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**THE BRITISH  
HERPETOLOGICAL SOCIETY  
BULLETIN**



**No. 44  
Summer 1993**

# THE BRITISH HERPETOLOGICAL SOCIETY

*c/o Zoological Society of London  
Regent's Park, London NW1 4RY*

Registered Charity No. 205666

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 sustainable 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	£20	(Receive Bulletin only)
Full Members	£25	(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	£36	(Receive Bulletin and Journal)
YHC (Age 9-18):		
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  
**Simon Townson and Neill Clark.**

Contributions and correspondence arising from the Bulletin should be sent to:  
Neill Clark, 15 Rivenhall End, Welwyn Garden City, Herts AL7 2PJ.

## FRONT COVER

Golden Toad, *Bufo periglenes* by Mike Linley. See “Conservation and the Case of the Golden Toad by K. Harding, p.31.

## BHS REMAINING MEETINGS FOR 1993

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

- September 25th      Birkbeck College, London WC1. 2.30-5.30 pm. HENK ZWARTEPOORTER, Curator of Reptiles at Rotterdam Zoo, on Breeding Reptiles and Amphibians in captivity.
- October 16th        Birkbeck College, London WC1. 2.30-5.30 pm. Three talks:  
Long-term studies: the role of the amateur in herpetology, by LEIGH GILLETT.  
Round Island's reptiles under new management, by DAVID BULLOCK.  
The thermal ecology of lacertid lizards, by ROGER MEEK.
- November 6th        CAPTIVE BREEDING COMMITTEE OPEN MEETING.  
See page 5.
- December 4th        RESEARCH COMMITTEE MEETING  
Details to be announced.

## PROVISIONAL MINUTES OF THE 46TH ANNUAL GENERAL MEETING OF THE BRITISH HERPETOLOGICAL SOCIETY, HELD AT 11.00AM, SATURDAY MARCH 20th 1993 IN BIRBECK COLLEGE LONDON

The meeting was chaired by Dr T.J.C. Beebe. There were thirty four attendees and apologies for absence were received from J. Cloudsley-Thompson, R. Griffiths, M. Lambert, B. Banks, J. Pickett, S. Townson, J. Baker and T. Thatcher.

1. Minutes of the previous AGM (21.3.92) were accepted nem. con.
2. Matters arising. There were none.
3. **Annual Report.**  
This was circulated prior to the meeting.  
(a) Attention was drawn to a fall in the numbers for adult members of the second year running, probably due to the economic recession and coincident increase in subscription rates. It was pointed out that Council will actively solicit new members by advertising during 1993, and keep the Membership level under constant review. YHC Membership, by contrast, rose dramatically during 1992 following great efforts by the Education Officer and Committee. Overall, Society Membership was still above 1000.

(b) The Society Main account (audited, and precirculated) showed an excess of income over expenditure during 1992 amounting to over £6,000. The new subscription rates have therefore proved adequate to put the Society on a sound financial footing for future years. Consideration is being given by Council to the purchase of computer hardware and software, and/or display boards, all of which are needed for future development. All the minor accounts associated with the Society showed healthy positive balances at the end of 1992, with the Land Fund up by £10,000.

(c) The new meetings arrangements were discussed briefly, and received approving comments from the floor.

(d) It was reported that both the BHS regional groups had been active during 1992, and were continuing to arrange meetings and other events for 1993.

(e) 1992 was the first year in which all three Society publications (*Journal*, *Bulletin* and *YHC Newsletter*) were published quarterly. Standards remained high, but difficulties were experienced with the punctuality of *Bulletin* production (including a delay with the current winter edition). Council will make efforts to improve the punctuality of publication mailshots during 1993.

(f) The Library is now housed entirely at the house of the Librarian, D. Bird, in Dorset. Book and Journal lists will be published in forthcoming *Bulletins*, and Members will be informed during 1993 of the library services that will be on offer from the Society.

(g) The Captive Breeding Committee held its usual range of meetings during 1992, and the new book planned for 1993 will be produced sometime during the coming summer. The Conservation Committee, under its new Chair Jan Clemons, 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 extensive work of the Education Committee in 1992, and made specific appeals for (a) a new Newsletter Editor to replace John Baker, who will retire during 1993; and (b) assistance with establishment of regional YHC groups. The Research Committee held its inaugural meeting during 1992, and another will be organised for late 1993.

(h) Finally, the Chairman expressed regret on behalf of the Society for the deaths of two distinguished Members, Alfred Leutscher and Steve Norrie, during 1992. The Society also expressed its hope that Professor Geoff Haslewood, previous chairman of the Conservation Committee, makes a complete recovery from the stroke he suffered in 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 these were then approved nem. con. A complete revised set of rules will be published in a forthcoming *Bulletin*.

#### 5. **Election of Council 1992-93**

The proposals of Council, listed in the annual report, were approved nem con. Thanks were expressed to the retiring Development Officer, Brian Banks, for his major contribution to the Society.

#### 6. **Any Other business.**

There was none.

The meeting closed at 11.40 AM, and was followed by the "Herp Quiz" and two separate talks during the afternoon.

## CAPTIVE BREEDING COMMITTEE REPORT 1992/93

### Term of reference.

The Captive Breeding Committee is appointed by Council under Rule 10.

### Aims and Functions

a. To encourage and advise on responsible vivarium keeping, good husbandry techniques, and the captive breeding of reptiles and amphibians, with special emphasis on the study of reproductive biology at both the professional and amateur levels. These activities have both intrinsic scientific interest and practical value in producing captive bred animals for others to keep and study.

b. To undertake captive breeding and research projects, and to inform the Society of the results of this work through the pages of the *Bulletin* or *Journal*.

c. To produce literature on husbandry, captive breeding, veterinary care and related subjects ranging from simple 'care' sheets to professionally produced books and scientific reports which will normally be made available to members free of charge or at reduced costs.

d. Carry out conservation projects involving the maintenance and propagation of both common and rare species, and to collaborate with other conservation groups on matters of mutual interest. The role of captive breeding in conservation must be taken seriously since introductions of animals from thriving zoological or private collections could help prevent the extinction of wild populations. This has proved itself many times where expertise in managing captive animals has benefited wild populations. Incubating and releasing baby turtles, crocodylians such as the Gharial, breeding and releasing Puerto Rican Toads, Round Island Geckos and native species such as Natterjack Toads and Sand lizards.

e. To give advice where possible on the legal requirements for the import/export of captive bred and wild caught animals, and on the particular captive requirements of animals to support worthy applications to the Department of the Environment for licences to import/keep certain species. In addition the Committee will represent the Society to outside bodies such as government committees and provide expert advice (e.g. Dangerous Wild Animals Act 1976; Zoo Licensing Act; advice on suitability of species for importation etc . . .).

f. Other general functions of the committee will include:

- (a) arranging evening meetings and special symposia;
- (b) provide speakers for B.H.S. and external meetings;
- (c) liaise with outside organizations with shared interests;
- (d) promote the educational value of keeping reptiles and amphibians.

### Activities

1. The Captive Breeding Committee Exhibition/Sale Day was well attended again this year. This took place on Sunday November 8th 1992 from 2pm-6pm, and raised £521.50p. Sixteen traders held stalls ranging from captive bred reptiles and amphibians, insects and rodents, to books, tea shirts, specialist electrical equipment and cages.

2. Care sheets: These are almost ready to be printed and there are currently 16 titles. These are as follows Treefrogs; *Bombina*; Newts and Salamanders; Frog and toad tadpoles; Newt and salamander tadpoles; The Green Iguana; Lacertas; Bearded Dragons, *Pogona* species; Blue Tongue Skinks, *Tiliqua* species; Leopard Geckoes; Python and Boas; Royal Pythons; Garter Snakes; Rat and King Snakes; *Elaphe* and *Lampropeltis* species; Terrapins and Tortoises.

3. New CBC Book. This will be ready during 1993 and will contain a selection of original articles on captive breeding reprinted from the *BHS Bulletin* from 1980-1992.

4. Database: (1) LACERTAS. Andrew Quayle, Dept. of Fish, Game and Wildlife Management, Sparsholt College, Winchester, Hants 5021 2NF. Andrew has kindly offered to collate all information on Lacertas pertaining to species held in collections, literature covering natural history and identification.

A list of species not recommended for general trade has been compiled with a list of recommended ones.

5. Meetings: Mr Bert Langerwerf gave an excellent talk on the management of lizards in outdoor enclosures on a large scale. Species being bred such as *Tupinambis teguixin* have been featured in the *Bulletin*. Numerous others included *Basiliscus plumifrons*, *B. basilicus*, *Physignathus lesueurii*, *P. cocincinus*, *Bradypodion thamnobates*, *Chamaeleo calypttratus*, *C. pardalis*, *Lacerta strigata*, *L. lepida*, *L. viridis*, *L. agilis exigua*, *Agama stellio*, *Sceloporus* species and many more. The meeting was in the excellent lecture theatre recently renovated, Harkness Hall (1), at Birkbeck College, Malet Street, London, WC1 7HX.

The next C.B.C. Speaker Meeting was by one of our own members on planning and building outdoor and indoor enclosures for breeding a variety of lizards and amphibians. Chris Davies is well known to many B.H.S. members for his success with Lacertas. This took the form of an evening meeting, at New Denham Community Centre rounding off with wine and cheese. Hopefully more members will come along to future get togethers such as this for a chance to exchange ideas and information on an informal basis. The Centre is very easy to get to from Junction 1 of the M40 into The Oxford Road, A4020, signposted Uxbridge.

Veterinary Surgeon Mark Geach gave a lecture on problems and solutions involving the acclimatisation and caring for wild caught and captive bred animals. This took the form of a slide presentation and a practical demonstration where members could be involved on a one to one basis. Mark also invited Malcombe Barnicote, bacteriologist and Peter Daszak, parasitologist, who gave down to earth information on the problems these parasites can cause. Opportunity was given to learn how to prepare fecal samples and recognise various roundworms, tapeworms and protozoa as well as numerous other creatures which potentially can cause problems.

6. Future Meetings.

SAT. 25th SEPTEMBER 1993, BIRKBECK COLLEGE, 2.30-5.30.

Henk Zwartepoort, Curator of Reptiles, Rotterdam Zoo.

Part one, Breeding Reptiles and Amphibians at the Zoo. Recent species include Fijian Iguanas, *Uromastyx*, *Hydrosaurus*, Tree Boas, Snake Necked Terrapins, *Dendrobates azureus*, the beautiful blue poison dart frog as well as numerous other species.

Part two, The Reptiles of Namibia. This is a report of a recent trip Henk made to study the herpetofauna of the region.

SAT. NOVEMBER 6th 1993, NEW DENHAM COMMUNITY CENTRE, 2.30-7.00.  
THIRD ANNUAL OPEN DAY FOR THE SALE OF CAPTIVE BRED STOCK.

Informal meeting providing the opportunity for discussion, the exchange and sale of captive bred stock plus commercial displays of books and vivarium equipment. Members wishing to book space for the sale or exchange of livestock or wishing to contribute in any way should contact Terry Thatcher on 0865 739396 or Steve Dereham on 081-462 3948.

Meetings planned for 1994: Speaker meeting on Amphibians 6.00-9.00, during May. Members may bring along surplus livestock for sale or exchange at this evening meeting.

Early July, Workshop on Reptile and Amphibian care to be announced 2.30-5.30 pm.

November. Open day for members (4th Annual event).

All at New Denham Community Centre.

## 7. CBC Members List 1993

The revised list of C.B.C. members and advisers are as follows:

Mr T Thatcher (Chairman), 61 Kennington Road, Kennington, Oxford, OX1 5PB.

Lizards mainly but snakes and amphibians also. 0865 739396.

Dr S Townson, 96 The Avenue, Highams Park, London, E4 9RB.

Boids mainly but reptiles and amphibians in general. 081-531 1378.

Mr J Pickett, 84 Pyrles Lane, Loughton, Essex.

Reptiles and amphibians in general. 081-508 6624.

Mr P Curry, 106 Cranley Gardens, Muswell Hill, London, N10 3AH.

Amphibians.

Mr S Dereham.

Lizards mainly but reptiles and amphibians in general. 081-462 3948.

Mr J Spence, Secretary, 23 Chase Side Avenue, Enfield, Middlesex.

Amphibians mainly. 081-366 8127.

Mr B Pomfret.

Reptiles and amphibians in general. 0908 370112.

Mr M Geach, Basket Makers Cottage, 45 Gravel Hill, Henly on Thames, Oxon RG9 2EF.

Veterinary aspects, amphibia, lizards.

Mr S Divers, Royal Veterinary College, Hawkshead Lane, North Mymms, Hatfield, Herts. AL9 7TA. Tel: 0707 652202.

Veterinary aspects. Boas.

Mr S Vanderhoeven.

Mainly Lizards. Tel: 0442 259237 home. 071-837 9242 work.

Mr D Gratton.

Lizards and snakes. Tel: 081-244 4907.

Mrs M Green, 28 Dollis Hill Lne, Cricklewood, London NW2 6JE.

