Virginia Herpetological Society

NEWSLETTER

Volume 6, Number 1 February 1996

✶✶✶ Impressions of Costa Rica ✶✶✶

Submitted by Dr. Richard L. Hoffman, Virginia Museum of Natural History

A nearly life-long desire to visit Costa Rica was unexpectedly indulged in December, 1995, when I was appointed to a panel of malacologists helping the Inventario Nacional de Biodiversidad (INBio) develop sampling protocols for an intensive survey of the mollusks of the Guanacasto Conservation Area (GCA) in extreme Northwestern Costa Rica. This is a subset of a far grander project to eventually survey ALL of the plants and animals of that 200 squire mile protected area, over a five year period.

If this "pilot plan" is feasible and successful, it will be extended to other areas that represent all of the country's natural regions. For a tropical country half the size of Virginia, with only a third as many people and most of them agrarian, this is an incredibly ambitious program ..... far greater than the Manhattan Project was for the U.S. Of course, it is based on the concept of sustainable development of natural resources (with strong emphasis on possible new sources for pharmaceutical products), and is being subsidized by a spectrum of both benevolent wealthy countries *and* interested corporations. INBio is not a government agency, strictly speaking, but a loose consortium of about 20 others, both incountry and foreign.

Currently, INBio has a staff of about 80 people, some 30 of which are "parataxonomists" who are stationed at more that 20 permanent field stations around the country. These people are not college-trained, rather motivated locals already interested in natural history. Given intensive training in various techniques (and excellent salaries!), they collect animals and plants constantly, day and night, prepare them correctly, and transmit the catch in to INBio headquarters on a monthly basis. Currently, the catch in insects

alone is over 500,000 per year, even before the really serious five year inventories go into operation! I have no details on other groups, but the insect collection already exceeds five million superbly prepared specimens, exceeded by only a few of the largest US museums. The collections staff included seven people who do nothing but add pin labels to incoming (already pinned or pointed) insects.

The GCA region (composed of two adjacent national parks and some other protected land) extends from the Pacific Ocean eastward across a broad level plateau (an ancient lava flow, at about 200 feet above sea level), and up onto the two northernmost volcanoes in the country, both with extensive rain and cloud forest. The mollusk panel was quartered at the headquarters of the Santa Rosa National Park, which includes adequate research as well as administrative facilities. We were rolled out at six each morning for breakfast (rice, black beans, and fruit), and transportation to a different major biotope for first-hand knowledge of the Park. Lunch (sandwiches) in the field, and then on to another site. Dinner back at the headquarters at 6 p.m. (rice, black beans, occasionally some kind of meat and a mysterious vegetable), an hour to rest, then planning sessions from 8 to 10 or 11 p.m. After a week, the panel disbanded and everybody went home except me. The staff INBio malacologist asked me to give a short course on myriapod protocols (collecting, preserving, and identifying) to the local parataxonomists, so we went by 4 WD vehicles to a field station on Volcan Orosi, just barely managing the terrible "roads" (red slippery mud made worse by torrential rain) by putting chains on all four wheels and everybody (except me) pushing in the worst places. I demonstrated installing drift fence pitfalls and other techniques during the day, and after supper (by gasoline lanterns) conducted a lecture course on how to prepare and identify the local centipedes and millipedes to family. The group caught on with great enthusiasm, and while I sat glumly on the station's broad veranda and stared at the rain, they went afield and came back with lots of specimens (at least four new species of millipedes).

Eventually we worked up an informal sampling plan to be followed by the parataxonomists once the five year inventory gets under way (later in 1996, I think), and after ten days on the scene and only one brief bout of dysentery, I returned to Martinsville, eating my heart out at the contrast. VMNII and INBio are both about six years old. One has 80 people conducting the most intensive biological survey ever launched on any scale, the other has one old guy doing the same thing, but for a few groups only and even then more or less "under the table". I used to brag about VMNH's insect collection reaching 30,000 specimens in only six years until I learned about INBio's 5,000,000 in the same time. Well, it was a trade-off; I showed them how to do myriapods, they showed me how to do a real biological survey.

