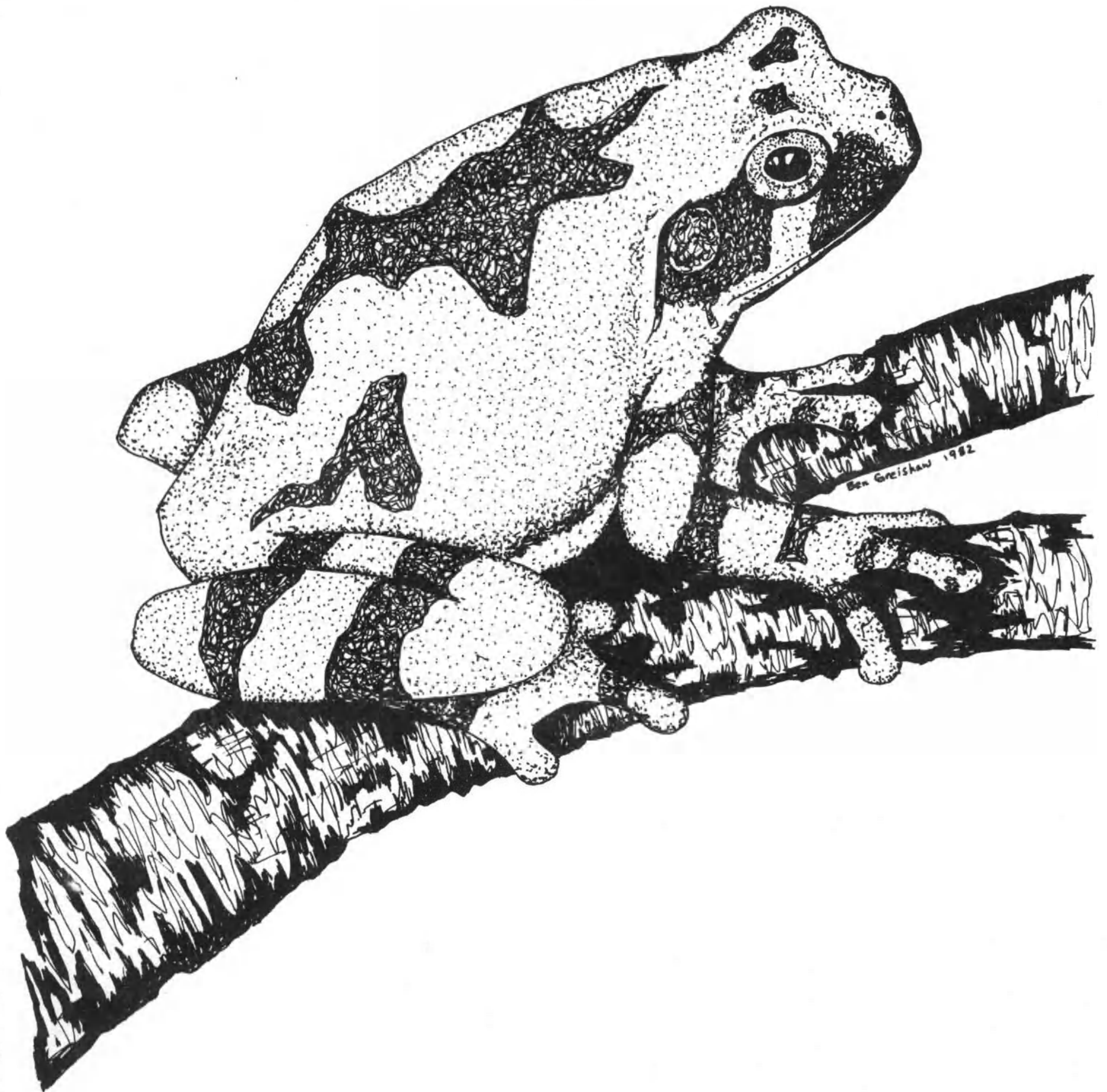


# CATESBEIANA



BULLETIN OF THE VIRGINIA HERPETOLOGICAL SOCIETY

VOLUME 2

1982

NUMBER 1

# C A T E S B E I A N A

## Bulletin of the Virginia Herpetological Society

Volume 2

Spring, 1982

No. 1

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### BULLETIN INFORMATION

The Bulletin of the Virginia Herpetological Society is issued twice a year by the Virginia Herpetological Society. Membership is open to all individuals interested in the study of amphibians and reptiles. Membership includes a subscription to Catesbeiana and admission to all meetings. Dues are \$5.00 per year and include Catesbeiana numbers 1 and 2 for that year. Dues are payable to: Ben Greishaw, Treasurer, Valls, 7622 Hollins Road, Richmond, VA 23229. Herpetological Societies desiring exchange of publications should send copies of their society publications to Dr. Don Merkle, Dept. of Natural Sciences, Longwood College, Farmville, VA 23901. All manuscripts for publication should be submitted to Don Merkle.

### MEETING NOTICE

The next meeting of the Virginia Herpetological Society will be held on Saturday, May 1, 1982 at the home of Bob Bader in Halifax County, Virginia. A map with directions is shown on page 3.

10:00 A.M.	Business Meeting
1:00 P.M.	Paper presentations
7:00 P.M.	Field Trip

## EDITOR'S NOTE

The fall meeting of VaHS held at Longwood College was a real success. Not only did the majority of the active old membership attend, but there were a number of new individuals present. A very productive business meeting was held in the morning during which the following items were discussed. It was decided that annual dues would be for a volume year which would consist of two issues. Volume 1 of Catesbeiana would consist of a single volume and was distributed free of charge to all individuals who had expressed an interest in VaHS over the last few years. All dues collected since the first issue of Catesbeiana would be applied toward the year beginning with this issue. Back issues of the old series of the Bulletin of the Virginia Herpetological Society were distributed to all members that desired them.