Tortoises, and secretary of British Herpetological Society.

Advisers: Mr C Snell, 76 Birdbrook Lane, Kidbrooke, London SE3 9QP.  
Reptiles and amphibians particularly in outdoor vivaria.  
Dr H R Bustard, Airlie Brae, Alyth, Perthshire, PH11 8AX, Scotland.  
Conservation and captive breeding of crocodilians, sea turtles, lizards.  
Prof M Peaker, The Hannah Research Institute, Ayre, Scotland KA6 5HL.  
Reptiles and amphibians in general particularly Dendrobatids.  
Mr B Langerwerf, International Herpetological Institute, President, Rt. 2, Box 285,  
Montevallo, Alabama 35115, U.S.A.  
Lizard breeding on a large scale in outdoor enclosures.  
Dr A Millwood, 8 Whiteshot, Basildon, Essex.  
Amphibians in outdoor enclosures.  
Andrew Quayle, Dept of Fish, Game and Wildlife Management, Sparsholt College,  
Winchester, Hants SO21 2NF.  
Lacertas.



## OBITUARY – A.G. LEUTSCHER

Alfred Leutscher was the last survivor of the rocks on which Malcolm Smith built the British Herpetological Society, 46 years ago. The two met originally at the Natural History Museum, where Alfred was a guide-lecturer. His service to the fledgling Society was massive, since for the first five years he undertook the honorary duties of both secretary and treasurer. During that time the membership rose from the small number who had attended the foundation to 348. (For those who have forgotten, at that time the rest of the burden was carried by the founder himself as President, together with the youthful Angus Bellairs as Editor of the Journal). The importance of Alfred's role was recognised by the Society when he was elected the second honorary life member in 1952.

Alfred's main herpetological interest lay in the British species, on which he wrote several books, as well as a number of articles in the aquarist journals. Two of his notes were published in the British Journal of Herpetology, one of the spawning site of common frogs near his home at Leighton, and the changes there after his first observatio in 1934, some 18 years earlier. The second recorded his capture of a neotenic smooth newt. But the years slip by, and during his long retirement he was seldom seen at the Society's meetings. Many present day members will not realise that his nursing of the infant society is what has turned it into the healthy adult of the present time.

Dr. J.F.D. Frazer

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## THE B.H.S. LIBRARY

The library is no longer being kept at the Linnean Society Library but has been moved to Dorset. The library is now held at the home of the Librarian:- David Bird, Jacaranda Cottage, Spetisbury, Blandford Forum, DORSET DT11 9EE. Members may use the library in the evening and on some Sunday mornings (ones that do not clash with Conservation tasks in the winter). As well as the older library collection of 245 books, many journals and reprints, members will also be able to consult the personal library of the Librarian which contains a further 600 herpetological books as well as a larger number of other biological books.

Members will be able to borrow some of the books for a period of one month by person or by post. The cost of postage which will be by recorded or registered post depending on the book is to be paid by the borrower.

A list of books and journals is in preparation and will be published as a supplement to the *Bulletin* hopefully within the next 6 months.

Anyone wishing to use the library should contact the Librarian on 0258 857869 to discuss a mutually suitable time.

The Librarian would be grateful for the donation of any books or papers from authors or persons with spare or unwanted copies. The Librarian would like to thank all persons who have donated books and papers to the library in the last two years.

## NEW BHS T-SHIRTS

A new range of BHS T-shirts is now available. Produced by Harlequin Nature Graphics, the shirts are 100% heavyweight cotton, and feature the BHS lizard logo on the sleeve. Designs are as follows:

### ADULT:

<i>Design:</i>	<i>Sizes:</i>	<i>Cost:</i>
Full colour "wrap-round" iguana on front and back, on black T-shirt	S, M, L, XL	£10.50

### CHILD:

<i>Design:</i>	<i>Sizes (age):</i>	<i>Cost:</i>
Full-colour hatching <i>Triceratops</i> on white T-shirt	10, 12	£8.50
Full-colour "Reptiles" logo on red T-shirt	10, 12	£8.50

All prices include postage and packing. Orders (clearly stating size and design) should be sent to BHS Shirts, 5 The Close, Wye (Nr Ashford), Kent, TN25 5BD. Cheques/postal orders should be payable to "British Herpetological Society".

## EDUCATION OFFICER'S REPORT 1992

For the second year of my chairmanship, the committee has continued to be very active, in both YHC events and in wider educational activities. This is mainly due to the dedication, sheer determination and drive of Committee members. Their combined talents continue to offer a unique service to young people with an interest in herpetology.

The following report is divided into two parts, covering the main areas of the Education Committee's terms of reference (see Bulletin No. 9 June 1984). Most of the Committee's time and effort has been expended in continuing the junior section of the Society, the Young Herpetologists Club (YHC). A summary of this forms the first part of this report.

### Young Herpetologists Club (YHC)

**Membership.** This, as predicted, continued to grow. A 400% increase has been achieved on 1989 levels. Membership as of February 1st 1993 was 224, of which 98 are Bulletin members. Membership has increased due to national and local publicity, particularly the BBC's 'Blue Peter' programme, broadcast during March 1992. There are three categories of YHC membership. Basic membership (£5 per year) allows members to receive the YHC Newsletter, whilst *Bulletin* membership also includes subscription to the *BHS Bulletin*. Group membership, for school and youth groups, is on the same basis as either of the two aforementioned categories. There has been some confusion over family membership of the main society. If a family joins BHS under the family membership arrangement, then any children automatically become members of the YHC - but only if the Education Committee is made aware of their existence! Measures are being taken by this Committee and BHS Council to eliminate any confusion here.

**Regional Groups.** I am pleased to report that regional YHC groups have been established in Sussex, Oxfordshire, Dorset and Cornwall. These groups are led by keen parents, education staff (from a County Naturalists' Trust in one case) and Committee members. It is hoped that more adults will come forward to help form local groups in other areas of the UK.

Links with the BHS North-West Group have been established by YHC participation in the Reptile Rally held at Martin Mere Wildfowl and Wetlands Trust Centre in August 1992. The annual YHC camp is due to take place in the BHS North-West area, in June 1993, so it is hoped that this will also boost links with herpetologists, young and older, in that region.

**Publications.** The YHC Newsletter has continued to be produced to an increasingly high standard, under the editorship of John Baker. This quarterly production is the main point of contact with YHC members around the UK. It is greatly appreciated by YHC members and parents (who often look forward to the next edition just as much as their children do). YHC members are encouraged to write material for the Newsletter and have responded with reports on YHC events, their own captive breeding successes and conservation efforts.

BHS Council has continued its support of the YHC by providing copies of the BHS Bulletin at a reduced rate. These are much appreciated by older members, who, it is hoped will continue their membership through into the main Society.

**Events.** Over 33 YHC-related events took place during the year. Meetings covered the topics of captive care, conservation and even career guidance. The following is a summary of a few of the major events. The annual YHC camp, in Dorset, was one of the most successful camps so far. YHC members and parents not only saw all six UK reptile species, and five amphibians, but also learned about their conservation and the work of the BHS Conservation Committee, the Herpetological Conservation Trust and other organisations involved in reptile/heathland conservation. Camp attendance consisted of 29 YHC members, five young guests, eleven adults and three 'staff' from the Education Committee. It is planned to run two camps in 1993, to cope with the demand of numbers and the wide range of those attending YHC camps. These specialist reptile holidays are unique, attracting greater numbers every year. Their growth is limited only by the number of adults available to staff and organize the week-long programme of events.

An open day at Rugby High School (a YHC group), proved to be very popular. As well as displays and lectures, tours were given of the award-winning conservation area with its pond and outdoor vivarium. 'Herpetology Goes West' was the title of a two-day event held in Bristol. This provided YHC members with a 'behind-the-scenes' tour of the reptile house at Bristol Zoo, and a visit to the University Zoology Department. This latter visit was arranged in response to requests from YHC members for career advice. Feedback from members and their parents suggests that this did indeed provide useful information for those members considering applications for places in higher education.

Despite internal problems at London Zoo, another successful joint meeting took place. 'Behind-the-scenes' tours of the reptile house were arranged, and a variety of talks by herpetologists and celebrities, including Ken Livingstone (MP), filled the afternoon. This highly popular event attracted over 200 YHC members and parents, and young friends of the Zoo. We are very grateful to the Zoological Society of London for hosting this event, and for giving free Zoo admission to YHC members.

**Finance.** Income during 1992 was £3,486.83, which was made up mainly by YHC subscriptions and income generated by the annual camp. Total expenditure for the year was £3,344.19, the five major items of which have been expenditure on the annual camp (£976.35), petty cash expenditure by Committee members (£686.16), printing costs (£557.27), reimbursement to the main society for *Bulletin* provision (£470.00) and postage costs (£262.71).

Excess of income over expenditure for 1992 was £142.64, which, when added to the credit balance of £448.21 brought forward from 1991 means that we start 1993 with sufficient funds to ensure that we can meet the printing and postage costs that we are committed to spend on our current YHC membership.

This year we have, at the request of Council, revised our book-keeping system in order to differentiate between income and expenditure relating directly to the YHC and that which relates to the more general educational work of the Committee. An audited copy of the full Education Committee income and expenditure account has been submitted to Council. Any member interested in obtaining a copy should write to the Education Officer (Colin Fitzsimmons) enclosing an SAE.

The Education Committee is very grateful to a large financial donation towards its work. We would like to express our gratitude for such a generous gift, given by a parent, to the YHC.

**Displays.** YHC members took part in many displays around the UK, exhibiting their captive-bred animals and publicising their conservation work. These displays, at various shows, 'wave the flag' for both the BHS and the YHC, help to recruit new members to the Society, raise money for the BHS Land Fund and provide public education.

**Publicity.** 1992 has seen the YHC gain multimedia exposure. The highlight of the year occurred when five YHC members and their animals appeared on BBC's 'Blue Peter' programme. This resulted in a huge mail bag, and subsequent increase in membership. Filming has taken place in Dorset, for the 'Really Wild Show' on a conservation theme. Rugby High School YHC members gained coverage of their award-winning vivarium project on local BBC TV news in the Midlands and in Dorset. YHC member, Justin Ainsworth attracted Phil Drabble and a BBC film crew in his efforts to save a great crested newt pond.

Several radio interviews were given. John Baker, the Newsletter Editor, featured on Radio 4's 'Newstand', whilst 'Frank' the python was interviewed on Radio 5. Several local radio stations reported YHC activities, notably Radio Solent, as part of its Environmental Challenge competition.

The YHC made headlines in many local papers, covering frogs in Derbyshire to heathland reptiles in Dorset. Close links with the Scout Association has led to a four-page feature in the 1993 Club Scout Annual. This latter article not only promotes the YHC and BHS, but also illustrates the wider work of the BHS Education Committee and, in particular, its assistance of Cub and Scout groups with their conservation badge.

**Conservation.** Conservation events have continued to take place, including a winter residential task, working on a BHS reserve. 'Training' YHC members to join the BHS Conservation Committee's practical tasks is seen as a very important area of our work. Special practical conservation projects, aimed at YHC members, have proved to be a very useful way of achieving this.

Perhaps the greatest contribution to conservation has been an Education Committee member taking on the chair of the BHS Conservation Committee. Jan Clemons, whilst remaining a member of the Education Committee, will be able to integrate conservation with education in her new role. This link between the two Committees is greatly welcomed and should help to promote conservation education.

**Summary.** It has been another great year for the YHC, and extremely rewarding for those of us promoting its interests. Membership has grown, whilst the range of activities undertaken by those members has also expanded. The Education Committee and YHC has continued to break new ground – and the signs are that it will continue to do so in 1993 and beyond.

Members of the Education Committee are: Colin Fitzsimmons (Education Officer and Chair of Committee), Vic Taylor (membership/finance secretary), John Baker (Newsletter Editor), Julie Budgen, Jan Clemons (Schools' adviser), Don Freeman, Chris Hallam (YHC representative), Mark Nicholson, Janet Potter.

The second part of this report will feature in a future Bulletin.

Colin Fitzsimmons  
Education Officer BHS. April 1993.

## WHY WILDLIFE LINK?

For more than 10 years your Society has subscribed to an organisation called Wildlife Link (recently changed to Wildlife & Countryside Link), at a current cost of around £200 per year. It is therefore probably about time Members were informed about the purpose of this expense, and this brief article aims to do just that.

Wildlife Link was set up with the simple objective of coordinating the efforts of all the voluntary organisations involved in wildlife conservation in Britain; it now has more than 50 Member Organisations, which apart from the BHS include the Herpetological Conservation Trust (HCT) and of course the bigwigs like RSPB and the RSNC (parent body of the County Wildlife Trusts). It was felt, I believe quite rightly, that the voluntary organisations would be able to lobby more effectively for conservation under a single, united umbrella body. Hence Wildlife (& Countryside) Link, WCL.

In practise, what happens is that the WCL Secretariat, based in London, organises several meetings each year to which representatives from member organisations are invited. These meetings decide what the prime lobbying objectives should be, and then pursue them through WCL. WCL meets regularly with the higher echelons of Government, including relevant ministers, as well as with the statutory bodies like the Nature Conservancy Councils, Department of the Environment, Forestry Commission and so on.