I did not see much from a herpetological standpoint. Despite all the driving we did, I saw no road kills. Despite using what I thought were the right techniques, I did not find any plethodontids in the rain forest, although there are a lot of native species there. The list is quite meager: a few specimens of Iguana (some of them almost domesticated in the Park headquarters), one lizard that might have been an Ameiva, and the Bufo marinus. In the Orosi rainforest there was a treefrog with a call absolutely indistinguishable from that of Hyla femoralis, really quite startling to hear for the first time. And, after I mentioned to a Park staffer that I had been sleeping out on the veranda instead of in the claustrophobic dorm room (with seven others), she remarked that they often saw fer-de-lance there at night, and I had been lucky.

Costa Rica is as good as everyone says. The scenery is spectacular, the biota more diverse than anyplace else in the world of similar size (more resident birds that all of North America, I heard). With about 55% of the national income derived from eco-tourism, the country is notably visitor-friendly. One could go there on an organized nature tour and see all the great spots, or go solo and rent a car (in that case, get out of San Jose as fast as possible).

VHS RESOLUTION

During the fall meeting held on October 29, 1995 , this resolution was unanimously passed by the attending society members.

Fish and Wildlife Diversity Funding Initiative: Teaming With Wildlife

Whereas, Virginians have a continuing interest in observing and enjoying wildlife in its natural habitat for recreation and education; and

Whereas, over 1 million Virginians spend over $379 million annually on nonconsumptive wildlife-related recreation; and

Whereas, an alarming number of wildlife species are declining rapidly and critical knowledge is lacking on more than 1800 species in the United States that now receive less than five percent of all funding for wildlife conservation; and

Whereas, the Sport Fish and Wildlife Restoration Acts have provided billions of dollars for conservation of game species, and many indirect benefits for nongame species, through an excise tax on certain equipment used by hunters and anglers; and

Whereas, a similar enactment in support of the remaining ninety-five percent of America's wildlife through a similar excise tax on other outdoor recreational equipment, could raise $350 million annually in the United States and $7.6 million in Virginia for use in conservation, wildlife-related recreation, and education projects; and

Whereas, such an enactment would provide many more Americans with the opportunity to contribute meaningful support to keep nongame species from becoming threatened or endangered; and

Whereas, the movement for such an enactment, known as the Fish and Wildlife Diversity Funding Initiative, like the Sport Fish and Wildlife Restoration Acts, is a prime opportunity to apply the broadly supported user-pay concept, and now,

Therefore, be it resolved that the Virginia Herpetological Society will support the Fish and Wildlife Diversity Funding Initiative and encourages our membership to write letters of support to Congress and manufactures of affected products, and

Let it further be resolved that the Virginia Herpetological Society supports the enactment of legislation that will implement a program similar to the Sportfish and Wildlife Restoration Acts by applying a user fee in the form of an excise tax to products used for nonconsumptive wildlife-associated recreation and applying those funds to wildlife conservation, wildlife-related recreation, and environmental education.

VDGIF - DNH Proposed Merger

Both Houses of the 1996 General Assembly are presently considering legislation to transfer the Natural Areas Preserves Act and Cave Protection Act, and therefore, the functions of the Department of Conservation and Recreation's Division of Natural Heritage (DNH) to the Department of Game and Inland Fisheries (DGIF). Consideration for transfer has arisen because DGIF is the state agency granted with the general management and regulatory authority for wildlife, while DNH was established for the purpose of inventorying and preserving natural heritage resources. Over time, these roles have begun to overlap, resulting in substantial duplication of effort among state agencies, and creating confusion and conflicts regarding the appropriate roles and responsibilities of these agencies. These problems have significantly affected and frustrated private interests, citizens, and organizations; and state, local, or federal agencies who contact the agencies for information and consultation regarding wildlife management issues.

The incorporation of these Acts, and the functions of DNH, into DGIF will allow current Natural Heritage activities to continue in full force. DGIF will also continue programs new to the agency such as plant surveys and natural area dedication. Additionally, all 19 full-time positions will transfer as well as the full proposed appropriation. The most controversial portion of this transfer is funding. The funding for DNH is from general revenue and through contract monies. While the current legislative proposal allows existing external funding to continue, the remaining functions would be supported by unallocated non-general funds, such as the Nongame Fund, matching federal funds, and other non-license sale revenue. No fishing, hunting, or boating fees would be used to fund the transfer. To ensure full funding, DGIF will encourage more contract and service revenues through increased Natural Heritage activities, and explore long-term funding options such as state and federal funding initiatives for wildlife conservation.