The following slate of officers were elected for the upcoming year:

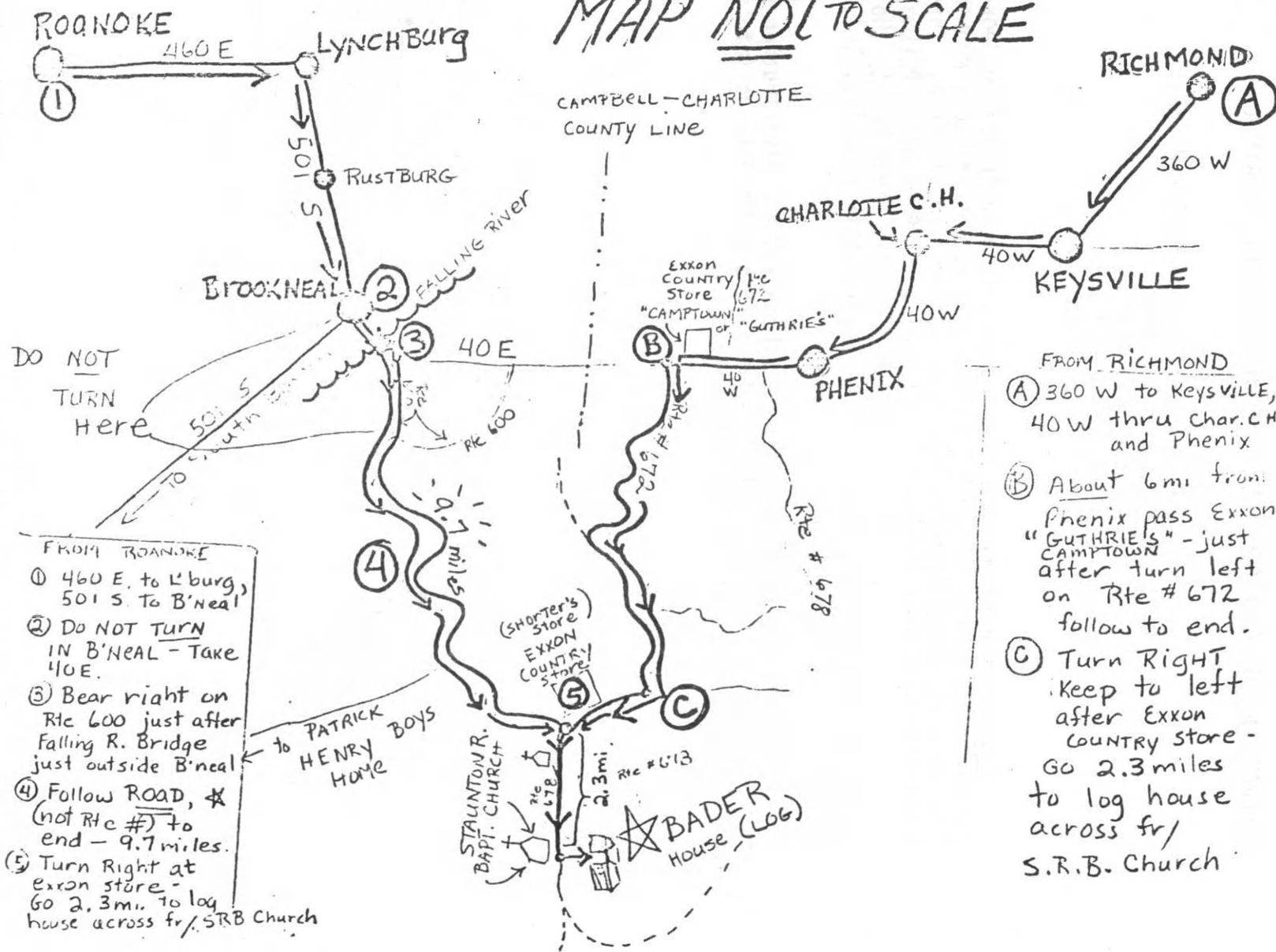
- President: Bob Bader, Route 2, Box 78, Brookneal, VA 24528
- Vice-President: Dr. Jack Brooks, Dept. of Biology, College of William & Mary, Williamsburg, VA 23185
- Secretary: Joe Mitchell, Dept. of Biology, University of Richmond, Richmond, VA 23173
- Treasurer: Ben Greishaw, 7622 Hollins Road, Richmond, VA 23229

Dr. Jack Brooks is drafting a new constitution for VaHS and will present it at the May meeting for approval of the membership. The next meeting of VaHS will be held on May 1, 1982 at the residence of Bob Bader, South Isle Plantation in Halifax county, Va. A map to Bob's place is on the following page. Bob says that there is plenty of room for anyone that would like to stay overnight on Friday and/or Saturday. Be sure to bring your sleeping bag. There will be a business meeting at 10:00 A.M. and a paper session beginning at 1:00 P.M. A field trip to observe the local anurans is tentatively scheduled for Saturday night, as is a Sunday trip into Halifax county and surrounding environs. Individuals wishing to present a talk should contact Bob Bader so that he can put a program together.

A number of presentations were made at the fall meeting including the following:

1. Additions to Virginia's Herpetofauna Joe Mitchell
2. Easternmost distribution of Pseudacris triseriata Chris Paque
3. Venomous snakes & Snakebite Bob Bader
4. On the ecology of Virginia's freshwater turtles-Joe Mitchell
5. Chicken turtle in Virginia? Chris Paque
6. Distribution of Plethodon yonahlossee in Virginia Richard Hoffman
7. Snakes of the eastern United States Don Merkle

# MAP NOT TO SCALE



DO NOT  
TURN  
Here

- FROM ROANOKE
- ① 460 E. to L'burg, 501 S. to B'neal
  - ② DO NOT TURN IN B'NEAL - Take 40E.
  - ③ Bear right on Rte 600 just after Falling R. Bridge just outside B'neal
  - ④ Follow ROAD, \* (not Rte #) to end - 9.7 miles.
  - ⑤ Turn Right at Exxon store - Go 2.3 mi. to log house across fr/ S.R.B Church

- FROM RICHMOND
- ① 360 W to Keyville, 40 W thru Char. CH and Phenix
  - ② About 6 mi from Phenix pass Exxon "GUTHRIE'S" - just after turn left on Rte # 672 follow to end.
  - ③ Turn RIGHT keep to left after Exxon COUNTRY store - Go 2.3 miles to log house across fr/ S.R.B. Church

POPULATION ESTIMATES OF LEUROGNATHUS MARMORATUS MOORE AND DESMOGNATHUS QUADRAMACULATUS (HOLBROOK) AT WHITETOP MOUNTAIN, VIRGINIA

Eugene V. Gourley and Charles M. Neal  
Department of Biology  
Radford University  
Radford, VA 24142

Leurognathus marmoratus Moore occurs from northeastern Georgia and the northwestern tip of South Carolina into the Great Smoky Mountains of Tennessee and North Carolina and into southwestern Virginia. Three localities have been reported for Virginia; the Blue Ridge Parkway in Floyd County (Conant, 1975a, 1975b); Big Branch, Smyth County (Hoffman and Hoffman, 1956); and Daves Branch, Smyth County (Gourley, 1979) (Figure 1).