So what does this achieve? A good specific example is the recent production of a report entitled "SSSIs: a health check" which highlighted the inadequacy of this type of habitat protection in an authoritative way that government has had to take notice of. Currently, WCL is coordinating the voices of the voluntary bodies on the EC Habitats Directive, an important development which could (if the Government is persuaded to treat it seriously enough) have a major positive impact on wildlife conservation in Britain.

WCL relies entirely on subscriptions from Member Organisations to fund its existence, and these subs are related to what individual Members can afford. BHS, as a small charity, is at the bottom end of the subs scale. I'm sure we get our moneysworth; foremost among the herp issues raised over the years has been the thorny issue of Dorset heathlands, and pursuing the protection and conservation of these prime sand lizard and smooth snake habitats at WCL level has been instrumental in forcing Government to pay attention. Attending continuous rounds of meetings is not a lot of fun, but in this case the ends certainly justify the means. I hope Members will agree that BHS subscription to WCL is money well spent.

Trevor Beebee

## DEVELOPING A HERPETOLOGICAL CONSERVATION STRATEGY FOR THE UNITED KINGDOM

TONY GENT

*Species Conservation Branch, English Nature, Northminster House,  
Peterborough PE1 1UA*

&

TOM TEW

*Conservation of Vulnerable and Dispersed Species Unit,  
Joint Nature Conservation Committee, Monkstone House, City Road,  
Peterborough, PE1 1JY*

### INTRODUCTION

Like others involved, we in the statutory conservation bodies have to make choices about how we can further herpetological conservation. For instance, what publicity does it need, should particular sites be protected, what research projects should we fund, should licences be issued, where should we direct man-power and effort? At first sight these may appear to be unrelated questions, but in fact they are closely linked.

First of all we have to be clear what we are trying to achieve. Will what we plan to do advance conservation in a coherent way? Secondly the effort and resources that we put into each task must reflect its relative importance.

We are also keenly aware that the statutory conservation bodies are only part of the herpetological conservation movement. In Britain there is a very active group of herpetologists with an interest in conservation. Some of them are professionals working for scientific institutions, other public sector organisations or voluntary conservation bodies, but most are involved in a voluntary capacity – perhaps as recorders or though working on conservation tasks. The value of the contribution that people outside the statutory sector make is hard to overstate. With their involvement much is already being done to study and safeguard our reptiles and amphibians. It is obviously important that our collective efforts are used to best effect.

We appreciate that we all have limited resources (whether of time or money) and recognise that joint action will achieve a lot more than independent effort. But that joint action must truly reflect what is best for the conservation of these groups of animals. We are therefore keen to gain people's views on priorities, on action to achieve these priorities and on what you would like to see us doing and what you would like to be doing yourselves.

This is why we are developing a national Herpetological Conservation Strategy.

#### **The objectives of the Strategy**

The strategy aims to provide an overview of the important issues for the effective conservation of British Herpetofauna. This allows directions and objectives to be set and the means to achieve them to be identified. This approach shows which projects are important and how they fit in the overall scheme of things. The strategy

is not intended simply as a work programme for the statutory nature conservation bodies. It allows a understanding of how we can most effectively work together and will help to clarify who should be doing what.

Above all, the strategy will highlight the most important issues and the most urgently-needed actions. It will allow others to see how they can best contribute to the conservation of reptiles and amphibians nationally and what their priorities should be within this overall framework.

### **The development of the Strategy**

Because the strategy considers the whole UK the Joint Nature Conservation Committee is taking the lead in its development, working with the statutory conservation bodies for England, Scotland and Wales (English Nature, Scottish Natural Heritage and the Countryside Council for Wales). However, if everyone interested in herpetological conservation is to feel committed to it, the strategy must reflect their views too. We are keen that it should not be seen as *our* strategy; we want it to become *your* strategy as well. We have therefore prepared a draft document and invite you, if you have not already seen it, to obtain a copy and let us know your views on it. Nothing in the document is fixed, although we hope that it will provide a useful starting point for further development.

### **What is in the Strategy**

When we started writing the first draft of the strategy, we had to step back from everyday problems and specific issues and ask some very basic and fundamental questions: why should we conserve reptiles and amphibians? and what sort of approaches are needed? These extracts from the strategy summarise our answers.

*Amphibians and reptiles are an important and integral part of Britain's natural and cultural heritage, and their future should be safeguarded. This will require a coordinated and strategic approach which integrates active conservation programmes, the improvement and dissemination of knowledge about species and their habitats and the development of protection mechanisms."*

*"Partnerships should be developed to enhance the effectiveness of conservation action for these species, and a heightened awareness and concern should be generated in a wider audience. Through these partnerships a sufficient understanding of the ecology and distribution of these species will develop, to ensure that populations are adequately conserved."*

The strategy covers a five year period from 1993 to 1998 and sets a series of aims which should be achieved by the end of that period. These aims include the development of suitable conservation measures to prevent the decline of widespread species and to enhance the status of the rarer ones; the further development of survey and recording schemes; and the much greater involvement of a wider sector of the community in herpetological conservation.

Supporting these aims, four general project areas are proposed. These cover:

- setting conservation objectives ('recovery goals')
- science and monitoring
- legislative mechanisms
- conservation projects.



The strategy deliberately identifies only general areas and does not go into detail on individual projects that might occur within each project area. However, the rationale behind each project area is given, and different sub-headings within each explain why the sorts of activities suggested are needed.

The strategy aims to be comprehensive. At this stage we want to identify all the different pieces of the jigsaw so that we can see what needs to be done and, equally, what will get missed out if other projects are taken forward as a higher priority.

To some this might seem to be simply a paper exercise, but it is more than that. Already the process of preparing this strategy had identified certain priority projects, and has given us sound justification for taking them forward within the statutory conservation organisations. This has already had a bearing on ideas we are developing with the voluntary sector.

This strategy will serve as the basis for much of the work that we will be developing over the next five years. We want to make sure that it is the right strategy and that it incorporates your views. To receive a copy please write to Tom Tew at the address above. Of course you are not obliged to comment, but we would very much like to hear your views on the development of this initiative.

## THE DISTRIBUTION OF *TRITURUS ALPESTRIS* (AMPHIBIA, CAUDATA) AT ITS NORTHERN LIMIT, IN SOUTH DENMARK

Henrik Bringsøe  
Esthersvej 7, DK-4600 Køge, Denmark

Uffe Schear Mikkelsen  
Kongevejen 48, DK-6100 Haderslev, Denmark

### ABSTRACT

The northernmost populations of *Triturus alpestris* live in South Denmark (Southeast Jutland) where it has been recorded west, southwest and south of the town of Åbenrå and in five forest areas in the southeasternmost part of Jutland. Its occurrence in Denmark is most probably natural and not due to an introduction. The northern limit of the range of *T. alpestris* is not a climatic limit. Open farmland made during the last two to four centuries seems to form a barrier preventing *T. alpestris* from dispersing further north. It has been registered in 120 ponds, however, it has disappeared from at least 10 of these which have been filled in or have dried up. Of the 110 existing ponds 87 are in the main region near Åbenrå, 23 are in the smaller southeastern region. In Denmark the species has only been found in ponds in association with deciduous forests and in pastures or uncultivated fields within distances of 80 m from deciduous forests. The breeding ponds are usually small with a surface smaller than 200 m<sup>2</sup>. In Denmark (altitude 66m) the migration to the breeding pond takes place some 1-2 weeks later than in Central Germany (altitude 70m), roughly at the end of March.

### INTRODUCTION

The Alpine newt, *Triturus alpestris* (Laurenti 1768) has its main distribution in Central and East Europe, with a more scattered range in South Europe. Its northernmost natural occurrence is in South Denmark. In England a number of introductions have been made, the northernmost which has been published is from Sunderland, Northeast England (Banks, 1989) which is ca. 15km south of Åbenrå (Aabenraa), southeastern Jutland (Jylland). It was verified and reported by Bisgaard (1949a, b). Shortly after, it was found at three other localities in the area of Åbenrå. Consequently, in 1951 it became totally protected by law in Denmark. From 1951 to 1974 it was not being paid much attention and the question was whether it still lived in Denmark and to what extent.

In that connection a working group named Bjergsalamandergruppen ("The Alpine Newt Group") was formed. Thus, since 1975 the group has performed extensive investigations throughout southeastern Jutland in order to establish the Danish distribution of *T. alpestris* and to protect the species and its habitats (Bisgaard, 1982, 1984; Bisgaard et al., 1979a, b, 1980). The following results are presented on behalf of the working group.

In this paper emphasis will be put on the Danish distribution of *T. alpestris*. It is compared with that of North Germany. Some other characteristics of its habitat selection are provided. On the basis of its current distribution and the historical

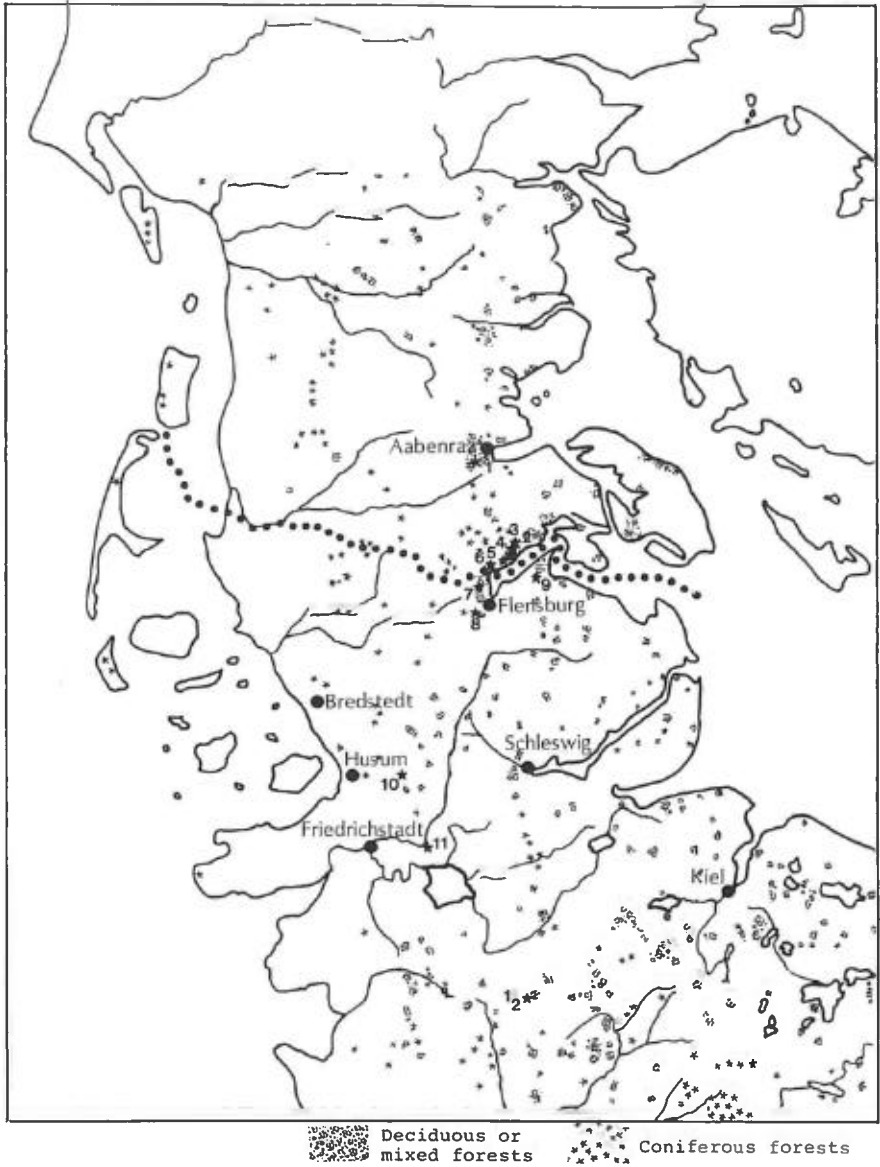


Fig. 1. The known localities of *Triturus alpestris* in South Denmark and in North Germany. The record localities are marked by asterisks with numbers (see text for explanation). The present range of forests (split into deciduous/mixed forests and coniferous forests) is shown but only south of Esbjerg/Kolding and on the adjacent islands (excluding the area of the island Funen). Major towns are shown (marked by big dots). The line of dots represents the Danish/German border. Bar represents 100km.

physiography of the area, the former dispersal towards north is discussed. The migration to the breeding pond is compared with that of Central Germany.

## METHODS

In Southeast Jutland ponds have been investigated, primarily to ascertain the presence of *T. alpestris*. For the mapping survey the existence of larvae is given highest priority because it demonstrates a breeding success, not just a possibly accidental presence of single newts.

To explain the current Danish range of *T. alpestris* reconstruction of the forested areas of southern Jutland and northern Germany at around years 1649-1652 has been made, based on Johannes Mejer's maps (Nørlund, 1942; Domeier & Haack, 1963).