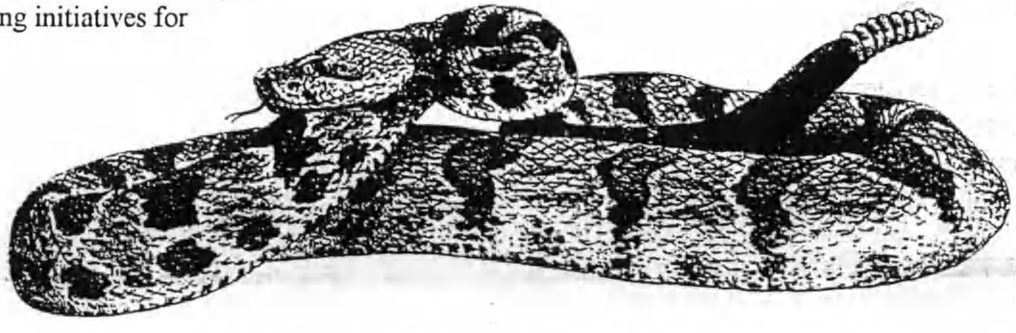
Both DGIF and DNH are staffed with dedicated, well-trained biologists that are committed to the resource. This legislation will unify these agencies and will better comprehensively manage the Commonwealth's wildlife and habitats, provide "one stop" shopping for all wildlife-related matters, and create additional recreational opportunities for all of the citizens of Virginia. As with any legislation, the VHS encourages all members, whether supporting or opposing this proposal, to contact their local representatives to make their opinions known.

State Reptile Revisited

Natheen Hollenboch, the VHS member that gained attention last year for proposing the timber rattlesnake (*Crotalus horridus horridus*) as the offical state reptile, will be lobbying the General Assembly this year to pass the bill in 1997. The Loundon County Reptile Club (LCRC), in which Hollenboch is a member, first brought the idea to Delegate Joe May, R- Leesburg as part of a biology and civic project. May decided to sponsor the bill which gained enough support to narrowly pass the House, but was defeated in the Senate by means of sending it back to the Committee of General Laws.

During the 1996 General Assembly, the major task facing Hollenboch and the LCRC is finding enough support so Mays will sponsor the bill again in 1997. After learning what worked last year, the LCRC will be emphasizing that the rattlesnake was the flag emblem for the Culpeper Minutemen, which states, "Don't tread on me". This will hopefully be a better approach than focusing on the animals less popular attributes.

The young herpetologists plan to begin their political endeavor the first week of submitting bills. Those wishing to help should contact their local delegate and senator to indicate their support of listing the timber rattlesnake as state reptile.



HERP HAPPENINGS

Have you done something news worthy lately? Well send it the editor and I'll put it in Herp Happenings. Remember, the strength of any society depends on the involvement of its members.

Fall Meeting - The VHS fall meeting was held on October 29 at Liberty University. The meeting was attended by the usual regulars and a fair number of new faces. Topics included officer elections and duties, the snake poster, a resolutions on the Fish and Wildlife Diversity Initiative, and a rousing debate on standardized common names for the society. The location of the spring meeting and collecting trip will be at Masssanutten Mt. For more details see the end of Herp Happenings and the next issue of Catesbeiana.

Changing of the Guard - During the last meeting, new officers were elected to represent the VHS. Mike Hayslett was elected as secretary/treasurer and Mike Pinder as President-elect. Paul Sattler is now serving his two year term as VHS President, replacing Ron Southwick who was awarded a plaque for his five years as secretary/treasurer and two years as president. Ron will now have a chance to write his memoirs and tour the nation signing books.

Presentations - Several presentations were given at the fall meeting. Joe Mitchell discussed amphibian declines, and his work on snapping turtle harvest in Virginia. Shawn Carter presented his research on bog turtles in southwest Virginia. A 1994 wood turtle survey was presented by Mike Pinder, and Steve Roble presented slides on anuran behavior.

Bog Turtle Study - Since September, 68 bog turtles (*Clemmys muhlenbergii*) have been captured and marked at three study sites in Floyd Co. Sixteen of these were recaptures and had been marked previously by Joe Mitchell and Kurt Buhlmann. Over the summer, 23 turtles were fitted with radio transmitters to observe habitat-use and daily movements. This study will hopefully provide information for the longterm protection of bog turtles and their habitats by determining how bog turtles use wetlands within a watershed.

SSAR Meeting - VHS members Carola Haas, Doug Harpole, Jill Wicknick, and Paul Sattler gave presentations at the 38th annual meeting of the Society for the Study of Amphibians and Reptiles at Boone, N.C., August 1995. All talks focused on salamander research in Virginia.