Desmognathus quadramaculatus (Holbrook) has a distribution similar to L. marmoratus but the northern edge of the range extends into southern West Virginia (Conant, 1975a) (Figure 2).

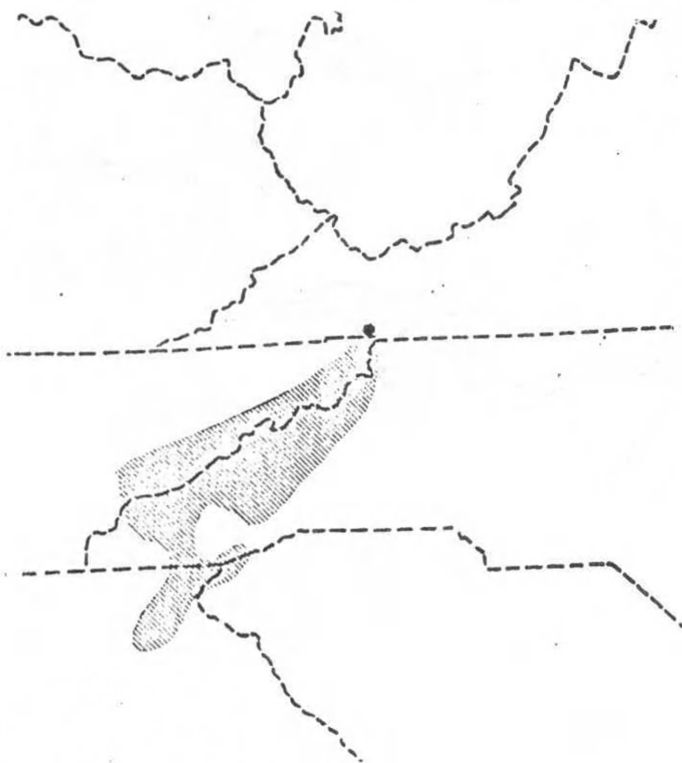


Figure 1. Distribution of Leurognathus marmoratus Moore in the southern Appalachian Mountains. Solid circle indicates location of study area.

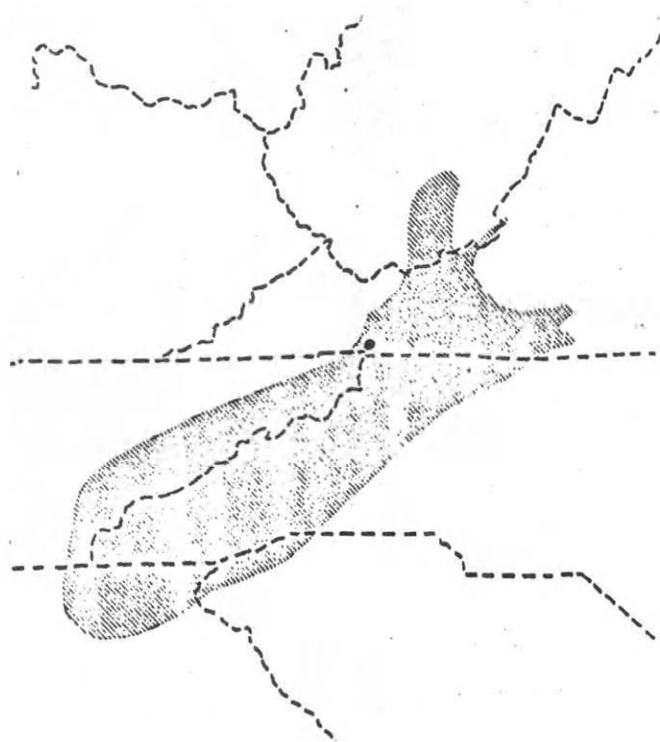


Figure 2. Distribution of Desmognathus quadramaculatus (Holbrook) in the southern Appalachian Mountains. Solid circle indicates location of study area.

The local distributions and extent of these two species are not well known. This is of particular concern for L. marmoratus because its status is currently listed as "of special concern" in Virginia (Hoffman, 1979).

The study areas included 30 meter by 1 meter sections of Daves Branch north of and adjacent to State Route 600. Both streams are tributaries of Big Laurel Creek and are swift mountain streams with rocky substrates located at an altitude of approximately 3600 feet. These streams seem to provide ideal habitats for L. marmoratus and D. quadramaculatus as described by Martof (1962).

#### Materials and Methods

Adult Leurognathus marmoratus and Desmognathus quadramaculatus were collected at weekly intervals between June 27 and July 26, 1981. Large and small rocks in the streams were turned quickly by hand and salamanders were captured with a wire screen pressed closely to the substrate. Captured adults were identified to species and snout-vent length was determined by placing the salamanders in a test tube and measuring with a Vernier caliper. Individuals were marked by toe-clipping and were released as close to the capture site as possible.

Population estimates (N) were determined using the weighted mean method, a modification of the Lincoln index for multiple mark, release and recapture (Begon, 1979). The equation for this calculation is:

$$N = \frac{\sum M_i n_i}{(\sum m_i) + 1}$$

where  $n_i$  = total captures

$m_i$  = total caught and previously marked

$M_i$  =  $r_i - m_i$

$r_i$  = number released

SE = N

$$\sqrt{\frac{1}{\sum m_i + 1} + \frac{2}{(\sum m_i + 1)^2} + \frac{6}{(\sum m_i + 1)^3}}$$

#### Results

During the study period a total of 30 Leurognathus marmoratus were marked and released in Daves Branch with four recaptures. Ten Desmognathus quadramaculatus were recaptured out of 58 individuals marked and released. The weighted mean estimate of the Daves Branch L. marmoratus population was  $81 \pm \text{S.E. } 46$ . The D. quadramaculatus populations were estimated at  $127 \pm \text{S.E. } 38$ .

Fifteen L. marmoratus were marked and released in Big Branch with five recaptures. The L. marmoratus population was estimated at  $22 \pm$  S.E. 11. Twenty seven D. quadramaculatus were marked and released with 13 recaptures. The Big Branch population of D. quadramaculatus was estimated at  $55 \pm$  S.E. 16.

The density of L. marmoratus was 2.7 individuals/meter<sup>2</sup> in Daves Branch and 0.7 individuals/meter<sup>2</sup> in Big Branch. Desmognathus quadramaculatus had a density of 4.2 individuals/ meter<sup>2</sup> in Daves Branch, and 1.8 individuals/ meter<sup>2</sup> in Big Branch.