For a comparison of the migration date to the breeding pond (i.e., the date when the newts enter the banks of the pond), the results of two previously published investigations from Åbenrå (Bisgaard et al., 1979a, 1980) and Central Germany (Blab & Blab, 1981) have been used. The average calendar day has been applied, following Blab & Blab (1981).

## RESULTS

### 1. Distribution

The currently known range of *T. alpestris* in Denmark consists of the area immediately west, southwest and south of Åbenrå and more recent records have been made even south of this area close to the German border (Bisgaard, 1982). More detailed we have so far observed *T. alpestris* in the following Danish areas which are shown in Fig. 1 as areas 1-6.

- 1 - West, southwest and south of Åbenrå
- 2 - Holbøl Skov
- 3 - Kelstrup Skov
- 4 - Hønsnap Skov
- 5 - Kollund-østerskov (Dyrehave)
- 6 - Kollund Skov

The Danish word "skov" means "forest" or "wood".

By the end of 1992 we have recorded the species in a total of 120 ponds in Denmark. We know positively that it has disappeared from 10 ponds which have been filled in or have dried up. Since the individual ponds are not surveyed every year, *T. alpestris* may have disappeared from a few ponds due to a lack of restoration.

The main distribution is in the Åbenrå area where we have recorded *T. alpestris* in 94 ponds, but 7 of them do not exist any more. Here its range covers approx. 9 km<sup>2</sup> of forests and some fields close to the forests (see "2. Habitat"). They border directly on the town of Åbenrå and comprise the following forest parts, with the number of existing ponds with *T. alpestris* mentioned as well (in total 87 ponds in the Åbenrå area); they have been mentioned in the order from northwest to southeast:

- Rise Skov: 2 ponds
- Lindbjerg Skov: 1 pond
- Søst Skov: 6 ponds
- Vestermark (inclusive of Nørre Hesselmark, Enemark, Møllekær, Kogang and Salbjerg): 6 ponds
- Sønderskov: 3 ponds
- Nyværk Skov: 5 ponds
- Årslev Skov: 15 ponds
- Røllum Skov: 15 ponds
- Nybøl Skov: 3 ponds
- Røllum Nørremark: 9 ponds
- Bolderslev Skov: 8 ponds
- Årup Skov: 8 ponds
- Stubbæk Skov: 6 ponds

We have been unable to find it in the forest parts named Nørreskov and Jørgensgård Skov, just north and northeast of Åbenrå.

In the smaller South Danish region (areas 2-6) we have recorded *T. alpestris* in 23 existing ponds as follows, listed from north to south (additionally 3 ponds in Kollund Skov have been filled in):

- Holbøl Skov: 1 pond
- Kelstrup Skov: 6 ponds
- Hønsnap Skov: 10 ponds
- Kollund-østerskov: 3 ponds
- Kollund Skov: 3 ponds

The locality record in Holbøl Skov forms the newest known area. For the first time we found *T. alpestris* larvae in September 1991 (with confirmed records during the autumn 1992).

Holbøl Skov, Kelstrup Skov and Hønsnap Skov are in direct contact and form one piece of forest. Kollund-østerskov and Kollund Skov are isolated units, separated by fields and human habitations (300m between Hønsnap Skov and Kollund-østerskov, 2500m between Kollund-østerskov and Kollund Skov).

Out of the 110 existing ponds where *T. alpestris* has been registered, 37 have been created since 1980 (21 of which have been created since 1989) and subsequently colonised. We have never moved newts from one locality to another; they are released in the same pond immediately after capture and identification.

Opposite to the Danish areas nos. 2-6, on the German side of the Inlet of Flensburg the species has been recorded in a small ditch-like water body in the area of Glücksburg (no. 9 in Fig. 1) by Thomas Jarstorff, Flensburg (Bisgaard, pers. comm. 1988); on 26 October 1982 he reported it (verified by a photograph) to Bisgaard and said that it had been found there "recently" (i.e., presumably not more than 5-10 years before that date). Moreover, it is known from a few localities in the area of Flensburg (nos. 7-8 in Fig.1) (Dierking-Westphal, 1982), however, according to Bisgaard (pers. comm. 1988) breeding ponds have been lost there after the construction of a motorway. From the Danish-German border region the next known localities towards south are the area of Husum/Schwabstedt/Friedrichstadt (nos.10-11) (Jaeckel, 1954; Dierking-Westphal,

1982). Locality no. 12 is on the moors of Itzehoe near Hohenwestedt (Dierking-Westphal, 1982).

There are some gaps between the above localities: 14km between the range near Åbenrå (Stubbæk Skov) and Holbøl Skov, and approx. 40km between Flensburg and Husum/Schwabstedt.

## 2. Habitat

All Danish records of *T. alpestris* have been made in ponds in connection with deciduous forests or more rarely mixed forests. The 120 known ponds (including the 10 which do not exist any more) have been situated inside forests (59 ponds - 49%), on the edge of forests (46 ponds - 38%) or in the open land close to forests (15 ponds - 13%). Out of the 32 ponds which have been created since 1980, 19 (60%) are inside forests, 16 (43%) on the edge of forests and 2 (5%) in the open land.

The ponds in the open land are located up to 80m away from the forest edge; in such cases the surrounding fields consist of pastures for cattle or uncultivated fields rather than arable fields.

The ponds have a surface of less than 200m<sup>2</sup>, but one water body (a small forest lake) with an existing population in Kollund-Østerskov is bigger, Ø - 30m, with an island in the middle, Ø - ca. 5m.

Inside forests it may sometimes be found even in shaded ponds without vegetation; at rare occasions we have recorded adults as well as larvae in such ponds. Otherwise there is usually a rich growth of for instance floating sweet-grass (*Glyceria fluitans*), broad-leaved pondweed (*Potamogeton natans*), common water-plantain (*Alisma plantago-aquatica*), water starworts (*Callitriche* spp.), Canadian waterweed (*Elodea canadensis*), common water crowfoot (*Batrachium aquatile* [- *Ranunculus aquatilis*]), branched bur-reed (*Sparganium erectum*), common duckweed (*Lemna minor*), great duckweed (*Lemna* [- *Spirodela*] *polyrhiza*) and more rarely brooklime (*Veronica beccabunga*), stonewort (*Chara* spp.), willow moss (*Fontinalis antipyretica*) and common reed (*Phragmites australis*).

The following trees and shrubs are most frequently found growing near or even in the breeding ponds of *T. alpestris*: common alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), beech (*Fagus sylvatica*), hornbeam (*Carpinus betulus*), oak (*Quercus robur*), hawthorn (*Crataegus laevigata*), blackthorn (*Prunus spinosa*), dog rose (*Rosa canina*) and hazel (*Corylus avellana*).

One pond with *T. alpestris* in Kollund Skov is entirely surrounded by the Norway spruce (*Picea abies*), but it is situated just 20m from the deciduous forest. The pond was established in 1989 and the spruces are still fairly small, allowing other vegetation on the forest floor and in the pond. The spruces are believed to have been planted in 1987.

Commonly *T. alpestris* co-exists with the two other species of newts, *T. vulgaris* and *T. cristatus* (Bisgaard et al., 1980). Anurans which we have found in the breeding ponds of *T. alpestris* are *Bufo bufo*, *Rana arvalis* and *R. temporaria*. Only in one case we have found a *Natrix natrix* in a pond with *T. alpestris*.

## DISCUSSION

### 1. Distribution

The number of registered Danish ponds inhabited by *T. alpestris* has increased steadily since 1975. In 1975 it was known from 5 ponds, in 1976 from 17 ponds, and in 1977 and 1978 from 34 ponds (all in the Åbenrå area) one of which was eliminated by draining in 1977 (Bisgaard et al., 1979a). During the past 14 years to 1992 the number of existing ponds with *T. alpestris* has been tripled, from 33 to 110 ponds. With the inclusion of destroyed *T. alpestris* ponds more than the increase is even bigger, from 34 to 120 ponds. The knowledge of its presence in the southeasternmost part of Jutland is newer as it was reported by Bisgaard (1982) from 7 ponds, 4 of which still exist. Today it has in that part been recorded in totally 26 ponds, of which 23 ponds still exist.

The marked increases in the known number of *T. alpestris* ponds are the result of creation of new ponds (37 with *T. alpestris* since 1980) and restoration of existing ones as well as improved surveys of the forests and ponds.

There are some gaps in the distribution shown in Fig. 1. The distance between the area near Åbenrå and Holbøl Skov (areas 1 and 2) is 14km; and it is approx. 40km between Flensburg and Husum/Schwabstedt (areas 8 and 10). We have successfully checked ponds between Åbenrå and Holbøl Skov although small populations may still exist in the interjacent forests. According to Dierking-Westphal (1982) *T. alpestris* is rare and threatened in Schleswig-Holstein, North Germany, but we are not aware how intensively Schleswig-Holstein has been investigated. Some populations of *T. alpestris* may well be overlooked in general mapping surveys of a major area like Schleswig-Holstein.

The gap in the Danish distribution (14 km) is minimal. Considering that North Germany perhaps needs to be surveyed in more detail, the gap of 40 km may not necessarily reflect the current extent of fragmentation of the range. Also for the reasons mentioned below (see "3. Dispersal") the northern distribution of *T. alpestris* is likely to have been continuous in historical times.

An extensive mapping survey of the amphibians and reptiles in the whole of Denmark has been carried out, with contributions from many persons. No records of *T. alpestris* have been made outside the range reported here, neither in ponds in/near forests nor elsewhere. The results of the survey are now being prepared for publication by the coordinator Kåre Fog.

### 2. Habitat

The preference for forested country is in accordance with other observations made in Central European lowland populations (Blab et al., 1976; De Fonseca, 1980; Feldman & Belz, 1981; Parent, 1984; Bergmans & Zuiderwijk, 1986; Bauer, 1987; Glaw & Schütz, 1988). The land habitat selection shows a strong and consistent connection to deciduous forests in Denmark and presumably also in North Germany (Dierking-Westphal, 1982). But apparently the connection is not so consistent throughout the Central European lowlands. Particularly Bergmans & Zuiderwijk (1986) report a substantial portion of the Dutch breeding ponds away from forests; 65% in direct association with forests, 12% less than 150m from forests and 23% more than 150m away from forests (n=165).



Plate 1. Cattle pond with *Triturus alpestris*, *T. vulgaris* and *Rana arvalis* on the edge of the forest, Årslev Skov, near Åbenrå (area 1). The main vegetation consists of floating sweet-grass (*Glyceria fluitans*), broad-leaved pondweed (*Potamogeton natans*) and common duckweed (*Lemna minor*). Photo taken on 22 April 1989.



Plate 2. Shallow forest pond with *Triturus alpestris* inside Kelstrup Skov in the South Danish area (no. 3), drying up during the late summer. In the pond grows floating sweet-grass (*Glyceria fluitans*) and common duckweed (*Lemna minor*). The dominating vegetation around the pond is beech (*Fagus silvatica*), ash (*Fraxinus excelsior*), holly (*Ilex aquifolium*) and raspberry (*Rubus idaeus*). The pond was dug deeper in October 1990. Photo taken on 23 April 1989.





Plate 3. One pair of *Triturus alpestris*, from the Åbenrå area.



Plate 4. One larva of *Triturus alpestris*, from the Åbenrå area.

All illustrations, including photos: Henrik Bringsøe.

The split between Danish breeding ponds inside forests (49%), on the edge of forests (38%) and in open fields close to forests (13%) probably says more about the placing of water bodies than about the habitat preference of *T. alpestris*. Traditionally there have been many cattle ponds made by the farmers. Especially since 1989 we have noticed an increase in the number of created and restored ponds arranged by the State Forest Service, in accordance with the new guidelines and recommendations for management of the forests put forward by the Danish conservation authorities (Skov- og Naturstyrelsen, 1989). Most of these newly created ponds have been placed inside forests. Otherwise much restoration of existing and creation of new ponds in privately owned areas (forests as well as fields) have been made and financed by our working group.

Its tolerance to shaded ponds is supported by De Fonseca (1980), Bergmans & Zuiderwijk (1986), Blab (1986), Bauer (1987) and Glaw & Schütz (1988), stressing the few and limited requirements to the water habitat.

### 3. Dispersal

The thermal requirements of *T. alpestris* are similar to those of *T. vulgaris* and *T. cristatus* (Blab, 1986), however, its northern limit is situated more than 1100km further south than those of *T. vulgaris* and *T. cristatus*. The only significant difference in habitat selection which we have observed is that *T. alpestris* has in Denmark so far always been found in connection with deciduous forests. *T. vulgaris* is often found away from forested land and to a lesser extent this also applies for *T. cristatus*.

Its association with deciduous forests suggests that the open land today forms a barrier which prevents *T. alpestris* from dispersing to suitable habitats in other parts of Denmark.