Herp Regulation Pamphlet - Efforts are underway to produce a pamphlet that will clearly state regulations pertaining to the holding, propagation, and selling of reptiles and amphibians in the Commonwealth. Current regulations are presented in the VDGIF fishing and hunting regulation booklets, but nothing is available to citizens that do not participate in these activities. Pamphlets should be available by Summer 1996.

Teacher Educational Workshop - The morning before the fall meeting, Carol Heiser, VDGIF wildlife education specialist, organized a workshop to educate teachers about reptiles and amphibians of Virginia. Mike Hayslett gave a presentation on amphibians, Doug Eggleston on reptiles, Carol on teaching students about wildlife, and Mike Pinder on threatened and endangered species. Evaluations indicated that all talks were well received. The workshop will hopefully be a regular feature at the fall meeting.

McLean Reptile Show - Mike Pinder represented the society at an All-Captive Bred Reptile Show in McLean, Virginia on November 18. New society pamphlets were distributed to prospective members. Reptile and amphibian replicas, provided by VDGIF, were a big hit at the show. As with all these events, a lot of interest was generated regarding Virginia's herptofauna.

Snapping Turtle Study - The first year of a VDGIF-funded study to evaluate snapping turtle (*Chelydra serpentina*) harvest for commercial-use in Virginia was a success. Over the summer, 1102 turtles were measured, weighed, sexed, and aged of the estimated 1587 that were harvested during snapping turtle season. The smallest turtle measured 178 mm (7 inches) carapace length and weighed 1.2 kg (2.6 lbs), and the largest measured 423 mm (16.7 inches) carapace length and weighed 15.1 kg (33.3 lbs). Plans are underway to conduct this study for an additional year to compare 1995 and 1996 data.