Snout-vent lengths of captured and marked salamanders are presented in Figure 3.

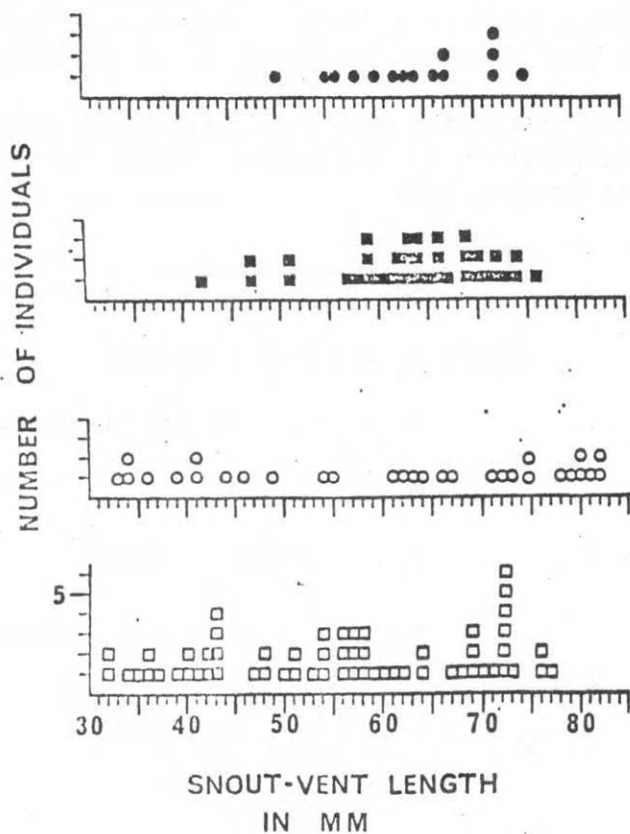


Figure 3. Snout-vent lengths of Leurognathus marmoratus Moore in Big Branch (solid circles) and Daves Branch (open circles) and Desmognathus quadramaculatus (Holbrook) in Big Branch (solid squares) and Daves Branch (open squares).

## Conclusions

The snout-vent lengths of Desmognathus quadramaculatus and Leurognathus marmoratus were not significantly different from the ranges given by Organ (1961) and Martof (1962, 1963).

The population estimates for Desmognathus quadramaculatus were consistently greater than the population estimates of L. marmoratus in both streams. The greater number of D. quadramaculatus may be due to the low stream levels at the time of this investigation. Desmognathus quadramaculatus seems to prefer the edges of swift mountain streams where L. marmoratus prefers rapids and rapidly moving water. For this reason, dry periods seem to be more critical for L. marmoratus due to decreases in suitable habitat and the D. quadramaculatus population is favored when the salamanders are brought into increased competition with one another. When rainfall is more normal, competition is almost non-existent (Martof, 1962).

The density of L. marmoratus in both streams was lower than the density reported by Martof (1962) for Georgia streams. The low numbers of L. marmoratus may be due to increased competition by D. quadramaculatus or may be due to location of these populations at the northernmost known limit of their range. Additional field work is needed to determine the full extent, distributions, population dynamics and interactions of these two species.

## Literature Cited

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Martof, B.S. 1963. Leurognathus and L. marmoratus. In Catalogue of American amphibians and reptiles. W.T. Riener (ed.) American Society of Ichthyologists and Herpetologists, Bethesda, Md. 3.1-3.2.

Organ, J.A. 1961. Studies of the local distribution, life history, and population dynamics of the salamander genus Desmognathus in Virginia. Ecol. Monog. 31(2):189-220.

#### VAHS LIBRARY HOLDINGS

The Virginia Herpetological Society exchanges publications with many of the other state and regional herpetological societies. These publications are for the use of all VaHS members and the latest issues are always available at meetings. All members are encouraged to read them, as there is quite a bit of herpetological information presented that is not available otherwise. All VaHS holdings, including a partial set of Copeia (1934-1958) are stored at Longwood College. Any member of VaHS wishing to look at VaHS holdings would also have access to my personal sets of Herpetologica, Journal of Herpetology, newer issues of Copeia, etc. Back issues of a number of the earlier Bulletins of the Virginia Herpetological Society are also available to members.

#### BIBLIOGRAPHY OF VIRGINIA HERPETOLOGY NOW AVAILABLE

"A bibliography of Virginia amphibians and reptiles" has recently been compiled by Joe Mitchell, and is now available as Smithsonian Herpetological Service Publication Number 50. 875 papers dealing with all aspects of the herpetofauna of the state are listed by author, and by species.

This compilation will definitely enable all VaHS members to locate that elusive article that they know was published, but have forgotten where! Other than misspelling at least one author's name!!!! (See citations 549-550), the publication is relatively free of errors. Copies of this 51 page publication will be available free of charge to all VaHS members at the May 1, 1982 meeting. Those individuals unable to attend may obtain a copy by sending \$2.00 to cover postage and handling to: Ben Greishaw, Treasurer, VaHS, 7622 Hollins Road, Richmond, Virginia 23229.

NATIONAL ZOO OPENS NEW REPTILE HOUSE

Members of VaHS should be pleased to learn that the National Zoo located outside Washington, D.C. has finally opened its much awaited Reptile House. Dr. Dale Marcellini, Curator of Herpetology at the Zoo has submitted the following list of exhibits for the renovated reptile and amphibian house. He has indicated that these species should make up the bulk of the collection for the next several years.