Up to the Palaeolithic and Mesolithic Stone Ages (year 4000 B.P.) Denmark was covered by forests; during the Neolithic Stone Age (year 4000-1800 B.P.) still the vast majority of Denmark was covered by forests. Fields and commons for grazing were present at the time of the Early Bronze Age (year 1800-1000 B.P.), and the first small areas of heath were formed. Through the Iron Age (from year 500 B.P.) and the Middle Ages clearing of forests throughout Denmark and the increasing range of the heath in West Jutland and in parts of Central Jutland continued gradually. However, during these periods deciduous forests were still the predominant vegetation type. Clearings and open farmland still had a limited extent. Only during the latest two to four centuries the reduction of forests through the establishment of open farmland might have broken the dispersal routes of *T. alpestris* and formed barriers preventing it from dispersing northward from Åbenrå. The above information on the vegetational development has been provided by Aaby (pers. comm., 1989).

Fig. 2 shows a reconstruction of the forested areas of southern Jutland and northern Germany at around years 1649-1652. The distribution map of *T. alpestris* (Fig. 1) shows the present range of forested areas (split into deciduous/mixed forests and coniferous forests), illustrating the drastic decline in forested areas during the past 340 years. In Denmark the forest areas of Figs. 1 and 2 only comprise southern Jutland south of the towns of Esbjerg/Kolding and the adjacent islands. Funen (the major island east of Jutland) and its adjacent islands

have not been covered. Apparently *T. alpestris* underwent in that region major habitat fragmentation and was isolated.

Hence, it is considered most probable that *T. alpestris* has been dispersing towards the north until the relatively recent major anthropogenic influence prevented the further range expansion from Åbenrå northward in Jutland. Also in view of the above-mentioned small distances between the currently known localities, the origin of the Danish populations is likely to be natural and not due to an introduction.

#### 4. Breeding migration

During spring 1978 and 1979 the working group recorded the migrations to one breeding pond by pitfall trapping in the area near Åbenrå, (Bisgaard et al., 1979a, 1980), altitude 66m. In 1978 the first specimens were trapped on 14 March, the last on 7 April. There was a slight difference in time of migration between the two sexes: on an average ♂♂ entered the pond 2 days earlier than ♀♀ (Tab. 1). The spring of 1979 was extremely cold and the migration was almost one month delayed: the average migration date of 1978 was 25 March whereas that of 1979 was 22 April (tab. 1).

Blab & Blab (1981) also recorded breeding migration of *T. alpestris* in 1978 and 1979; these studies were carried out southwest of Bonn (altitude 170m) in Central Germany, i.e., ca. 500km south of Åbenrå. In 1978 they found an average migration date being 11 days (♂♂ 13 days, ♀♀ 7 days) earlier than that of the Åbenrå area; in 1979 the average migration date was 22 days (♂♂ 22 days, ♀♀ 21 days) earlier than that of the Åbenrå area (tab. 1). The figures of 1978 are considered representative as the climate of the spring 1978 was quite normal; this is also the case for Bonn (Blab & Blab, 1981). For the comparisons between the migration dates in Åbenrå and in Bonn only average dates have been used since the number of observations was considerably higher in Bonn wherefore the time span was greater.

Table 1

Migration of *Triturus alpestris* to breeding pond southwest of Åbenrå, South Denmark (altitude 66 m) and southwest of Bonn, Central Germany (altitude 170 m).

		Åbenrå				Bonn		Difference
		n	First	Last	$\bar{x}$	n	$\bar{x}$	$\bar{x}$
1978	♂♂	25	14.3	7.4	24.3	204	11.3	13 days
	♀♀	21	14.3	5.4	26.3	105	19.3	7 days
	Total	46	14.3	7.4	25.3	309	14.3	11 days
1979	♂♂	20	30.3	10.5	17.4	182	26.3	22 days
	♀♀	25	6.4	10.5	25.4	176	4.4	21 days
	Total	45	30.3	10.5	22.4	358	31.3	22 days



Fig. 2. Reconstruction of the forested areas at around years 1649-52 on the basis of Johannes Mejer's maps. As in fig. 1 only the area south of Esbjerg/Kolding has been considered relevant. The island of Funen and the islands adjacent to Funen have been excluded. Bar represents 100km.

## ACKNOWLEDGEMENT

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## LETTERS TO THE EDITORS

On April 11th I visited a pond which is situated on the fringe of an old wood, at one of the highest points of the Marlborough downs, and discovered that all around the perimeter of the pond there were at least 150 dead and dying toads – most were lying in a scattered line around the pond, others were piled up into two or three heaps, and a few were crouching at the edge of the water. Most were dead, a few were alive but mortally injured and lying still, dying. There were about 50 apparently unhurt toads swimming in the pond.

The toads' wounds were all more or less the same – a hole in the side or in the belly, through which gut protruded. A lot of the toads had just a single hole, but some (particularly those which had been wounded on the belly) also had a few gashes. None seemed to have had parts eaten, (but when I subsequently examined the photographs which I had taken, I saw that a few of the toads were missing a limb or a foot). Because some of the injured toads were still alive, I felt pretty sure that whatever had occurred to cause this mass mortality, had happened very recently.

I telephoned a local gamekeeper, who, remembering that he had seen a group of three young army cadets on the farm, went to investigate. He could find no evidence to suggest that the boys had been there, but he did see a solitary heron standing immobile at the edge of the pond. The heron flew away, (and has not been seen since then).



I sent a report and photographs to the British Herpetological Society, to the British Trust for Ornithology, and, as the pond is a Nature Reserve, to English Nature; also to the Wildlife Department of the R.S.P.C.A. who, as they are currently funding research into mass mortality of common frogs, forwarded the information to Herpetofauna Consultants International.

The general consensus of opinion was that it is most unlikely to have been the heron, but might have been natural predation by corvids, rats, stoats or weasels. It seems that the numbers involved in this incident are unusually high.

The Herpetofauna Consultants informed me that there have been two similar cases observed in Norfolk this year. After weighing up the habits of the various predators, their conclusion was that it is not clear what killed the toads; the cause of death may not have been just predation. The Conservation Officer from English Nature, on looking at the photographs, noticed that one of the toads appeared to have lead shot embedded in it. When I had read that letter, I returned to the pond to see if I could find any evidence to support this theory, but all that remained of the toads was a few pieces of rotten skin and some bones.

We will probably never know what caused the mass extermination of these toads. However, nature has compensated – the pond is black with tadpoles, many thousands of them, vastly more than I have ever seen in any pond before, and all look wonderfully fat and healthy.

Anne Excell

Fortnight, Wick Down, Broad Hinton, Swindon SN4 9NR. Wiltshire

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## CONSERVATION AND THE CASE OF THE GOLDEN TOAD

KEITH A. HARDING

152B Keyham Road, Plymouth, PL2 1RA

The demise of the Golden toad *Bufo periglenes* has been the subject of a number of recent articles (Pounds, 1990-92) and one major paper (Crump, Hensley and Clark, 1992). It is an endangered species listed in Appendix I of CITES and occurs in just 4 km<sup>2</sup> of elfin cloud forest on the Cordillera de Tilarán in northern Costa Rica. Since 1987, when large numbers gathered to breed, it has disappeared and Dr. Alan Pounds, resident biologist at the Monteverde Cloud Forest Reserve, and other amphibian biologists are attempting to find out why.

Unfortunately, it is evident that this toad has been neglected in the past and that ongoing research into the reasons for its decline is going to be too long-winded to bring about any immediate change in its fortunes. Furthermore, the failure of the 1987 breeding season when - despite the massive number of eggs laid - all but a handful of young died, could and should have been prevented. We are failing the Golden toad and must radically change our approach to its conservation and that of many other species like it.

There tend to be two camps amongst conservationists: the reporters, experimenters and legislators which I call the talkers, and those who actually go out and take positive action to save endangered species - the doers. There is a distinctly *laissez-faire* attitude prevalent in the former group that if you leave a species alone undisturbed and protected by law, it will somehow spontaneously recover. I believe that this view is, to say the least, wishful thinking. And there is no better example to illustrate the point than the Golden toad because it lives in a completely undisturbed tract of protected cloud forest where it is free of persecution by man and yet it is still declining. Sadly there are many other species of plants and animals in this predicament. Some like the Golden toad are particularly vulnerable to the vagaries of the weather, and others have complicated life-histories. Whatever the reasons for their lack of success, though, they need intensive care - a decisive and practical "hands-on" approach. The trouble is that if we don't get our acts together and do something to save them, those of us who purport to be involved in endangered species conservation will ultimately bear the same responsibility for any extinctions which do occur as the timber men, polluters and animal dealers who are usually to blame. It isn't good enough to say that these species have died out on their own and that we are therefore absolved. After all, even if there is no direct evidence of man's influence in present declines, it is almost certain to have played a part somewhere along the line. So let's consider the case of the Golden toad and what positive steps we can take to save it.

When the toad was discovered by Jerry James of Monteverde in 1963 it caused quite a sensation in the herpetological world, mainly because of the amazing golden orange colour of the males. Professor Jay Savage who formally described it three years later even commented in his paper: "I must confess that my initial response when I saw them was one of disbelief and suspicion that someone had dipped the examples in enamel paint".

When Prof. Savage and his colleague Dr Norman Scott visited the site where the toads had been found, they were equally dumbfounded when they saw at least 200 within a radius of just 5 metres. They had been told by Jerry James that the toads only appeared during a brief period between April and June when they breed and this information, combined with their own observations, strongly indicated that the Golden toad is an “explosive breeder”, gathering in enormous numbers around small, temporary pools between the roots of forest trees, only when conditions are just right.

Since Prof. Savage’s original paper was published in 1966, little work has been done on the Golden toad and most information acquired about it since then has been anecdotal. However, in 1987 Prof. Martha Crump of the University of Florida went to Monteverde to study it in detail. That year proved to be an exceptionally good one for Golden toads and over 1,500 were found at five different breeding ponds in an orgy of mating and egg laying. Prof. Crump discovered, amongst other things, that each female lays from 200 to 400 eggs and that the tadpoles take up to 5 weeks to metamorphose. Yet the results of the ’87 season were a disaster because, before the eggs had a chance to hatch, the ponds dried up and out of some 30,000 potential toads, only 29 at most (Crump’s estimate) survived to complete their metamorphosis. This catastrophe should not have been allowed to happen.

Several years ago, while filming for BBC Television in north Borneo, I was making my way down from a helicopter landing pad in a montane forest clearing to a camp site by a river. As I entered the forest, I came across a small pool of water containing a large number of treefrog tadpoles and since the pool was obviously in the process of drying out, I made a mental note to return the next day and take the tadpoles to a safer place. When I did return and reached the spot where the pool had been, there was just a layer of damp, cracked mud and a few shrivelled bodies.

This experience taught me a lesson and ever since, when I have found tadpoles in pools threatened by desiccation - which is a common enough occurrence amongst species which utilize temporary pools - I have always rescued them there and then. For this reason, I can say with my hand on my heart, that I would not have let those Golden toad eggs desiccate and die, even if I too had witnessed the fantastic spectacle of 1,500 individuals in a frenzy of breeding activity, the event which evidently lulled the Monteverde scientists into a false sense of security.

As things turned out, the loss of the ’87 offspring was particularly significant because, since then, only a handful of Golden toads have been found and since 1991, none have been found at all. Prof. Crump rightly says that the failure of the 1987 breeding season does not in itself explain why the adult toads have disappeared, but these failures could have been happening for several years running and could therefore have had a cumulative effect. No-one studied the toads in detail before 1987, so no-one knows.

Since 1987, Prof. Crump and her colleagues have, in addition to looking for Golden toads at all known sites, been carrying out a study of environmental factors which might have led to declines and the results of this work have been published recently (Crump, Hensley and Clark, 1992). Prof. Crump’s team draw attention to the fact that the toads can’t breed until the pools they use retain water, but that if the first rains of the year are too heavy, they run the risk of having eggs or tadpoles washed out onto the forest floor with little chance of survival. On the other hand, if the

rains are too light, the pools may fill, only to dry out again after a relatively short period of dry weather; the very scenario tragically demonstrated in the '87 breeding season. For these reasons, they suggest that the Golden toad has what they call a "narrow window of time" in which to breed, when conditions are just right - not too wet and not too dry - and that it is therefore highly vulnerable to unfavourable weather conditions.

The team conclude by saying that the toads may be hiding in retreats waiting for more favourable weather, or they may have suffered real declines in the adult population. They call for long-term monitoring and carefully controlled field experiments to address the factors responsible for declines, but here I take issue with them. There simply isn't time. After all, the toad's present critical status is at least partly due to 24 years of comparative neglect. It is reminiscent of the householder who contacts his insurance company about a hole in the roof, only to be told that a surveyor will be sent round to inspect it. The householder already knows the result of the survey - that there is a hole in the roof - and the surveyor's report does nothing to stop the water coming in.

To make matters worse, because a number of other amphibians in different parts of the world are also in serious decline, the scientists believe that a common factor may be responsible and this belief has deflected them from the immediate problem of the Golden toad. OK, they may be right and a world-wide factor may be responsible, but what if there isn't one? They should do no more than keep in touch with biologists working on other declining species and look out for common factors. If they put too much effort into solving amphibian problems in general, rather than those of the Golden toad in particular, they run the risk - even if they're right - of making a breakthrough just as the last of the affected species becomes extinct. It is an all or nothing approach and it is wrong. They are straying from the original objective of saving the Golden toad and the issues are becoming shrouded in cloud forest mist. There is too much science here and not enough common sense.