MASSANUTTEN MOUNTAIN

VHS SPRING FIELD TRIP

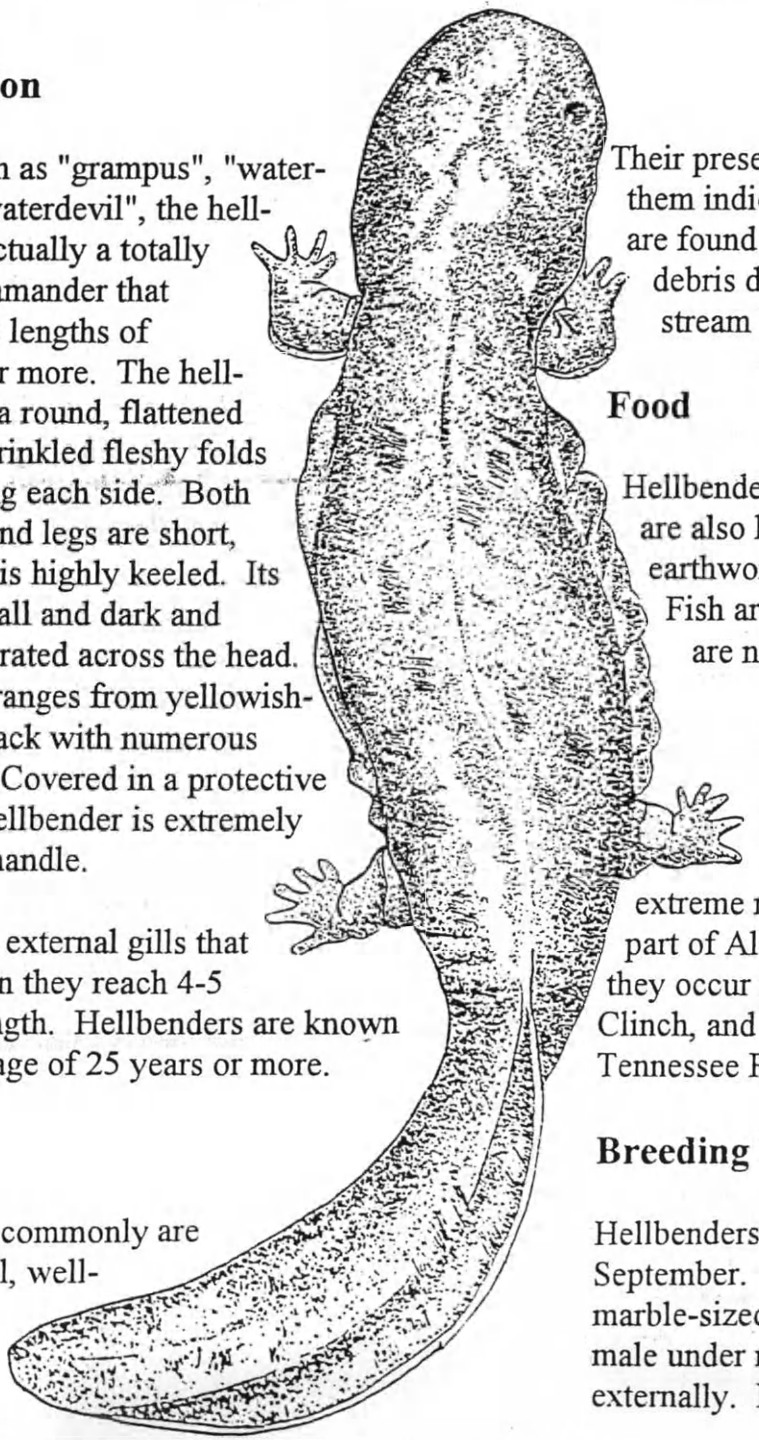
MAY 3-5, 1996

You are cordially invited to attend the Virginia Herpetological Society's spring field trip to Massanutten Mt. The society has reserved a block of rooms at the National Zoological Park - Smithsonian Institution Conservation and Research Center's Conference facilities located at Front Royal, Virginia. The spring business meeting will also be held at the center on May 4th. Those wishing to attend should check the next issue of Catesbeiana for additional information. We look forward to seeing you this spring!!!

VIRGINIA NATIVE

EASTERN HELLBENDER

Cryptobranchus alleganiensis alleganiensis



Description

Also known as "grampus", "water-dog", or "waterdevil", the hell-bender is actually a totally aquatic salamander that can reaches lengths of 20 inches or more. The hell-bender has a round, flattened head and wrinkled fleshy folds of skin along each side. Both front and hind legs are short, and the tail is highly keeled. Its eyes are small and dark and widely separated across the head. Coloration ranges from yellowish-brown to black with numerous dark spots. Covered in a protective slime, the hellbender is extremely difficult to handle.

Young have external gills that are lost when they reach 4-5 inches in length. Hellbenders are known to attain an age of 25 years or more.

Habitat

Hellbenders commonly are found in cool, well-oxygenated rivers and streams. Their presence in unpolluted systems make them indicators of good water quality. They are found under large flat rocks, snags, and debris during the day and forage on the stream bottom at night.

Food

Hellbenders feed primarily on crayfish but are also known to eat small fish, tadpoles, earthworms, and various aquatic insects. Fish are mainly scavenged, and gamefish are not consumed.

Distribution

Hellbenders range from southern New York to southern Illinois, to extreme northeast Mississippi, to northern part of Alabama, and Georgia. In Virginia, they occur in the New River and the Powell, Clinch, and Holston Rivers of the upper Tennessee River drainage.

Breeding Biology

Hellbenders mate in late summer, August and September. The female lays from 450 to 1,100 marble-sized eggs in a nest excavated by the male under rocks or logs. Eggs are fertilized externally. In approximately 8 weeks,

depending on temperature, hatchlings emerge from the nest measuring less than 1.5 inches in length.

Current Status and Threats

In Virginia the hellbender is a species of special concern, which suggests they should be monitored because their habitat is threatened. The most significant threats are water pollution and alteration of the stream environment. Pesticides, herbicides, and fertilizers threaten the survival of hellbenders and their eggs. Siltation, caused by removal of riparian (streamside) vegetation, covers and deprives their eggs of oxygen. Silt also fills in spaces between stream substrate eliminating their primarily food source, aquatic invertebrates. Removal of debris and flat rocks in a stream eliminates shelter for hellbenders.

In some areas, hellbenders are killed by bait-anglers that fear they are poisonous. Hellbenders are nonpoisonous and if handled gently, will not bite. Those unwilling to remove the hook should cut the line as close to the hook as possible. The hook will eventually dissolve, and both angler and hellbender can return to their previous activities relatively unscathed.

Because the hellbender is an interesting and unique addition to the Commonwealth's amphibian fauna, any found should be left in their natural environment

To learn more about hellbenders and other Virginia amphibians we suggest the following:

Conant, R., and Collins. 1991. The Peterson Field Guide Series - A Field Guide to Reptiles and Amphibians of Eastern and Central North America. 3rd edition. Houghton Mifflin Company, Boston.

