

AMPHIBIANS AND REPTILES OF
A VIRGINIAN MOUNTAINTOP BOG

by: Woodrow L. McKenzie and
Dr. Laurence E. Bayless,
Department of Biology,
Concord College, Athens, WV

Amphibians and reptiles were studied in a 10-acre bog at 3,800 feet elevation on the crest of East River Mountain, BLAND Co. VA. The locale is about 1 mile east of VA Rt. #662 and is just south of the BLAND-TAZEWELL Co. line. Twenty-two sampling trips to the area were made between March and December, 1973, and in April-May 1974, representing 40 to 45 hours of collecting effort. A standard search pattern was followed which included the bog, a seep stream running through it, three small ponds, and second-growth deciduous woodland surrounding the bog. All amphibians and reptiles encountered were identified as to species. Only a few specimens of each were collected to confirm the identifications.

No amphibians or reptiles were restricted to the bog. Sphagnum moss occurred in the bog, but an animal normally associated with it, the four-toed salamander (Hemidactylum scutatum) was not found.

Although Pseudacris brachyphona was positively identified, no specimens were taken; so it should be considered a tentative county record. Confirmatory specimens of all other species are in the collection of Dr. L. E. Bayless. Species without earliest or latest capture dates were seen too infrequently to make such data useful. (See below.)

The following list includes all amphibian and reptilian species noted. The earliest and latest dates on which the species were found and which of them are new records for BLAND Co., VA., are also noted on the list below.

Of the anurans, only the Northern greenfrog (Rana clamitans melanota) used ponds in the bog area for breeding. The others occurred in woodlands near the bog but not in the bog itself. Since conscientious effort was made to locate reptiles during the study, it appears safe to conclude from the lack of sightings that the mountaintop and bog are unimportant as habitat for reptiles.

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Tempe, Arizona 85282
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Department of Biology
Concord College, Athens,
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SPECIES (# = Co. record)	CAPTURES: earliest/latest
<u>Desmognathus f. fuscus</u> # #	7 Apr. 18 Nov.
<u>D. m. monticola</u>	17 June 2 Nov.
<u>Plethodon c. cinereus</u>	1 Apr. 2 Nov.
<u>P. g. glutinosus</u>	7 Apr. 14 Oct.
<u>P. jordani metcalfi</u> #	--- ---
<u>Eurycea b. bislineata</u> #	7 Apr. 10 July
<u>Gyrinophilus porphyriticus</u>	27 June 18 Nov.
<u>Bufo a. americanus</u> #	--- ---
<u>Hyla c. crucifer</u> #	--- ---
<u>Pseudacris brachyphona</u>	observed --- ---
<u>Rana clamitans melanota</u> #	4 Mar. 8 Aug.
<u>R. sylvatica</u> #	--- ---
<u>Desmognathus o. ochrophaeus</u>	1 Apr. 14 Oct.
<u>Terrapene carolina</u>	observed --- ---

BEHAVIOR OF FENCE LIZARDS
(Sceloporus undulatus)

by (Mr.) Bill Williams*
College of William &
Mary, Williamsburg, VA

During the summer of 1970 I was engaged in research on fence lizards (Sceloporus undulatus) as a partial requirement for a Master's degree at the College of William and Mary. The project was under the guidance of Dr. G. R. (Jack) Brooks. Essentially, the project was designed to establish the home range (territory) of color-marked adult male fence lizards in a near-natural situation where the lizards had been released in open woodland habitat that was enclosed by a three-foot high wall of aluminum siding. After a given length of time, the population in each pen would be doubled and the home ranges again plotted. Then the original occupants would be removed for a specified period of time and later re-released into their original pens. The home range territories would again be plotted to see if the initial males would be able to reclaim their former territories.

During the course of the study, the lizard pens were visited twice a day, once in the morning about 10:00 a.m. and once in the afternoon around 4:00

Each lizard was color-coded with red or yellow paint, easily identifiable by using binoculars. Once located, their positions and behavior at that instant were recorded on a map of the area.