- A 1 Sceloporus sp. Fence lizards  
 2 Ameiva sp Ameiva lizards or Callonistes maculatus Chilean spotted lizards
- 3 Crotalus durissus South American rattlesnake  
 4 Heloderma suspectum Gila Monster  
 5 same as 4  
 6 Physignathus cocincinus Water dragon  
 7 Basiliscus plumbifrons Green crested Basiliscus  
 8 Bitis gabonica Gaboon Viper  
 9 Gerrhosaurus validus Plated lizard  
 10 Anolis equestris Knight anole  
 11 Eublepharis macularis Leonard gecko  
 12 Anolis sp. Anoles or Callonistes maculatus  
 13 Phelsuma madagascariensis Giant Day Gecko  
 14 Sternotherus odoratus Musk turtle  
 15 Lacerta trilineata Green Lacerta  
 16 Gonatodes sp. or Sphaerodactylus sp. small gecko
- C 1 Crotalus horridus Timber rattlesnake  
 2 Agkistrodon piscivorus Cottonmouth  
 3 Agkistrodon contortix Copperhead  
 4 Elaphe guttata Cornsnake  
 5 Lampropeltis triangulum Eastern Milksnake  
 6 Lampropeltis getulus Eastern Kingsnake  
 7 Elaphe obsoleta Black Ratsnake  
 8 Thamnophis sirtalis Eastern Gartersnake  
 9 Trimeresurus popeorum Pope's Pit Viper  
 10 Gekko gekko Tokay gecko  
 11 Chondropython viridis Green tree python  
 12 same as 11  
 13 same as 11  
 14 Python regius Ball python
- 15 Boa constrictor Red-tailed boa  
 16 Epicrates cenchria Rainbow boa  
 17 Corallus canina Emerald tree boa  
 18 same as 17  
 19 same as 17  
 20 Dipsosaurus dorsalis Desert Iguana



- H 1 Alligator mississippiensis American alligator
  - 2 Caiman crocodilus Yucare caiman
  - 3 Paleosuchus trigonatus Smooth-fronted caiman
- G Assorted native turtles

#### THE VIRGINIA NONGAME SPECIES PROGRAM: REPTILES AND AMPHIBIANS

Joseph Mitchell  
University of Richmond  
Richmond, VA 23173

The Virginia legislature recently approved a tax writeoff box for the 1981 Virginia income tax forms. This allows a Virginia taxpayer who receives a refund to contribute part (or all) of that refund to the newly formed nongame program being developed by the Virginia Game and Inland Fisheries Commission. Monies received from these contributions will fund the initial phase that involves the building of an information data base on about 250 nongame species of Virginia fish, amphibians, reptiles, birds, and mammals. A primary purpose is to educate the public about nongame species and their role in Virginia's environment. This data base would also be used to supply information to various government and private groups on the faunal diversity and quality of areas of interest.

The data base involves the use of a computer program (Biota of Virginia = BOVA) developed at VPI for large scale information storage and retrieval. Information on various aspects of each species would be accumulated. This includes detailed distributional data, historical occurrence, population size and density, food habits, reproduction, habitat types, larval and adult habitats of amphibians, etc. The list of 250 is the initial listing chosen for the first phase of the program. At some later time other species would be added. Criteria for choosing a species are: 1) whether the species is known, or thought to be, in need of protection; 2) whether the species could be used as an ecological indicator species to detect changes in habitat quality; and 3) special considerations, such as health reasons (Poisonous snakes) or if the species were indicative of major distributional patterns in Virginia. Data would be accumulated as received from specialists on the species, the literature, and from specially funded research projects (a plan for future program functions). Since public education seems to be of paramount importance, information booklets and articles will probably be written and distributed.

I was asked to advise the nongame people on herps that should appear on the list. They already had a preliminary list and after considerable discussion we came up with the list below. Obviously not all

the species that probably should be on the first list were chosen. Also, not all of the species listed in the VPI Endangered species book were chosen. The list is the combined attempt to produce an assemblage of species that would, based on the criteria above, be agreeable to the nongame people and herpetologists. I think it is a representative list and is a start in the right direction. If you have any questions about the nongame program in Virginia, write to Robert W. Duncan or William E. Neal, Commission of Game and Inland Fisheries, 4010 West Broad Street, Box 11104, Richmond, VA 23230.

Species of Amphibians and Reptiles on the Nongame Program List:

Salamanders

Ambystoma maculatum  
Cryptobranchus alleganiensis  
Desmognathus auriculatus  
Desmognathus fuscus  
Desmognathus quadramaculatus  
Eurycea bislineata  
Leurognathus marmoratus  
Necturus maculosus  
Necturus punctatus  
Plethodon cinereus  
Stereochilus marginatus

Snakes

Agkistrodon contortix  
Agkistrodon piscivorus  
Carphophis amoenus  
Coluber constrictor  
Crotalus horridus  
Elaphe guttata  
Elaphe obsoleta  
Heterodon platyrhinos  
Lampropeltis getulus  
Nerodia septemvittata  
Nerodia sipedon  
Storeria dekayi  
Thamnophis sirtalis

Anurans

Acris crepitans  
Acris gryllus  
Hyla femoralis  
Rana catesbeiana  
Rana clamitans  
Rana virgatipes

Turtles

Clemmys guttata  
Clemmys muhlenbergi  
Sternotherus minor  
Terrapene carolina

Lizards

Eumeces laticeps  
Scincella lateralis

BOOK REVIEW: The Handbook of Reptiles and Amphibians of Florida.  
Part I: The Snakes. 1981. R.E. Ashton and P.S. Ashton.  
176 pages, soft covers.  
(Available from Windward Publishing Co., P.O. Box  
371005, Miami, Florida - \$10.58 includes postage)

Rob Bader  
Route 2, Box 78  
Brookneal, VA 24528

The Ashtons have undertaken a tremendous task in attempting to provide a comprehensive field guide to the herpetofauna of Florida. Not since Carr and Goin published their 1955 work "Guide to amphibians and fresh water fishes of Florida" has there been an attempt to cover all of the states reptiles and amphibians.

"Part I: The Snakes" includes over 100 excellent color photographs, distribution maps, drawings, and species accounts for all of the species of snakes found in Florida. The authors have included descriptions and photographs of almost every subspecies and color phase. In addition to the popular "dot in the county" range maps, the authors have also included a very valuable table listing the frequency of occurrence of each species in the 21 different types of habitat found in the state. The book contains a wealth of information on the different types of habitats within the state, laws pertaining to amphibians and reptiles, natural history and many other aspects of the herpetofauna of the state.

This book is a must not only for those interested in the snakes of Florida, but in snakes in general. We look forward to the publication of Part II: Lizards, Turtles, and Crocodilians, and Part III: The Amphibians.

#### ANTIFREEZE IN FROGS!

An article that appeared recently in Science (Feb. 5, 1982) entitled "Survival of frogs in low temperatures" reported results that should be of interest to all VaHS members. Several species of anurans that normally overwinter in leaf litter have been shown to produce glycerol during the fall and winter months that acts just as antifreeze in a cars radiator. Hyla versicolor, Hyla crucifer, and Rana sylvatica all produced glycerol whereas two species that normally overwinter in aquatic habitats (Rana septentrionalis and Rana pipiens) did not produce glycerol. The three species of terrestrial overwintering frogs were able to survive being frozen for 5-7 days with body temperatures of  $-6^{\circ}\text{C}$  and over 35% of their body water frozen! Previous research has shown that the overwintering sites occupied by these species often reach these temperatures.

