mr. Mika Jansson Ansaritie 2 A 9 SF-00300 Helsinki FINLAND

BOOK REVIEW

CHAMELEONS, Nature's Masters of Disguise, by James Martin. Photography by Art Wolfe. Published by Blandford, an imprint of Cassell plc, 17 September 1992. 192 pp., 254 x 178 mm, 50 colour and 20 black and white photos. Price £16.99.

This beautifully produced book is the first general, popular account of Chameleons to deal with the subject in any serious, comprehensive way, and for the first time makes readily available much information on the biology of these lizards scattered in academic publications.

The book deals at some length with the basic physiology and classification of chameleons, attempting to explain and make sense of the confusion surrounding chameleon taxonomy, with interesting accounts of controversies of which most people would be unaware. The many unresolved problems and theories serve to emphasise how poor our knowledge of chameleons still is.

Accounts are given of the natural history of four representative chameleons, showing adaptations to widely different environments. The species chosen are of those few about which something is known: the Namaqualand Chameleon, *Chamaeleo namaquensis*; the South African Dwarf Chameleon, *Chamaeleo (= Bradypodion) pumilus*; the Madagascan Panther Chameleon, *Chamaeleo pardalis*; and the High Casqued Chameleon, *Chamaeleo hoehnelii*, of East Africa. These species occupy desert, warm temperate scrub and forest, tropical forest, and cool high altitude tropical forest. Much use is made of the detailed and fascinating study by Burrage on the comparative ecology and behaviour of *Chamaeleo (= Bradypodion) pumilus* and *C. namaquensis*, the most thorough study so far made on the biology of chameleons, and which reveals many incredible facts which impress upon us how very remarkable these animals are.

A chapter on chameleons in captivity, though brief, usefully and accurately outlines the animals' requirements, while warning convincingly against the keeping of wild caught animals. Captive bred chameleons are now becoming available, and even since this book was written the success of some breeders has confirmed that some species (notably *Chamaeleo calyptratus* and certain forms of *Bradypodion*) are as hardy as any lizard in captivity (See for example the article of Bert Langerwerf on *Bradypodion thamnobates* in this Bulletin). Other species will surely prove equally easy to keep.

A considerable part of the book is made up of Appendices which explain the current very imperfect classification of chameleons, and gives a complete list, with brief descriptions and distributions, of all the world's chameleons. Though imperfect because of the unresolved problems of chameleon taxonomy, this list is very useful indeed.

The information made so conveniently available in this book, combined with its beautiful plates, handsome presentation and readable text, is sure to stimulate a great interest in chameleons.

John Pickett

PROVISIONAL REGISTRATION SECOND WORLD CONGRESS OF HERPETOLOGY

The Second World Congress of Herpetology will take place in Adelaide – Australia. December 29th, 1993 to January 6th 1994.

The organisers need to have completed green Provisional Registration Forms back so that potential participants are on the mailing list for the Registration Brochure (to be distributed in late 1992). Accommodation booking and charter flight reservations require accurate estimates of numbers.

Please apply for a green pre-registration form, and complete and return this as soon as possible to:-

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MEMBERS' ADVERTISEMENTS

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Wanted: Herpetologists for Visits to Club Scout Groups

The 1993 Club Scout Annual, now in the shops, features four pages covering herpetological activities with the Young Herpetologists' Club (YHC), the junior section of the British Herpetological Society. The article shows how the 2nd Bournemouth Cub Pack had a visit from Colin Fitzsimmons (the Education Officer of the BHS) and his assistant, 'Frank' the 8ft python. The Cub Scouts later joined members of the YHC on a reptile rescue, saving Slow Worms from a doomed site and releasing them onto a BHS Nature Reserve.

Several members of the BHS Education Committee visit numerous Cub Scout and similar youth groups. As a result of the article in the Cub Scout Annual we are expecting requests to visit various parts of the UK that we cannot easily reach. This is where you may be able to help.

parts of the UK that we cannot easily reach. This is where you may be able to help. The BHS Education Committee is presently drawing up a list of people who already visit such groups, or would like to do so in future. Those wishing to be included on this list do not have to be members of the BHS. Lectures/activities should cover conservation and/or responsible captive care of amphibians and reptiles.

If you would like to be included on this list of speakers then please send an SAE to:

Colin Fitzsimmons, Education Officer BHS, 45 Sycamore Close, Creekmoor, Poole, Dorset BH17 7YH. Tel: 0202 692378 (Sundays, 7-9.00 pm only please)

Your help would be greatly appreciated. Don't forget to check out the Cub Scout Annual. It is in the shops now – with a snake on the hardback cover.

For Sale: adult breeding pair of Western Hognose Snakes (*Heterodon nasicus*); adult pair of Cunningham's Skinks (*Egernia cunninghami*); hatchling Sinaloan Milksnakes (*Lampropeltis triangulum sinaloae*) and Corn Snakes (*Elaphe guttata*). All captive bred. Also adult male Day Gecko (*Phelsuma sundbergi*) free to good home. Tel: Miles Barton, 36 Elm Lane, Redland, Bristol BS6 6UG. Tel: 0272 730488 evenings.

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THE CARE AND BREEDING OF CAPTIVE REPTILES Edited by: S. Townson, N.J. Millichamp, D.G.D. Lucas and A.J. Millwood A collection of papers published by the British Herpetological Society. (ISBN 0 9507371 0 0) This paperback volume contains 100 pages, 22 photographs and numerous figures and tables. CONTENTS **Captive Breeding of Crocodiles** H.R. Bustard The Captive Breeding of Mediterranean Tortoises in Britain P. W. P. Collins The Successful Breeding of Lizards from Temperate Regions B.A.W.A. Langerwerf Notes on the Maintenance and Breeding of the Common Iguana (Iguana iguana) at Twycross Zoo C.J. Howard Maintenance and Breeding of Phelsuma guentheri (Boulenger 1885) **Ouentin Boxham and Simon Tonge** Breeding Gaboon Vipers, Bitis gabonica gabonica, in Captivity J. Akester Keeping, Breeding and Raising Garter Snakes (Thamnophis radix) P. Zwart and B. Van Ham Observations on the Reproduction of the Indian Python in Captivity, with Special Reference to the Interbreeding of the two Subspecies, Python molurus molurus and Python molurus bivittatus. Simon Townson Medical Aspects of Disease in Reptile Collections N.J. Millichamp

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