One aspect of their behavior began to impress me quite a bit. While home range territories are usually thought of in terms of a flat, two-dimensional surface, I found this to be in error. Many of the lizards spent each and every night high up in the tops of trees. They appeared to favor the sweet gum (Liquidambar styraciflua) and the tulip poplar (Liriodendron tulipifera). One male was always to be found in the morning at an estimated 40 to 50 ft. up a sweet gum tree. I decided to see if this was where he spent the night and visited the area late in the day when the lizards would be retreating for the night. Sure enough, he was in his usual spot. This same male was seen defending this vertical aspect of his territory against encroaching males on several occasions.

Now, one may wonder whether this behavior was peculiar for only this male. I found it wasn't. Females, likewise, were found to spend their nights in trees. Also, there were other males in other pens which could

usually be located in the morning or late evening high up in a tree by using binoculars. I must point out that there was adequate ground cover and log piles in each pen for the lizards and this, in fact, was where they spent the daylight hours.

My point of interest then is that the territoriality of male fence lizards appears to be three-dimensional -- vertical as well as horizontal. They preferably occupy the horizontal aspect of their territory during the day to feed and bask, and then occupy the vertical dimension of their territory at night, possibly to avoid discovery by ground predators such as snakes, raccoons, opossums, or skunks. Such observations need more research and critical analysis, but when one consistently encounters such behavior over the course of a summer's observations it leaves an impression more firmly rooted than mere numbers.

(Mr.) Bill Williams*
157 WEST QUEENS DRIVE
WILLIAMSBURG, VA 23183

* VaHS member.

NEXT MEETING OF EASTERN
SEABOARD HERPETOLOGICAL
LEAGUE IN PHILADELPHIA

The Eastern Seaboard Herpetological League (ESHL) will hold its next meeting in Philadelphia, PA on March 6, 1976. The Philadelphia Herpetological Society (PHS) will be the sponsor. The meeting will be held in the ROHM and HAAS BUILDING at 6th and Market Streets, downtown. Remember, 1976 is the Bicentennial Year and the meeting will be in the Independence Hall area. The ESHL meeting will start at 12 noon, so if you arrive in the early morning there will be the extra opportunity of visiting some of the historical landmarks.

The October 18, 1975 ESHL meeting at the Smithsonian Institution's National Museum of Natural History was attended by 75 from member societies from Massachusetts to Florida. Ten VaHS members attended, one from West Germany --SP/5 William W. Gagnon, U.S. Army, and his father, Mr. Robert Gagnon who recently returned to the U.S. from Iran and a European tour. Both are charter members of VaHS and were present at the first annual statewide VaHS meeting in 1958. In addition, Mr. Louis C. Baker, new VaHS Treasurer from Arlington, VA also a charter member (see VaHS-B#77) was in attendance.

Dr. George R. Zug, Associate Curator of the Div. of Reptiles and Amphibians, welcomed the ESHL members to the National Museum of Natural History. On the extremely varied program were: Mr. Steven Busack, Museum Technologist, the National Fish and Wildlife Laboratory (Herpetofauna of Spain); Dr. Nicholas Hotton, Smithsonian Institution (Body Form, Paleozoic Reptiles); Dr. Lester E. Harris, Jr., Middlesex High School, Saluda, VA (Subspeciation in Galapagos Island Tortoises); Robert G. Tuck, Iranian National Museum of Natural History (Herpetology in Iran); with Mr. Robert J. Gagnon, Ellerson, VA, on a visit to an Iranian anti-venin institute.

Following a short break, Mr. Saul R. Freiss, FlaHS, talked on Animal Photography with particular reference to herpetology. Mr. Chris Pague, VaHS member from Portsmouth, VA and a graduate student at VPI & SU (Blacksburg, VA) narrated a short film on "Amplexus and Oviposition of the Spring Peeper (H. crucifer)." (We have asked Chris to prepare a few notes on this for use in a future VaHS BULLETIN.)