ANNOUNCING  
THE  
SIXTH REPTILE SYMPOSIUM  
on CAPTIVE PROPAGATION & HUSBANDRY  
at  
THE NATIONAL ZOOLOGICAL PARK

WASHINGTON, D.C.

JULY 28-31, 1982

CALL FOR PAPERS

All herpetologists are invited to submit for consideration the titles of papers they wish to present at the 6th Reptile Symposium on Husbandry and Propagation. Paper lengths may range from 15 to 40 minutes. A preliminary program will be established by April, 1982. Speakers will be expected to submit a 100-150 word abstract of their talk by April 30, 1982; a completed copy-ready manuscript must be submitted prior to the Symposium. Submit all program information to: Thomas A. Huff, Program Chairperson, Reptile Breeding Foundation, PO Box 1450, Picton, Ontario K0K 2T0 Canada; 613/476-3351, 476-3691. Symposium Coordinator is: Dr. Martin J. Rosenberg, Department of Biology, Case Western Reserve University, Cleveland, OH 44106; 216/368-2755, 368-3558, 451-1081. Host Committee Chairperson is: Beĳa Demetar, Department of Herpetology, the National Zoological Park, Washington, D.C. 20008; 202/357-1300. Symposium Series Director is: Richard A. Hahn, Zoological Consortium, Inc., 13019 Catoclin Furnace Rd., Thurmont, MD 21788; 301/662-0328.

(Copies of the Program for the Fifth Symposium, held in Oklahoma City, June 9-12, 1981, are available for examination. See or leave message for Martin J. Rosenberg.)

1982 JOINT ANNUAL MEETING

**SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES**  
*25th Anniversary Meeting*

**HERPETOLOGISTS' LEAGUE**  
*30th Annual Meeting*

Raleigh, North Carolina: State Museum of Natural History  
1-6 August 1982

**HL DISTINGUISHED  
HERPETOLOGIST LECTURE:**

Speaker to be announced.

**SSAR SILVER ANNIVERSARY  
SYMPOSIUM:**

**"MOLECULAR AND GENOMIC  
EVOLUTION OF AMPHIBIANS AND  
REPTILES"**

David B. Wake (University of California at Berkeley), Organizer and Moderator.

This special symposium will focus on current questions concerning population structure and gene flow, species problems and relationships of taxa, and will include an overview of the newest techniques and approaches with a look to the future. The 30 participants, comprising the leading authorities from Europe and North America, will cover these topics in several keynote lectures, research papers and public discussion sessions.

**TECHNICAL PAPER PRESENTATIONS**

Research reports will be given in two formats: oral presentations (with several concurrent sessions) and poster sessions.

**SOCIAL ACTIVITIES**

Several evening events are planned, highlighted by a genuine Old Fashioned Carolina Pig Pickin' and Barbeque.

**FIELD TRIPS**

Several trips will be scheduled following the meeting to the North Carolina Coastal Plain and Green Swamp and to the Blue Ridge Mountains and Great Smoky Mountains. Collecting of specimens will not be permitted, only photography.

**DISPLAYS**

1. "Herpetological Art and Photograph Display", including contest.
2. "Amphibians of the Appalachian Mountains", a multimedia sound-and-slide presentation by David M. Dennis and Eric Juterbock.
3. "Live Amphibians and Reptiles of the Carolinas", a display sponsored by the North Carolina Herpetological Society. Photography will be permitted.
4. "Herpetologists Then and Now", a slide show organized by David M. Dennis.
5. Displays of Herpetological Films, Books and Equipment.

**WORKSHOPS**

1. "Program Funding, Administration and the Practicalities of Running a Regional Herpetological Society", sponsored by the SSAR Regional Society Liaison Committee and the North Carolina Herpetological Society.
2. "Gopher Tortoise Council", arranged by Richard Franz.
3. "Photography Workshop", a how-to-do-it session arranged by David M. Dennis.
4. "Funding Sources for Herpetological Research", sponsored by the SSAR Zoo Liaison Committee.

**ADDITIONAL INFORMATION**

A detailed Program and Call for Papers will appear in *Herpetological Review* and in *Herpetologica*. For other details write Ray E. Ashton, North Carolina Museum of Natural History, P.O. Box 27647, Raleigh, North Carolina, 27611, U.S.A. All interested persons are welcome to attend.



\* Live reptiles welcome -For sale, trade, or for exhibit only.

NOTE: PRICES ON PARKING MAP ARE OUTDATED \* BRING QUARTERS - or find free parking. Come

10th

EASTERN SEABOARD

ESHSL

HERPETOLOGICAL LEAGUE



ANNUAL



MEETING

SATURDAY MARCH 20th 1982

MARYLAND SCIENCE CENTER  
LIGHT St. & KEY HIGHWAY  
at the INNER HARBOR

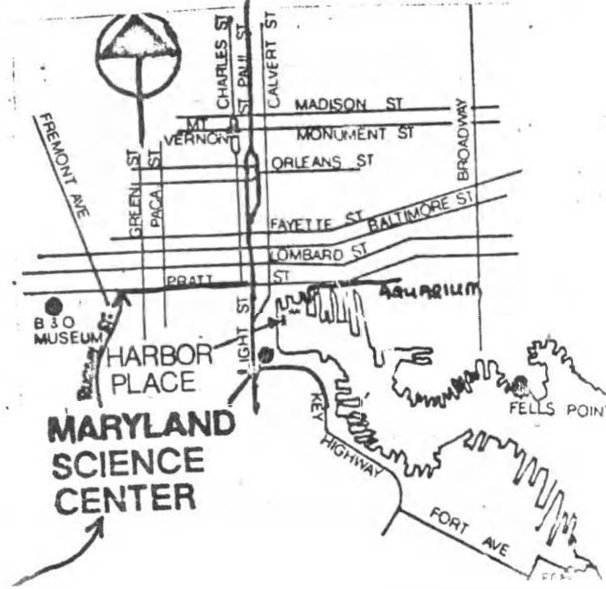
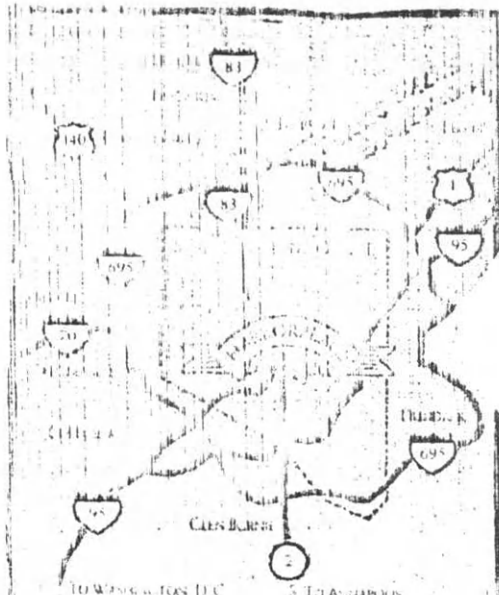
REGISTRATION & REFRESHMENTS 10:00 -11:00