Martof, B.S., and W.M. Palmer, J.R. Bailey, and J.R. Harrison III. 1980. Amphibians and Reptiles of the Carolinas and Virginia. University of North Carolina Press, Chapel Hill, NC.

Mitchell, J.C., and J.M. Anderson. 1994. Amphibians and Reptiles of Assateague and Chicoteague Islands. Virginia Museum of Natural History, Martinsville.

Terwilliger, K.A., coordinator. 1991. Virginia's endangered species. McDonald and Woodward, Blacksburg, Virginia.

Editors Note:

This is a draft copy of what will eventually be an information fact sheet for the hellbender in Virginia. Any suggestions and corrections would be appreciated and should be sent to the editor.

Literature Review

The purpose of this column is to inform members of recent herpetological research that is pertinent to Virginia or of special interest to the Society's membership. Papers or notes from professional journals, new books, "grey literature", reports, and popular magazines are acceptable for inclusion in this column. Members are encouraged to send recently published items of interest to the editor. Submissions will be accepted subject to the approval of the editor.

Aldridge, R.D., and W.S. Brown. 1995. Male reproductive cycle, age at maturity, and cost of reproduction in the timber rattlesnake (*Crotalus horridus*). Journal of Herpetology 29(3):399-407.

Beachy, C.K. 1995. Effects of larval growth on metamorphosis in a stream-dwelling salamander (*Desmognathus ochrophaeus*). Journal of Herpetology 29(3):375-382.

Berrill, M., S. Bertram, B. Pauli, D. Coulson, M. Kolohon, and D. Ostrander. 1995. Comparative sensitivity of amphibian tadpoles to single and pulsed exposures of the forest-use insecticide fenitrothion. Environmental Toxicology and Chemistry 14(6):1011-1018.

Buhlmann K.A. 1995. Habitat use, terrestrial movements, and conservation of the turtle, *Deirochelys reticularia* in Virginia. Journal of Herpetology 29(2):173-181.

Charland, M.B. 1995. Thermal consequences of reptilian viviparity: thermoregulation in gravid and nongravid garter snakes (*Thamnophis*). Journal of Herpetology 29(3):383-390.

Constanzo, J.P., J.B. Iverson, M.F. Wright, and R.E. Lee, Jr. 1995. Cold hardiness and over-wintering strategies of hatchlings in an assemblage of northern turtles. Ecology 76(6):1772-1785.

Dupuis, L.A., J.N.M. Smith, and F. Bunnell. 1995. Relation of terrestrial - breeding amphibian abundance to tree-stand age. Conservation Biology 9(3): 645-653.

Galbraith, D.A., B.N. White, R.J. Brooks, J.H. Kaufmann, and P.T. Boag. 1995. DNA fingerprinting of turtles. Journal of Herpetology 29(2):285-291.

Graham, T.E. and R.W. Guimond. 1995. Aquatic oxygen consumption by wintering red-bellied turtles. Journal of Herpetology 29(3):471-474.

Horne, M.T., and W.A. Dunson. 1995. The interactive effects of low pH, toxic metals, and DOC on a simulated temporary pond community. Environmental Pollution 89(2):155-161.

Horne, M.T., and W.A. Dunson. 1995. Toxicity of metals and low pH to embryos and larvae of the Jefferson salamander, *Ambystoma jeffersonianum*. Archives of Environmental Contamination and Toxicology 29(1):110-114.

Kellner, A., and D.M. Green. 1995. Age structure and age at maturity in Fowler's toads, *Bufo woodhousii fowleri*, at their northern range. Journal of Herpetology 29(3):485-489.

Kuzmin, S.L. 1995. The problem of food competition in amphibians. The Herpetological Journal 5(3):252-256.

Lefevre, K. and R.J. Brooks. 1995. Effects of sex and body size on basking behavior in a northern population of the painted turtle, *Chrysemys picta*. Herpetologica 51(2):217-224.

Murphy, J.B., K. Adler, and J.T. Collins. Ed. 1994. Captive management and conservation of amphibians and reptiles. Ithaca, N.Y.: Society for the Study of Amphibians and Reptiles. 408p.

Ng, M.Y., and H.M. Wilbur. 1995. The cost of brooding in *Plethodon cinereus*. Herpetologica 51(1):1-8.