(continued at top right:)

Dr. Elliot Jacobson, the veterinarian at the National Zoological Park, Washington, D.C., spoke on Husbandry and Medicine in Captive Reptiles. The presentations and slides were really tremendous. A vote of thanks should be extended not only to the U.S. National Museum of Natural History and Dr. George R. Zug, but to the organizers: Mr. Malvin Skaroff, Coordinator of ESHL; Mrs. G. Kuntz of Orlando, FLA, ESHL secretary; Mr. Thomas R. Moore, Alexandria, VA; Mr. Scott Rae, Vienna, VA; Ms. Lisa Lundell, Bethesda, MD.; and Mr. Frank Watrous of Arlington, VA. (WHS & VHS)

VaHS REPRESENTATIVES AT
ESHL BUSINESS SESSIONS

Dr. Lester E. Harris, Jr., Middlesex High School in Saluda, VA, and Mr. Bob Gagnon, Ellerson, VA, are the VaHS representatives (official delegates) to ESHL business meetings.

Any and all VaHS members should put the 6 March '76 date on their calendars. See YOU at the NEXT ESHL meeting in Philadelphia!

KEEP VaHS Secretary current on your mailing address; roster issue soon.

COMMENTS FROM READERS OF
VIRGINIA WILDLIFE

Editor's Note:

The following comments were received by Mr. John W. Taylor, Edgewater, Md. on his "endangered species report" in VIRGINIA WILDLIFE magazine.

" . . . I read with great interest your article on the wood turtle (Feb. '75) About ten years ago, in the spring of 1965 or '66, I found a wood turtle in the reeds on the edge of the Virginia side of the Potomac River between the Beltway and Great Falls. Having had one as a pet when I was a kid in Connecticut, I'm sure it was a wood turtle. After keeping it a week or so, I let it go on the Maryland side of the river at Carderock Springs. (I'd no idea they were rare in Virginia.)

I would be very interested in knowing if any of the records that you refer to occurred at about the time I found my turtle and if any have been found in the area since then. You might report my finding to anyone that is interested. . . . "

(Mr.) Henry W. Schaefer
4611 HUNT AVENUE
Chevy Chase, MD
20015

" . . . I enjoyed reading the article about the wood turtle. I have a few questions. . . . You state that the VaHS lists but three records for the wood turtle. I don't know whether you mean in the past year or since the society's beginning. I have been an active outdoorsman all my life and studied wildlife. When I was a scout, I earned a merit badge on reptile study. I have also studied turtles from an early age. During my wanderings around the mountains and troutstreams in Virginia, I've seen a few wood turtles. I cannot remember the exact locations or times of the sightings except for one which is still quite vivid in my mind. When I was in my teens, my Dad and I did a lot of trout-fishing each spring. I don't remember the year, but I would say . . . it was about 17 or 18 years ago. Dad and I were fishing above the Woodstock Reservoir in the stream which makes up the reservoir, called "Little Stoney", I believe. It's a very small trout stream (although it's been years since I've been back.) I had fished back into the mountain a half mile or so. The stream was clear with small pools and very shallow in places. I'd approximate the month to be early May. I came upon a stretch of water about four or five inches

deep and there were two wood turtles, one lying on top of the other with its hind legs locked around the other. They were in the middle of the stream which was about 5 feet wide at this spot. Had this situation happened today, I would observe and leave the turtles unmolested. But, being a curious boy, I took my trout net, scooped them up and set them down on the woodland floor. I recall that one turtle hissed and snapped when I touched it. These turtles were fairly large, guessing them to be about 7 in. across the shell. . . . After watching these turtles for a few minutes, I went on fishing. . . . (As stated above) I don't know if the (VaHS) records were for the past few years, or many years. I have read about the wood turtle being an endangered species and thought perhaps you might find this of interest as you have undoubtedly done research on the species. This sighting (noted above) was in SHENANDOAH County, although the area is not very far from the West Virginia line. I have lived in Salem the past 15 years, and to the best of my knowledge haven't seen a wood turtle in this area. . . . "

(Mr.) Scott W. Coffman
628 Pyrtle Drive
SALEM, VA 24153

Continued on next page:

Editor's Note: Our two correspondents and VaHS may be pleased to learn that the wood turtle is alive and well and living in the northern tier of counties in Virginia. VA is at the southern edge of the wood turtle's range. It is probably for this reason that the numbers of individuals encountered have been relatively small.