The case for water shortage in temporary breeding pools as the principal cause of the demise of the Golden toad is overwhelming and all but proven. As Dr Pounds suggests (1991), ground water level is the key. Rainfall figures, which have been used as a measure of water availability in the past, do not reflect the amount of water underground and don't therefore indicate how long temporary pools will retain water. In 1987 aquifer-fed streams at Monteverde fell to the lowest levels ever recorded, with the result that another species of amphibian, the Harlequin toad *Atelopus varius* also suffered extremely adverse breeding conditions and has also disappeared.

There is a ray of hope for both species, though, because toads are usually quite long-lived animals and although we don't have any longevity figures available for the Golden or Harlequin species, our own toad can live to the ripe old age of 40. For this reason, it seems most likely that Prof. Crump and her team are right to suggest that the toads are hiding in retreats waiting for more favourable conditions before they emerge to breed and that they haven't actually died out. However, when they do reappear there will be no time to lose.

For a start, some specimens must be taken into captivity to begin a captive breeding program and ensure the survival of the species. No mention has been made of captive breeding by the Monteverde scientists, yet it is the only way to protect a species living in such a restricted and vulnerable habitat in the long term. A recent edition

of Julian Pettifer's "Nature Watch" on the Mauritius kestrel gave a shining example of what can be achieved. Welsh ornithologist Carl Jones took the eggs of the last breeding pair of kestrels left in the wild in 1981 and succeeded in rearing and breeding from the young. Since then he has conducted an intensive breeding program and the 100th captive bred bird was recently released. As Jones himself said "Management has got to be the way forward" and of course he is right.

Locally, the Golden toad breeding pools need attention, either by waterproofing with plastic membranes and/or by topping up when they are threatened by dry weather. And simple radio tracking would soon tell us where the toads "disappear" after breeding. So, let's stop *talking* about Golden toads and *do* something to save them before they are driven to extinction under a mountain of reports.

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## A NOTE ON A NEWLY HATCHED *VARANUS TRISTIS TRISTIS* IN THE GREAT VICTORIA DESERT, WESTERN AUSTRALIA

DANIEL BENNETT

118 Sheffield Road, Glossop, Derbyshire SK13 8QU.

*Varanus tristis* is a small, generally arboreal, monitor lizard found throughout Australia except for the far south. Two subspecies are recognised within this vast range; *V. tristis tristis* Schlegel 1839 and *V. tristis orientalis* Fry 1913. They can be distinguished by the presence of black pigment and more spinous caudal scales in *V. tristis tristis* (Mertens 1958). The pattern and colouration of the species varies greatly throughout the range. In general, it can be said that those from the west of Australia are darkest in colour, with those from around Perth showing jet black colouration (Schmida 1985), and those from the east being lightest, often with no black pigment at all. The common name of black headed monitor comes from specimens which exhibit a black head and tail, with lighter colouration over the body. The pattern and colouration of *V. tristis* in different parts of Australia is discussed by Christian (1981).

It is well known that the colouration of juvenile monitors is often much brighter than that of the adults. In some species the patterns of the hatchlings are also different, so that the newly-hatched monitor bares very little resemblance to its parents (e.g. *V. dumerilii* (Horn & Schulz 1977); *V. rudicollis* (Horn & Peters 1982); *V. spenceri* (Peters 1986); *V. varius* (Horn 1991)). What advantages brighter colours and more vivid patterns bestow on the small monitors is not known. Undoubtedly monitor lizards are much more vulnerable to predators when they are small, and this supports suggestions that bright colours reduce mortality by predation amongst hatchlings, whether by providing them with cryptic colouration in certain habitats, or even by presenting an appearance that discourages predators (perhaps by mimicking a less palatable animal). The size of adult monitors may exclude them from microhabitats used by the juveniles, whilst smaller specimens are precluded from habitats frequented by the adults (e.g. *V. komodoensis* (Auffenberg 1981)). Perhaps in some species the shift to adult colouration coincides with a change in habitats.

The fact that very few juvenile monitors are encountered in the wild (judging from the paucity of reports in the literature) suggests that they are very much more secretive than the adults, and as a result very little (often nothing at all) is known of the behaviour of hatchling monitor lizards in the wild. The young of at least two species are known to remain with their siblings for the first few weeks or months after birth (*V. bengalensis* (Auffenberg 1983) and *V. griseus caspius* (V. Makeyev, personal communication)). Neither of these species shows very drastic differences in appearance between adults and juveniles.

In 1989 Eidenmuller published a report on the captive breeding of *V. tristis orientalis*, and included a photograph of a hatchling that showed somewhat brighter colouration, but a similar pattern to its parents. Other dwarf monitors (i.e. those assigned to the subgenus *Odatria* (Mertens 1942) have juvenile patterns and colourations that are similar to the adults (e.g. *V. gileni* (Boyle & Lamoreaux 1983); *V. acanthurus* (R. Wicker, personal communication); *V. brevicauda* (Schmida 1974); *V. storri* (Bartlett 1982)).

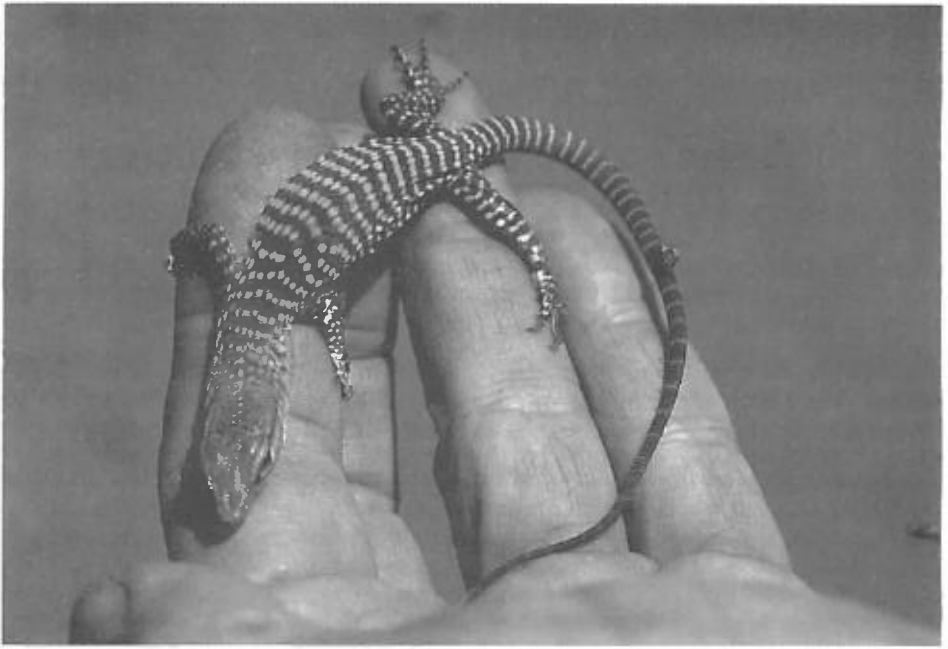
In 1991 I was lucky enough to see a very young specimen of *V.tristis tristis* in the Great Victoria Desert of Western Australia. This animal fell into a pit trap between 1530 and 1930 hrs. on the 3rd of March at 28° 08' south, 123° 55' east, in an area covered with spinifex grass (*Triodia basedowi*) with some marble gum trees (*Eucalyptus gongylocarpa*) and *Acacia* bushes. It was trapped on a flat area of sand with dense spinifex and scattered, mainly dead *Acacia* bushes, approximately 50 metres north of a sandridge. It weighed 4.1 grammes and measured 72mm from snout to vent with a 115mm tail. Its small size and the presence of a fresh umbilical scar indicated that the monitor was a newly hatched specimen. Unfortunately it had left no tracks, and so it was impossible to ascertain where the animal had come from. In this part of Australia adult *V.tristis* are highly arboreal animals (Pianka 1971, 1982), but the nearest tree to the pit trap was more than 100 meters to the west. Various authors have cited burrows and/or tree hollows as the places where *V.tristis* lays its eggs, but none of these claims are supported by actual discoveries of nests. If this animal hatched in a tree and was intent on continuing an arboreal existence its presence in this area is hard to explain.

Unlike Eidenmuller's example (1989) the parents of this specimen were, obviously unknown. However all the specimens seen in the area in the past have been virtually completely black with a few golden flecks (E. Pianka, personal communication) and so it is reasonable to suppose that the parents of this animal were similar. The very different appearance of this hatchling compared to that of the adults in the area, and its position when trapped may suggest that juvenile *V.tristis* lead very different lives from the adults. Perhaps it sheltered in the spinifex, or under the bark of *Acacia* bushes, but until further examples come to light and more direct observations are made, no conclusions can be drawn.

This note would have been impossible without the generous help of Professor Eric R. Pianka, Austin, Texas.



*Varanus Tristus* Adult



*Varanus tristis* Juvenile

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## SUCCESSFUL KEEPING AND BREEDING *PODARCIS PITYUSENSIS* IN INDOOR VIVARIA

RICHARD HARLING

38 Twin Oaks Close, Broadstone, Dorset BH18 8JF

*Podarcis pityusensis* is a medium sized wall lizard which comes from the Balearic islands. The lizards form an interesting example of increased size in island dwelling lizards and are also a very good species to breed in a fairly straight forward way.

The males AND females are very territorial and in small vivaria (eg. less than 60cm by 90cm) will kill opponents of the same sex. They have to be kept in different sex pairs. The males tend to have larger heads than females and have femoral pores on the undersurface of the hind legs. Both sexes in my experience are equally colourful, though the males may be slightly more gaudy when breeding. Males are bigger than male *Podarcis muralis* and I remember being amazed at their size for a wall lizard when my four adults arrived.

Of the four I obtained one male was mainly brown with a bright green back, reticulated with a longitudinally striped pattern and a row of blue scales along the sides. He was 8cm from nose tip to the base of the tail. One female was very similar in colour with a much smaller head and shorter body length. The other male was the same size as the male mentioned above but cobalt blue all over, though his ventral surface was a paler blue. the female I put with him was similar to him but more greeny. Both females' striping on the back was much more definite than the males. All were very attractive lizards even though the females had regrown tails. Some have suggested that regeneration of tails precludes breeding - it hasn't with mine. I can't say if it has affected clutch size or frequency but I usually get three or four clutches each year. Of the original four I gave one male away in 1992 when "his" female was killed by another female when I tried to keep her with another pair.

### Vivarium:

I have kept one pair in a 30cm by 90cm aquaria and another pair in a similar sized home made contiboard vivaria which are both 45cm high, well ventilated and heated at one end by a 60-100W tungsten light set on a dimmer and time switch for approximately 10 hours per day from January to October. I also supply a UV light near to the basking area. I use a 15W tube for this but I think a 20W would be better. By not keeping the aquarium near a window the vivaria never get overheated, since they are well ventilated and I turn the dimmer down for the tungsten light if it looks like it might get too hot. *The important factor* is keeping a temperature difference between the hot spot and the other part of the vivarium so that there is always a refuge from the heat - this means that the bulb(s) must be placed at one end, NOT in the middle. When I go away for holidays I feed the lizards especially well for the previous two weeks and then turn the lights off completely, checking that there is sufficient water in a bowl for them. I have at times been away for over 2 weeks always coming back to healthy lizards. In the winter of course the lights are already off. A full bowl of water, small so that they cannot drown and the humidity is kept low, is always provided as they drink at least once per day.



I use vermiculite for flooring, having tried other things such as cat litter, hortag granules and bark. Vermiculite is light, cheap and hygienic. I have not had any problems with it sticking to the food as the lizards seem quite good at getting it off if it sticks. This variety of lizard seems very nervous and if lots of hides are given, then they are rarely seen. I keep them with minimal hides so that their condition, especially the state of the female if she is gravid, can be easily observed. By providing a thin layer of vermiculite they can cover themselves up if they get too nervous. I have found that a) Not providing hides and b) Frequently watching them reduces their nervousness significantly – b) is probably the most important factor.

#### **Feeding:**

I feed the lizards on maggots (which I pierce with a pin or sharp scissors as they have an almost impenetrable cuticle and this allows digestive enzymes entry), flies when they hatch, mealworms (also normally pierced), crickets, spiders from the garden, worms and occasionally “sweepings” from bramble bushes in a nearby wood which tend to be mainly spiders. Often I cover the food with cuttle fish dust created by scraping the soft part of the cuttle fish bone into a plastic bag and then shake up the food in the bag. The lizards have survived and thrived with attractive colours and frequent egg layings for 4 years on this fare so far. The water in the Poole area is very hard which may help with calcium levels.

#### **Breeding:**

The stimuli for breeding are a) having a period in the dark and at a temperature of around 12-15 degrees C (I keep the lizards in an unheated room) b) giving the lizards an increasing length of time in the light c) having well fed individuals.