FOR MORE INFORMATION CONTACT:

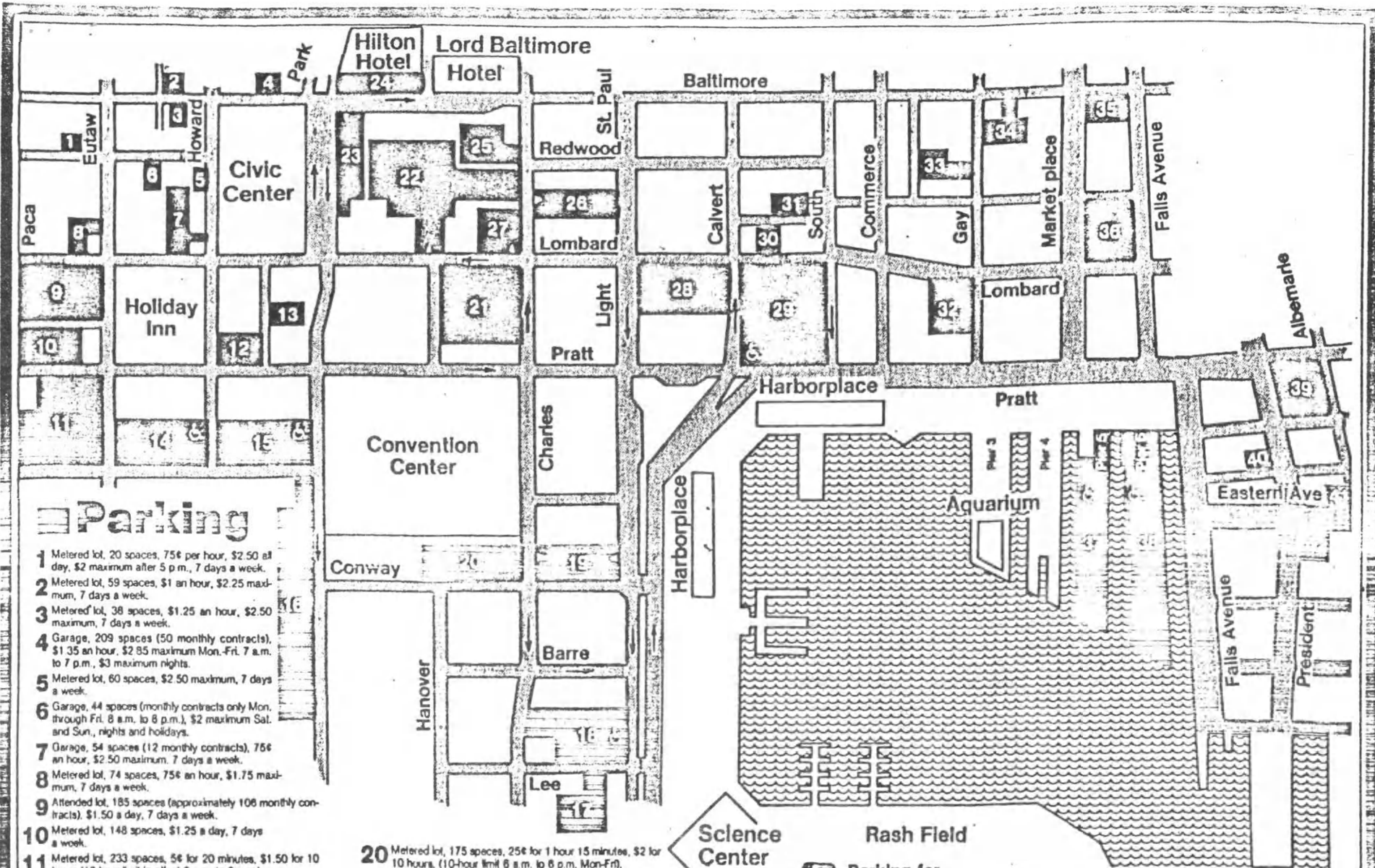
B. E. CLINE  
MARYLAND HERPETOLOGICAL SOCIETY  
2643 NORTH CHARLES St.  
BALTIMORE, MARYLAND 21218



TO JONES FALLS EXPRESSWAY FROM BELTWAY (1695)