Professor Robert Simpson and students at the Lord Fairfax Community College in Middletown, VA., have encountered specimens in SHENANDOAH County and recorded their location. These data, as soon as received, will be posted on the VaHS distribution maps. The three older records are specimens in scientific collections. A shell of a deceased wood turtle that has been well cleaned out on an anthill would suffice for record purposes -- along with any data (VaHS Collecting Data Slip). A specimen from Charnita (a resort near Gettysburg, Pa.) was brought to the editor in the late 1960's, photographed and then turned over to Jack dePrato at the Reptile House, Nat'l Zoological Park. A copy of this issue of the VaHS BULLETIN has been sent to the two correspondents in recognition of their interest and we thank them.

'FROGS AND TOADS of VA' IN APRIL '75 WILDLIFE

VIRGINIA WILDLIFE magazine carried an article on the Frogs, Treefrogs, and Toads of Virginia in the April 1975 issue. The author is Mr. Joseph C. Mitchell, VaHS member of long-standing, a graduate student in zoology at the Arizona State University, Tempe, AZ. Joe graduated from Virginia Commonwealth University in 1974.

If you are not already a VIRGINIA WILDLIFE reader, now would be a good time to start your subscription: there are additional articles to come: The Salamanders of Virginia, Turtles of Virginia, and Lizards of Va. Snakes of Virginia appeared in the winter and spring of 1974.

WRITE: Va. Commission of Game and Inland Fisheries P.O. Box 11104, RICHMOND, VIRGINIA 23230

Please do not count on VaHS to provide reprints. It may be some time before reprints of the article become available. The Mitchell article appeared at page 13-15, 24, 27. A report on the canebrake rattlesnake (Crotalus h. atricaudatus) as an endangered species appeared at page 21. Author: John W. Taylor* of Edgewater, Maryland.

FJT

REPORTS ON SPECIMENS SEEN IN THE VA. STATE PARKS

The Division of Parks, Department of Conservation and Economic Development is keeping VaHS informed on specimens seen in the state park system. We have had two recent reports as follows:

In July, 1975 Mr. Tim Skinner, Seasonal Interpreter for Pocahontas State Park, CHESTERFIELD Co., VA., captured a 20" Queen Snake (Natrix septemvittata). The snake was captured on Third Br. Stream in Pocahontas Park and was released after identification was verified. This may be a county record. (The queen snake has been recorded for FLUVANNA and HANOVER counties to the north and east of CHESTERFIELD Co.)

Three sea turtles were observed (by B. Nelms) at False Cape State Park in what was formerly Princess Anne County, now a part of Virginia Beach. These were: An Atlantic Green Turtle (Chelonia m. mydas), an Atlantic Hawksbill (Eretymochelys imbricata imbricata), and an Atlantic Leatherback (Dermochelys c. coriacea). We hope the Division of Parks headquarters staff will continue to forward such reports as they can. Notes on observations are welcomed by the VaHS.

IDEAS, COMMENTS, LETTERS

Wytheville, VA
6 August 1975

JOURNAL OF HERPETOLOGY:
May 1973 Vol.7, No.2 pp.
137-138 (under "Notes"):
Algal Entry Into the Eggs
of Ambystoma maculatum:

The item notes that the first person (Orr, 1888) to report the presence of a green algae in the eggs of A. maculatum, did not investigate how the alga entered the membrane. Uncertainty about the exact mechanism has persisted, despite several experimental approaches. This report gives the results of experiments with a larger number of spotted salamanders and Jefferson salamanders, and the wood frog, all known to carry alga within the egg under field conditions.

The results indicated the alga enters the egg membranes of A. maculatum or of other species, after egg deposition and is not passed on to the new generation by the female. The experimental methods are described.