I tend to turn the lights off completely from late-ish October until early January. Then, over a period of two weeks, I turn the lights back increasing the time the light is on until it is about ten hours per day. The lizards feed very little during the dark winter period, but turning the lights back on soon stimulates eating. Very quickly they mate. Mating is a rough affair with the male swelling the underside of his throat, waving his tail from side to side and chasing the female until she acquiesces. The female starts to increase in girth very quickly afterwards and her appetite increases rapidly. After a month or so she looks like she will burst. For most of the time I place a small container, about 5cm deep filled with damp vermiculite, into the vivarium. It often has to be refilled and moistened as both sexes love digging and burying themselves. The female will lay approximately 3-5 eggs (occasionally more) in the container if the rest of the vivarium is kept dry – if a container isn't provided she lays her eggs anywhere and they dry out and die.

#### **Incubation:**

I take the container out, and expose the eggs without moving them so that I can check them and see progress and put it into a plastic bag which I put into a small aquarium with a 60W light bulb set into a lid and connected to a thermo-stat at 28 degrees C. The bag is opened every day to allow new air to enter. The eggs swell significantly if fertile and healthy. The incubation period is approximately 6 weeks.

While the eggs are incubating I put another lot of vermiculite into a container and back in the vivarium. I have had up to 4 clutches in a year, the last clutch often only being 2-3 eggs.

The eggs are not as successful as in nature, but my hatching rate with this regime is about 60-75% and the female has kept plump and very healthy. Unfortunately the adults cannibalise the young – I lost a clutch of 4 babies when a female escaped and got into their open “creche” container – the babies tails left behind.

#### **Raising the young:**

The young are quite big (about baby sand lizard size with longer tail ie. 7cm or so including the tail) and very easy to care for. I put them into a tall bowl with UV light suspended about 6cm off the ground (again vermiculite). I feed them on sweepings from the aforementioned bramble bushes. They grow extremely rapidly and get blues and green colours after a few months. They are brown at hatching with bluish tails.

#### **Other notes:**

The lizards have to be kept in small vivaria in pairs so I have had to give away a number of young and also let some clutches of eggs be laid with nowhere to be laid – they then dry out and die. Keeping the male and female apart is a possibility but it increases the number of vivaria needed – I have kept it down to 2 (except when raising the young when it can increase to 4 – the young live together happily until their first spring when they start to fight). The females do not seem to suffer a lack of condition if well fed (the figure of 60-75% hatching and survival is for those I incubated under the UV regime – the first year I had them I didn't have UV light and no eggs hatched).

I have kept 5 of the “babies” from 1991 outside in the summer of 1992 in a 6 feet by 4 feet vivarium – made from perspex sheets. The bases have been pushed 6 inches into the ground and the top covered by green garden netting. The lizards thrived and have produced very attractive colours, again blues and greens. I let them overwinter, providing a perspex sheet over their main rocky retreat. All 5 have survived the wintering and look healthy, though the smallest one is a bit thin. The colony is 1 male and 4 females. They seem to co-exist outside much better than inside, due to the larger space and the large number of hiding places. I have found that I can sit outside near them and observe them with little difficulty despite their nervousness. The babies are not very nervous but get more so as time proceeds. As implied above I suspect that there is a direct correlation between the amount of effort I spend on them especially watching and how tame they become. Some even accept food from my fingers when used to me. The winter was very mild so I am not sure how well outside survival would occur if the winter was harder. The lizards may have laid eggs last year but the temperature is not sufficient for them to hatch and I didn't look for any to incubate inside due to not having the space or time. I sold three to a petshop last year but they did not sell very easily.

I also overwintered the green adult pair over the winter of 1991-2 successfully.

The colours of the offspring range from adult like to brown (two never did get any colours). One egg which failed to hatch when opened contained a “Siamese twin” joined at the body.

I recommend these lizards for first time keepers, but I suspect that the new regulations will make this species inaccessible to the novice.

## BHS RULES (Revised 1993)

1. **TITLE.** The Society shall be called the **BRITISH HERPETOLOGICAL SOCIETY (BHS)**.

2. **OBJECTS.** The promotion of the study and protection (including conservation through education and captive breeding) of amphibians and reptiles, particularly the European species.

3. **MEMBERSHIP.** Membership of the Society is open to all interested in the different aspects of herpetology.

4. **SUBSCRIPTION.**

(a) The annual subscription, due on 1st January, shall be determined by the Council, which may alter it at any time, normally making any proposed change known to Members at the Annual General Meeting previous to change. Institution and Library subscription membership fees will also be determined by the Council.

(b) The subscription will include Society publications and should be paid before the end of the taxation year (6th April) at which time thereafter, otherwise, a reminder will be sent. Publications will be forwarded on receipt of the subscription. A Member who fails to pay the subscription by 30th June shall cease to be a Member, but will receive a final reminder stating that his or her name will be restored to the Members' list by payment of the subscription.

(c) Institutional and Library subscriptions. Institutional and Library subscribers may be unlimited in number and their annual subscription shall be greater than the Ordinary Membership subscription, as determined by Council from time to time.

Institutional subscribers may nominate one individual to represent them as a Full Member of the Society, and that person shall have full voting rights and eligibility for election to Council.

5. **CATEGORIES OF MEMBERSHIP**

(a) Ordinary and Full Membership. The Society shall consist of an unlimited number of Ordinary and Full Members resident in any country. Every Ordinary and Full Member shall pay an annual subscription unless joining after September, in which case the sum for that year will be halved. Payment of the subscription implies acceptance of the Society's rules. Membership for persons over the age of 65 shall, upon application, be half the Ordinary Full Membership fee.

Ordinary Members will receive the Bulletin only; Full Members will receive both the Bulletin and the Journal, this being the only difference between Ordinary and Full Membership. Full Membership Rates will normally be 1.25 times those of Ordinary Membership.

(b) Honorary Membership. Persons who have rendered outstanding service to the Society or to herpetology are eligible for election as Honorary Members on the nomination of Council. Apart from past Presidents, such Members shall not exceed 10 in number; they will receive all privileges of Ordinary Members and will be able to purchase Society publications at rates determined by Council.

(c) Family Membership. This will be at a rate set by Council, normally 1.5 times the Ordinary or Full Membership rate, as appropriate. Family Membership includes all members of a family (a family is defined as up to 2 adults and unlimited numbers of children below the age of 18) in Ordinary, Full and Junior categories as appropriate, and entitles attendance at meetings. Families receive a single copy

of each publication of the Journal and Bulletin, and of the Young Herpetologists Club Newsletter if the family includes one or more Junior Members. Other qualifications apply as in 5(a), except that both adults may vote at General Meetings.

(d) Junior Membership. Young people up to the age of 18 are eligible to join the Junior Section of the Society on payment of an annual subscription determined by Council. Council may require proof of age.

Junior Members will receive the Young Herpetologists Club Newsletter and are eligible to participate in any Junior Section meetings or projects that may from time to time be organised by the Education Officer. Junior Members do not receive the Journal or Bulletin, but can purchase them at subscription rates decided by Council.

Junior Members may attend ordinary Society meetings.

(e) Student Membership. Anybody over 18 years old and in full-time education is eligible to join the Society at a reduced annual subscription rate determined by Council. Council may require proof of student status. There will be a single Student Membership rate, which will give Student Members the same entitlements as Full Members.

(f) All Members are expected to comply with the British Herpetological Society Policy on Animals in Captivity. If a Member, in the opinion of the Council, acts in a manner injurious to the interests or the good name of the Society, the Chairman or his deputy will be directed to contact that Member, stating the nature of the alleged offence and asking for an explanation. The Council shall then allow 28 days for a reply or for a request from the Member to appear before Council. If the Council decides that the Member's explanation made in writing or verbally is unsatisfactory, it shall have the power to remove his or her name from the Society's list.

## 6. COUNCIL.

(a) Composition. The business of the Society shall be conducted by a Council consisting of Officers of the Society and other Members. The Officers will be the President, Vice-President (immediately retiring President for the period of one year), Chairman, Membership Secretary, Treasurer, Editor of the Journal, Librarian, Editor or Co-editors of the Bulletin, Education Officer, Development Officer and Legal Officer. Other Members of the Council shall be Chairmen of Committees and Sections, Regional Branches and Associations and Specialist Groups and six elected or co-opted Ordinary or Full Members. Officers shall serve for a period of five years, at the end of which period they may stand for re-election. Notice of Officer elections inviting candidates will be circulated at least 45 days prior to the AGM at which the election is to be held. Rules of election will be as shown in (d) below. Chairmen of Committees and Sections, representatives of Regional Branches and Associations, and Specialist Groups, will be exempt from this procedure and elected instead by the appropriate Committee or Regional Group. Ordinary or Full Members shall not serve on the Council for more than three consecutive years. If without due reason or explanation an Officer or Ordinary Full Member fails to attend three consecutive Council meetings, he or she will be deemed to have lost interest and resigned if no explanation in response to a written enquiry is received.

(b) Powers. The Council shall meet not less than three times yearly as and when necessary. A quorum shall be seven Council Members. The Council shall have the power to suspend any Officer by a majority vote of three quarters of the Council Membership, following which a decision shall be made at a General Meeting to be called within 30 days if requested by the Officer concerned. In the event of a vacancy occurring between two Annual General Meetings, Council shall have the power to appoint a substitute to serve until a new election can be made at an Annual General Meeting or at an Extraordinary General Meeting.

(c) **The President.** The President shall be elected by the Council and will serve for a period of five years. He may stand for re-election against other candidates proposed by the Council or Members.

(d) **Other Council Members.** Other Officers and Ordinary/Full Council Members shall be elected at an Annual General Meeting (AGM). The names of nominees of the Council or of Ordinary/Full Members for election or re-election shall be circulated not less than 30 days beforehand. Ordinary/Full Members may put forward other candidates whose nominations, signed by at least two members and the candidate, must reach the Chairman 90 days before the AGM. In default of other proposals, Members recommended by the Council shall be deemed to have been elected. Only Members who have been subscribers to the Society at the time ballot papers are circulated are entitled to vote. If alternative proposals have been submitted, the names of all candidates shall be circulated to all Members at least 10 days before an AGM, when an election shall be held. A Member unable to be present at the AGM may record his or her vote by sending it in a sealed envelope to the Chairman, signed and marked "Ballot Paper". Such envelopes are to be opened by the AGM Chairman and the ballot paper handed to the scrutineers.

(e) **Deputies.** The Council may appoint a deputy or assistant to act for any Officer for an unspecified period.

(f) **Observers.** The Council shall have the power to appoint Observers (by a majority vote of two thirds of Council Membership) to undertake specified tasks on behalf of the Society. Such Observers may be honorary or paid. No Observer shall ex officio have a seat on Council, but may be required to attend Council Meetings as part of his/her recognised duties. A representative of the British Museum (Natural History) Reptile and Amphibian Section (if none is already on Council) will be an Observer of the Society.

## **7. DUTIES OF COUNCIL OFFICERS.**

(a) **Chairman.** The Chairman will be the Society's Chairman in the absence of the President and will be responsible for coordinating the Society's activities with the assistance of other Council Members to whom he may turn. He will organise talks to be given at Meetings and will appoint Deputy Chairmen, as necessary, who will be responsible for ensuring a vote of thanks is proposed for speakers on behalf of the Society and that minutes are taken for each meeting, chairing the meeting themselves in the absence or instead of the President or Chairman. The Chairman will liaise between Officers of the Council, Ordinary/Full Members and representatives of other Societies, being involved with the Society's external relations with other Bodies.

(b) **Membership Secretary.** The Membership Secretary will be responsible for receiving the Society's mail. He or she will keep an up-to-date list of Members and their addresses, recording the date when they first joined the Society and providing outline information on their interests. He or she will deal with enquiries, passing them to deputies as necessary, and will coordinate the Society's administration, including booking dates for the meetings, liaising closely with the Treasurer and taking minutes at Council meetings, should the Chairman be in the Chair, and at the AGM. He or she should seek the assistance of Members outside the Council for the administrative duties involved, especially in connection with the distribution of the Society's publications, organising sub-committees as necessary. He or she will be a Member of the Society's Secretariat (administration committee).

(c) **Treasurer.** The Treasurer's duties will be to maintain books of accounts, control the receipt and payment of cash, liaise with the Society's Bank, ensure annual

accounts are prepared, maintain an up-to-date list of fully paid-up Members, prepare lists of subscriptions due and send reminders to Members as specified in Rule 4, budget for future expenditure, present up-to-date financial returns at Council meetings or, after notice, when required confirm the Annual Accounts Statement with two Auditors, who are Members of the Society but not Members of the Council. He or she will be a Member of the Society's Secretariat.

(d) **Editors of the Journal and Bulletin.** On behalf of the Council, the Editors will be responsible for all matters connected with the publishing of the Journal and Bulletin, appointing editorial assistants or editorial sub-committees as appropriate.