I 95 NORTH



## Parking

- 1 Metered lot, 20 spaces, 75¢ per hour, \$2.50 all day, \$2 maximum after 5 p.m., 7 days a week.
- 2 Metered lot, 59 spaces, \$1 an hour, \$2.25 maximum, 7 days a week.
- 3 Metered lot, 38 spaces, \$1.25 an hour, \$2.50 maximum, 7 days a week.
- 4 Garage, 209 spaces (50 monthly contracts), \$1.35 an hour, \$2.85 maximum Mon.-Fri. 7 a.m. to 7 p.m., \$3 maximum nights.
- 5 Metered lot, 60 spaces, \$2.50 maximum, 7 days a week.
- 6 Garage, 44 spaces (monthly contracts only Mon. through Fri. 8 a.m. to 6 p.m.), \$2 maximum Sat. and Sun., nights and holidays.
- 7 Garage, 54 spaces (12 monthly contracts), 75¢ an hour, \$2.50 maximum, 7 days a week.
- 8 Metered lot, 74 spaces, 75¢ an hour, \$1.75 maximum, 7 days a week.
- 9 Attended lot, 185 spaces (approximately 106 monthly contracts), \$1.50 a day, 7 days a week.
- 10 Metered lot, 148 spaces, \$1.25 a day, 7 days a week.
- 11 Metered lot, 233 spaces, 5¢ for 20 minutes, \$1.50 for 10 hours (10-hour limit in effect 6 a.m. to 6 p.m.).
- 12 Metered lot, 88 spaces (35 for carpools only), 25¢ an hour, \$2.50 for 10 hrs. (10-hour limit), 7 days a week.
- 13 Metered lot, 53 spaces, 5¢ for 6 minutes, \$2 for 4 hours (4-hour limit), 7 days a week.
- 14 Computer lot, 180 spaces, 25¢ an hour, 7 days a week, handicapped spaces.
- 15 Computer lot, 180 spaces, 25¢ an hour, 7 days a week, handicapped spaces.
- 16 Attended lot, 200 spaces, \$1 an hour, \$2.50 maximum, 7 days a week.
- 17 Underground garage, 134 spaces (45 monthly contracts), \$1 an hour, \$5.15 maximum all day, \$2.15 maximum 10:30 a.m. to 7:45 p.m., 7 days a week.
- 18 Metered lot, 258 regular spaces, handicapped spaces, 5¢ for 20 minutes, \$1.50 for 10 hours (10-hour limit in effect Mon. through Fri. 8 a.m. to 6 p.m.).
- 19 Garage, 650 spaces, 75¢ an hour, \$3.75 maximum, 8 a.m. to 2 a.m., 7 days a week.
- 20 Metered lot, 175 spaces, 25¢ for 1 hour 15 minutes, \$2 for 10 hours (10-hour limit 6 a.m. to 6 p.m. Mon.-Fri.).
- 21 Underground garage, 460 spaces (400 monthly contracts), \$2.75 all day, Mon. to Fri. 7 a.m. to midnight, Sat. 7 a.m. to 6 p.m., closed Sun.
- 22 Underground garage, 802 spaces (300 monthly contracts), \$4 all day, \$1.35 maximum nights, Mon. to Sat. 7 a.m. to midnight.
- 23 Underground garage, 350 spaces (135 monthly contracts), \$3.90 all day, Mon. to Fri. 7 a.m. to midnight, Sat. 8 a.m. to noon, closed Sun.
- 24 Underground garage, 235 spaces, \$1.65 an hour, \$3.90 all day, 7 days a week.
- 25 Underground garage, 177 spaces (35 monthly contracts), \$1.50 an hour, \$4 all day, \$4.25 nights, 24 hours Mon. through Sat., closed Sun.
- 26 Underground garage, 450 spaces (100 monthly contracts), \$4 all day, 22 nights and weekends, 24 hours Mon. through Sat., sometimes Sun.
- 27 Underground garage, 80 spaces, \$1.60 an hour, \$4 all day, Mon.-Fri. 7 a.m. to 11 p.m., Sat. 8 a.m.-noon.
- 28 Garage, 656 spaces, \$4 all day, \$2 nights and Sat., Mon. to Fri. 7 a.m. to 11 p.m., Sat. 7 a.m. to closing.
- 29 Metered lot, 371 spaces (100 carpools only), 50¢ an hour regular, 25¢ an hour carpools, 4-hour limit on regular meters, 7 days a week, handicapped spaces.
- 30 Metered lot, 8 spaces, 25¢ for 37 1/2 minutes, 2-hour time limit Mon. to Fri. 8 a.m. to 6 p.m.
- 31 Garage, 150 spaces, \$1.50 an hour, \$3.75 maximum, Mon. to Fri. 7 a.m. to 7 p.m., closed weekends.
- 32 Garage, 650 spaces (500 monthly contracts), 75¢ an hour, \$3.75 maximum, 8 a.m. to 2 a.m., 7 days a week.
- 33 Garage, 300 spaces (282 monthly contracts), \$1.50 an hour, \$3 maximum, Mon. to Fri. 7 a.m. to 7 p.m., closed weekends.
- 34 Attended lot, 52 spaces (15 monthly contracts), \$1 an hour, \$3.15 max. weekdays 8 a.m. to 9 p.m. and weekends.
- 35 Metered lot, 110 spaces, 75¢ an hour, \$1.50 maximum, 7 days a week.
- 36 Attended lot, 300 spaces, \$1.10 an hour, \$1.70 all day, Mon. to Fri. 7 a.m. to 6 p.m.
- 37 Computer lot, 591 regular spaces, 20 handicapped spaces, 20¢ an hour Mon.-Fri. 8 a.m. to 6 p.m., free nights, weekends.
- 38 Computer lot, 650 spaces (200 monthly contracts), 20¢ an hour Mon.-Fri. 8 a.m. to 6 p.m., free nights and weekends, handicapped spaces.
- 39 Metered lot, 57 spaces, 10¢ an hour, 2 1/2-hour limit Mon. through Sat. 8 a.m. to 5 p.m.
- 40 Metered lot, 20 spaces, 10¢ an hour, 2 1/2-hour limit Mon. through Sat. 8 a.m. to 5 p.m.
- 41 Metered lot, \$1.25 day or night, 7 days a week.
- 42 Metered lot, 40 spaces, 10¢ an hour, 2 1/2-hour limit Mon. through Sat. 8 a.m. to 5 p.m.

Science Center

Rash Field



Parking for Handicapped

## SNAKE BREEDING SURVEY 1981

Dear Herpetologist,

It has come to my notice that you have an interest in reptiles and their associated biology. With protective legislation now enacted in all Australian States, the emphasis on breeding captive stocks has increased markedly. The importance of the captive breeding of Australian reptiles, particularly snakes, will without doubt, increase in future. Many herpetologists, particularly those new to the field, have no readily available source of literature available on how to breed snakes. This is a surprising state of affairs considering how many times snakes have been bred in captivity in this country. It is also surprising that next to nothing has been published on the subject.

This present Australia wide Survey hopes to collect and subsequently pool as much known information on captive breeding of snakes as possible. The results will be published in a similar format to that used by Richard Ross in his popular "Python Breeding Manual", an American publication.

In order for this survey to be a success, it requires the co-operation of all herpetologists including yourself. It would be appreciated that if you have bred any kind of Australian snake in captivity you could fill out one questionnaire. These questionnaires are necessarily lengthy due to the importance of collecting all relevant data. Please report all data as accurately as possible.

Please fill out a separate questionnaire per breeding if you have been fortunate enough to have bred snakes more than once. The results of this survey will probably be published in approximately one year.

If you know of other herpetologists who have bred Australian snakes, please ask them to fill out a questionnaire also. When filled out please return each questionnaire to:

- Snake Breeding Survey,  
60, Arterial Road,  
St. Ives,  
N.S.W. 2075.  
Australia

If more questionnaires are required, simply send a request for extra copies to the above address or phone (Sydney) 449 5771.

Thanking you for your co-operation,

Yours sincerely,

Raymond Hoser