A. John Gatz, Jr.
Dep't of Zoology
Duke University
Durham, N.C. 27706

Same issue, pp. 139-140
"Cannibalism by the Slimy Salamander (Plethodon glutinosus) in Eastern Tennessee." pp. 139-140. Cannibalism is common in some salamanders especially larger species which prey on other salamanders. It is uncommon in the genus Plethodon. Studies over the years have shown no predation on vertebrates by P. glutinosus. However, the author on 7 July 1970, captured a big female P. glutinosus 65mm snout-vent length with the tail of an immature P. glutinosus (27.5 mm) protruding from its mouth. This finding constitutes the second record of cannibalism in the genus and the first for P. glutinosus. Population density was estimated at one salamander per 15 sq. yards, in suitable habitat.

Vernon N. Powders,
Dep't of Biology
Georgia Southwestern
College, Americus,
GA 31709

" ... I have just seen my first VaHS BULLETIN and am delighted to know that there is an active group of herpetologists in the state of Virginia.

I have recently moved from Alabama and Auburn University. Under the direction of Drs. Robert Mount and George Folkerts I have developed a personal and academic interest in herpetiles and am looking forward to seeing your "northern" forms.

I will be working in WYTHE, BLAND, SMYTH, GRAYSON, AND CARROLL Counties and would appreciate any available lists or other records on these counties. . . ."

Sincerely,

/s/ (Dr.) Fred B. First, Jr.
Wytheville Community
College
Biology Department
Wytheville, VA 24382

ALBINO TOAD FROM NO. VA.

On August 26, 1975, an adult male American toad (Bufo americanus), 75mm snout-vent length, was taken by Michael Ewanish in Centerville, FAIRFAX County, VA. The specimen was donated to the biology department of Northern Virginia Community College at Annandale, VA.

The extent of albinism is almost complete, with pink eyes, a whitish all-over coloring with the exception of a soft pink-red bordering the dorsal stripe, on the thighs and around the tympanic membranes (tympanum = drum).

Although albinism is not that uncommon, albinistic individuals rarely reach adulthood in nature. The chances are enhanced in Bufo because of the distasteful mucous secretion of the parotoid glands combined with their nocturnal and fossorial (i.e., active at night and burrowing) habits. Apparently, Bufo does not rely heavily on defensive coloration.

/s/ (Dr.) Walter Bulmer
Associate Professor
of Biology
Northern Virginia
Community College
8333 Little River Tpk
Annandale, VA 22003

"X" on MAP #226 EXPLAINED

In the most recent edition of "A FIELD GUIDE TO THE REPTILES AND AMPHIBIANS OF EASTERN AND CENTRAL NORTH AMERICA" Dr. Conant notes an additional range extension for the northern shovel-nosed salamander (Leurognathus marmoratus) map 226 in the 1975 edition. A bit of information has been passed along by Dr. Conant to Dr. Richard L. Hoffman at Radford College, Radford, VA., as follows:

"The isolated Leurognathus record . . . came from Samuel S. Sweet, graduate student from the University of California at Berkeley. . . Dr. Sweet is an excellent salamander man who has done much collecting in many parts of the East, but who has made a specialty of the neotenic forms of the Edwards Plateau and the Balcones Escarpment in Texas. He says that the Leurognathus locality is about 4 air miles north of the town of Meadows of Dan or about 30 air miles WNW of Martinsville, VA. September 3, 1971, . . . he also stated he had re-examined the specimens (SSS 301-303) and found them to be correctly identified. He said they were very dark, with faintly indicated dorso-lateral patches that he remembered as being tan in life. . . ."