(e) **Librarian.** The Librarian will be responsible for all matters connected with the Society's Library and publications. He or She can seek the assistance of other Members for the duties involved, especially for the sales of the Society's publications. He or she will draw up a separate set of rules for the use of the Society's Library.

(f) **Education Officer.** The principal duty of the Education Officer shall be to take responsibility for the running of the Junior Section of the Society. This responsibility entails the production and distribution of the Young Herpetologists Club Newsletter three times a year, the distribution of the Bulletin to Members of the Junior Section, the running of the stamped-addressed-envelope Advisory Service for the Young Herpetologists Club and the organisation, if possible, of occasional meetings for Junior Members.

The Education Officer shall also undertake the organisation of or to assist with any BHS exhibits at public exhibitions, conferences, shows etc., the handling of any letters from schools, colleges or private individuals on educational aspects of herpetology or herpetological conservation education and the provision, whenever possible, of BHS speakers for meetings of other societies and organisations.

The Education Officer shall prepare an annual report of his or her activities and expenditure which will be presented at each AGM and published in the Bulletin following.

The Education Officer may solicit the aid of other Members when needed.

8. **MEETINGS.** The Society shall hold Meetings on a wide range of Herpetological subjects during each year. These will be notified in advance in the Bulletin.

9. **ANNUAL GENERAL MEETING.** The Annual General Meeting shall take place before the end of the taxation year in late March or early April. The business transacted shall be the passing of the accounts for the previous year, the adoption of the Annual Report of the Council, including the regulation of the editing of the Journal and Bulletin, the election of the Officers and Members of Council, reports of the work of the Committees and sub-committees, Sections, Regional Branches, Associations and Specialist Groups, and any business for which due notice has been given to the Chairman, including a change in the Rules of the Society.

Ordinary Members, Full Members, Student Members, Honorary Members and Family Members (see Rule 5c) but not Junior Members are entitled to vote at Annual General and Extraordinary General Meetings.

10. **EXTRAORDINARY GENERAL MEETING.** An Extraordinary General Meeting may be summoned by the Council or by not less than five Members of the Society on a written request addressed to the Chairman. During this Meeting, the business for which it was convened shall alone be discussed. When calling a special general meeting on any application, the Chairman shall allow at least 14 days to intervene between the date of issue of the notices and the date fixed for the meeting. Should

the date selected, on agreement, coincide with a meeting of the Society, the subject matter of that meeting will follow the business for which the Extraordinary General Meeting was called. Otherwise, the meeting shall be held in London within 30 days of the receipt of the original request by the Chairman.

**11. COMMITTEES AND SUB-COMMITTEES.** The Council shall have the power to appoint Committees and Sub-Committees for special purposes. Membership of such Committees shall normally be restricted to Members of the Society. The period of office for all Members of Committees and Sub-committees shall expire at the Annual General Meetings, but may be renewed by the Council then elected. Any member of Council may attend a meeting of a Committee or Sub-committee, but shall not have a vote unless he has been appointed a member of that Committee or Sub-committee. The Society's Chairman will, as a matter of course, be a non-voting Member of all Committees.

**12. REGIONAL BRANCHES AND ASSOCIATIONS, SPECIALIST GROUPS.** Regional Branches and Associations, and Specialist Groups, collectively considered as Branches, can be approved by the Council, any person being permitted to join any Branch wherever he or she may reside. The British Herpetological Society is a National Society and recognises a regional herpetological need.

A Branch shall accept, in general, the Objects of the Society.

A Branch shall become self-supporting financially, organise its own programme and select its own body of Officers. Meeting fixtures should not coincide with those of the Main Society, but may be held on behalf of the Society.

Branch membership shall normally be restricted to those already Members of the Society.

Any major changes in policy of a Branch shall be subject to approval of the Council.

**13. ALTERATIONS TO THE RULES.** Any alterations or changes in the Rules may be adopted by two thirds of the Members present at an Annual General Meeting or at an Extraordinary General Meeting convened for the purpose. The proposed change(s) must be stated in the circular convening the meeting and not cause the Society to cease to be charitable in law.

**14. DISSOLUTION OF THE SOCIETY.** In the event of the termination of the Society, any assets remaining should be made over to a charitable institution with similar objects.

## BOOK REVIEWS

'*A Complete Guide to the Snakes of Southern Africa*'. Johan Marais. Published by Blandford, 1993. 208 pages. 210 colour plates, 15 black and white and numerous line drawings and maps. Soft back. Price £16.99.

Johan Marais is a leading South African Herpetologist and well respected photographer. He has worked in several different institutes which keep reptiles and this experience is reflected in his book.

The text is split up into five main sections. The first is a short introduction explaining in basic terms the snakes senses, reproduction, hibernation, a question and answer section to dispel fallacies and a sensible approach to what to do if you encounter a snake in your garden.

The second section gives clear and concise guidelines on how to keep snakes in captivity and is taken from Johans many years of experience.

The third section, Classification and Relationships, has been written by Lynn Raw, another well known South African Herpetologist. This section consists of six pages on how the classification system works, how to count scales, with plenty of diagrams, and how to preserve specimens. Lynn has succeeded in making this normally heavy going subject very interesting and understandable. There then follows seven pages which lists every species and subspecies of Southern African snake and their various scale counts of different parts of the body. Armed with this list and a shed skin or dead snake it should be within anyones grasp to identify any snake from this region down to the exact subspecies.

The fourth section deals with snakebite and gives clear and concise up to date information on what to do if you get bitten. The chapter starts off by Johan relating the story of Crawford Coulsen who was bitten by a black mamba and points out that in theory first aid kits should be on hand and people should be within calling distance but in practice things can go wrong. Having had first hand knowledge of snake bite I can tell you that after a bite the first thing that happens is all your common sense disappears and the word 'panic' flashes into your brain, therefore I would recommend that the section on first aid treatment should be enhanced by circling in highlighter pen so in case of emergency it is quick and easy to find.

In the fifth section each species and sub-species is listed with descriptions and field notes together with a distribution map which, as is pointed out earlier in the book, is meant to act as a guide as to what region you can expect to find the snake in and not just where they have been found, a very useful feature indeed as snakes have a habit of turning up where least expected. For more detailed information the reader is pointed in the direction of other more indepth books.

The photographs, of which there are over two hundred, are of a very high quality and are either taken by Johan or by other well known Herpetologists, they are placed together at the back of the book and are arranged for easy 'on the spot' reference with snakes of a similar shape or colour being grouped together. As well as typical specimens being shown, several different colour phases are represented together with their localities.



A useful and very informative book, my only criticism, and a minor one at that, is that at no stage does the book claim to be anything more than a basic field guide and therefore to call the book a *complete guide* seems a little strange. However that is just me being picky and certainly with its detailed descriptions and maps of all the species and subspecies of Southern African snakes it must surely be the most complete field guide to date.

In the authors note at the beginning Johan explains that he had found there was a demand for a book on snakes and was of value to a wide range of people, not just those who like snakes. It must contain information on snakebite that is of value to the layman as well as the medical practitioner, must be compact, concise and well illustrated with colour photographs. A tough goal to set, however I feel that Johan, in managing to combine his expertise as a leading herpetologist and photographer with his understanding of what the general public wants, has achieved the task set.

If you live in, or intend to visit, Southern Africa I feel this book is a must. If you are just interested to know what species occur there and want a general overview then I can't recommend this book highly enough.

Roger K. Pewtress

*The Reptile and Amphibian Keeper's Dictionary: An A-Z of Herpetology*, David C. Wareham, Blandford, London 1993 ISBN 0-7137-2318-1

David Wareham has produced this excellent and arguably long overdue dictionary of herpetology. The text is neatly and simply set out and covers the subject area comprehensively and concisely. Furthermore, as well as being thoroughly cross-referenced, many of the entries are further clarified by the use of clear accurate illustrations.

However, perhaps the greatest asset of the book is the fact that it has been pitched at just the right level. Thus the entries are plainly written and easily understandable to even the youngest novice keeper, yet the dictionary will surely become a valuable standard reference for the most experienced herpetologist. Indeed, it is difficult to find any significant fault with this book although for those words whose pronunciation is not immediately apparent, an appropriate phonetic spelling would have been a useful addition.

The Reptile and Amphibian Keeper's Dictionary looks set to prove to be extremely handy, both to budding and established reptile and amphibian keepers, and I have no hesitation in recommending its purchase. In terms of the wider context, perhaps the production of a companion volume comprising of a species identification key would be a worthwhile development.

Ian Bride

### **MEMBERS' ADVERTISEMENTS**

**BOA SURVEY:** Please write for my questionnaire on Boa Constrictor reproduction. Even if your animals have not reproduced, please respond if they are at least 4 years old and have had the opportunity. In return for a completed survey you will receive a chart showing the subspecies, their scale counts and range. William Joy, P.O. Box 821433, Dallas, TX 75382-1433, USA

Members' addresses:

<b>President:</b>	Prof. J.L. Cloudsley-Thompson	Department of Biology, (Medawar Building), University College, Gower Street, London WC1E 6BT
<b>Chairman:</b>	Dr T.J.C. Beebee	School of Biology, University of Sussex, Falmer, Brighton BN1 9QG Tel: 0273 606755 (work), 0273 305634 (home)
<b>Secretary/ Treasurer:</b>	Mrs M. Green	28 Dollis Hill Lane, Cricklewood, London NW2 6JE Tel: 081-452 9578
<b>Editor: <i>The Herpetological Journal</i></b>	Dr R.A. Griffiths	Durrell Institute of Conservation & Ecology, University of Kent, Canterbury CT2 7NX Tel: 0227 764000
<b>Editors, Bulletin</b>	Mr N. Clark Dr S. Townson	15 Rivenhall End, Welwyn Garden City, Herts AL7 2PJ 96 The Avenue, Highams Park, London E4 9RB. 081-531 1378
<b>Librarian:</b>	Mr D.R. Bird	Jacaranda Cottage, New Buildings, Spetisbury, Blandford Forum, Dorset DT11 9EE Tel: 0202 686712 (work), 0258 857869 (home)
<b>Development Officer</b>	Dr M. Swan	19 St Judith's Lane, Sawtry, Huntingdon, Cambs PE17 5XE 0487 831984
<b>Legal Officer</b>	Mr P. Curry	106 Cranley Gardens, Muswell Hill, London N10 3AH
<b>Chairman, Captive Breeding: Committee:</b>	Mr T.A. Thatcher	61 Kennington Road, Kennington, Oxford. 0865 739396
<b>Chairman, Conservation Committee:</b>	Ms J. Clemons	34 Montalt Road, Cheylesmore, Coventry CV3 5LU
<b>Education Officer/Chairman Education Committee:</b>	Mr C. Fitzsimmons	45 Sycamore Close, Creekmoor, Poole, Dorset, BH17 7YH
<b>Chairman: Research Committee:</b>	Prof. T.R. Halliday	Biology Department, Open University, Walton Hall, Milton Keynes MK7 6AA Tel: 0908 65381 (work), 0865 512163 (home)
<b>North-West England Group Representative:</b>	Mr R. Paul	20 Monksway, West Kirby, Wirral, Merseyside L48 7ES Tel: 051-931 4463 (work) 051-625 7143 (home)
<b>Scottish Group Representative:</b>	Mr A.W. Darby	36 Newton Crescent, Dunblane, Perthshire FL15 0DZ. 0786 824120

**Ordinary Members**

Dr J. Baker 65 Waterside Peartree Bridge Milton Keynes MK6 3DE Tel: 0908 606436	(2nd year)	Dr M.R.K. Lambert Flat 2 34 Queens Gate Terrace London SW7 5PH Tel: 0634 883201 (work) 071-589 3558 (home)	(3rd year)
Mr J.J. Gaughan Flat C 207 Devonshire Road Forest Hill London SE23 3NL Tel: 081-699 6535	(3rd year)	Dr C. Cummins 19 St Judith's Lane Sawtry Huntingdon Cambs PE17 5XE Tel: 0487 831984	(1st year)
Mr L. Gillett 1 Fleets Lane Tyler Hill Canterbury Kent CT2 9LY Tel: 0227 471913	(3rd year)	Mr S. Divers Zoological Study Group Royal Veterinary College Hawkshead Lane North Mymms Nr Hatfield Herts AL9 7TA Tel: 0707 652202	(1st year)

**Observer Status**

Dr C.J. McCarthy Dept. of Zoology Natural History Museum Cromwell Road London SW7 5BD 071-938 9123	Herpetological Conservation Trust c/o Dr I.R. Swingland Durrell Institute of Conservation & Ecology University of Kent Canterbury CT2 7NX 0227 764000
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**Past Presidents (retiring date)**

Dr J.F.D. Frazer (1981), the Earl of Cranbrook (1990)

**Honorary Life Members (maximum 10)**

Mrs M. Green (1960), Prof. J.L. Cloudsley-Thompson (1983), Prof. R. Conant (1983), Dr D.G. Broadley (1983), Prof. H. Saint Girons (1984), Prof. & Mrs. G.A.D. Haselwood (1990), Dr H.F. Fox (1992).

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**BRITISH  
HERPETOLOGICAL  
SOCIETY**