HERPETOLOGY COURSE AT
MOUNTAIN LAKE BIOLOGICAL
STATION THIS SUMMER

Eight graduate courses in biology will be offered by the University of Virginia at the Mountain Lake Biological Station in GILES County, VA this summer. Courses follow:

June 10 to

First term: July 13

Taxonomy of Seed Plants

Dr. Carl S. Keener
Penn State University

Terrestrial Ecology

Dr. Raymond Dueser
Univ. of Virginia

HERPETOLOGY

Dr. Harry G. M. Jopson
Bridgewater College

Animal Behavior

Dr. Glenn Hausfater
Univ. of Virginia

Second term: July 15 to
August 17

Ecological Genetics

Dr. David A. West
VPI & SU

Aquatic Ecology

Dr. George H. Simmons, Jr.
VPI & SU

Pteridology

Dr. Donald R. Farrar
Iowa State University

MAMMALOLOGY

Dr. Charles O. Handley
U.S. National Museum of
Natural History

APPLICATIONS for these
courses should be sent
to:

Director,
Mountain Lake Bio-
logical Station,
Gilmer Hall, Univ.
of Virginia,
Charlottesville,
VA 22903

A SPRING RESEARCH PROJECT
(TIMING MOLE SALAMANDERS)

Sixty-million springs have witnessed the annual pondward scramble of ambystomatid salamanders. For years, they have been seen crossing highways, roads, and ditches, singly or in groups, moving toward their breeding sites in temporary ponds. Herpetologists know a good deal about the spotted salamander (Ambystoma maculatum), but have very little or no information on the schedule of migration, mating, egg-laying, egg masses, larvae and metamorphosis over the range of the species.⁺

It would be extremely useful to have a maintenance-free mechanism which would time the salamander for us. This mechanism may exist in early flowering plants. If we could correlate, for example, the flowering of some one plant with the arrival of adults at temporary breeding pools, we would have a useful timing device for comparing seasonal cycles within the geographic range of a species.

+ For background information see VaHS BULLETIN No. 66.

I am trying to establish a network of interested naturalists who would report phenological⁺⁺ data concerning the spotted salamander (Ambystoma maculatum) and the skunk-cabbage (Symplocarpus foetidus), an early flowering plant. I have used A. maculatum because it is an unmistakable form, has a wide range (state-wide in Virginia), and a restricted breeding season. The skunk cabbage (Symplocarpus) was chosen because it is distinctive and earliest to appear.

In the 1974 Yearbook of Herpetology, Dr. Herndon G. Dowling suggested that phenological studies of reptiles and amphibians could be valuable. He stated that there exist scattered references to dates of salamander migrations, breeding, development of larvae, and emergence of metamorphosed young in the herpetological literature for specific locations, but no overall pattern for the range of a species has yet appeared. The paucity

++ Phenology -- a branch science dealing with relationships between climate and periodic biological phenomena.

Please notify VaHS of your interest in this project by sending a carbon copy of your letter to Ms. Jenner to Mr. Joseph C. Mitchell. (Letters addressed to the editor, VaHS BULLETIN on this topic will be forwarded.)

of such information is underscored in the newly published book "Phenology and Seasonality Modeling" (Helmut Leith, ed., 1975, Springer-Verlag, New York) which contains phenological information on every terrestrial vertebrate except amphibians and reptiles.

The spotted salamander (A. maculatum) is state-wide in Virginia and the surrounding states. If you or your students know of a breeding site, it would be relatively simple to observe the progress of salamander breeding and development while noting the progress of a nearby patch of skunk cabbage. A suggested data page is carried in this VaHS BULLETIN for your use. If additional copies of this write-up are required, please drop a line to the VaHS co-ordinator (address below).

If you would like to participate in this effort, please write to:

(Ms.) Janann Jenner
New York University
Department of Biology
952 Brown Building
New York, N.Y. 10003

VaHS Coordinator (Phenology)
(Mr.) Joseph C. Mitchell
Department of Zoology
Arizona State University
Tempe, Arizona 85281

Ms. Janann Jenner
New York University
Department of Biology
952 Brown Building
New York, N.Y. 10003

Member, VaHS

VaHS B#78
mailed Feb. 1976

Yes, I will be able to participate in the spring research project on Ambystoma maculatum.

Please send me additional information, as follows:

(name)
(address)
(P.O.)
(zip:)