Resetarits, Jr., W.J. 1995. Competitive asymetry and coexistence in size-structured populations of brook trout and spring salamanders. Oikos 73(2):188-198.

Rhen, T., and J.W. Long. 1995. Phenotypic plasticity for growth in the common snapping turtle: effects of incubation temperature, clutch, and their interaction. American Naturalist 146(5):726-747.

Roster, N.O., D.L. Clark, and J.C. Gillingham. 1995. Prey catching behavior in frogs and toads using video-simulated prey. Copeia 1995(2):496-498.

Rowe, C.L., and W.A. Dunson. 1995. Impacts of hydroperiod on growth and survival of larval amphibians in temporary ponds of central Pennsylvania, USA. Oecologia (Berlin) 102(4):397-403.

Rybitski, M.J., R.C. Hale, and J.A. Musick. 1995. Distribution of organochlorine pollutants in Atlantic sea turtles. Copeia 1995(2):379-390.

Sharbel, T.F., J. Bonin, L.A. Lowcock, and D.M. Green. 1995. Partial genetic compatibility and unidirectional hybridization in syntopic populations of the salamanders *Desmognathus fuscus* and *D. ochrophaeus*. Copeia 1995(2):466-469.

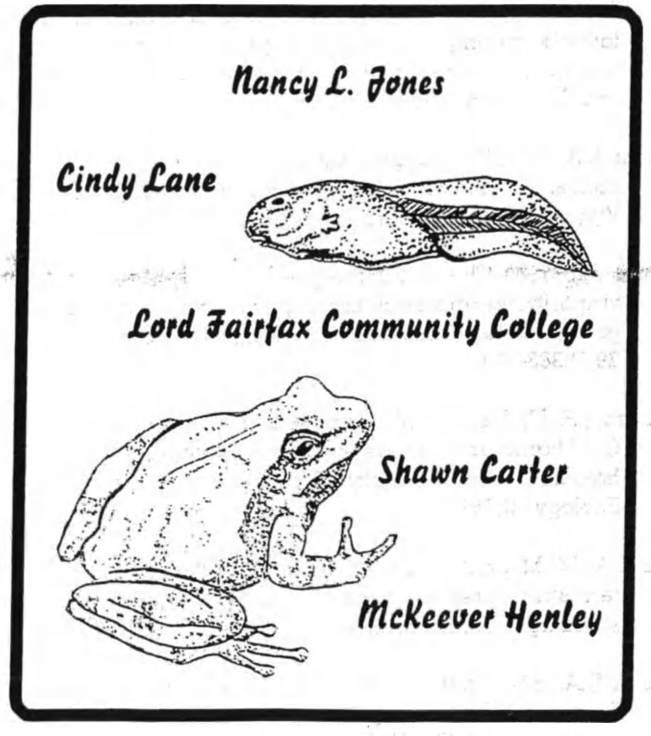
Tucker, A.D., N.N. FitzSimmons, and J. W. Gibbons. 1995. Resource partitioning by the estuarine turtle *Malaclemys terrapin*: trophic, spatial, and temporal foraging constraints. Herpetologica 51(2):167-181.

CALENDAR of EVENTS

FEBRUARY 22-23 The 1996 winter meeting of the Virginia Chapter, The Wildlife Society will be held at the Inn of Afton (formerly the Afton Mountain Holiday Inn). The topic of the meeting will be **"Approaches and Applications of Ecosystem Management"**. Registration for the meeting will be $25.00 for members, $30.00 for non-members, and $18.00 for student chapter members. Registration fee includes attendance at the platform sessions, two breaks, and the annual banquet. Rooms can be reserved at the Inn of Afton for $55.00 (single) and $62.00 (double). Reservation should be made directly with the Inn of Afton at (540) 942-5201. For more information, call Betsy Stinson at (540) 951-7923 or Patty Moore at (804) 598-3706.

MARCH 27-29 **"Rivers, Reptiles, and Relics"** will be the theme of the region II workshop of the National Association for Interpretation in the Richmond area (location TBA). Hosted by the Richmond Chapter of the NAI, the workshop will feature speakers and field trips on reptiles and amphibians, aquatic resources, and the unique history of the Richmond area. The workshop is open to natural resource educators as well as other resource professionals from Virginia, New Jersey, Delaware, Maryland, D.C., and West Virginia. For more information, contact Kris Påavola at (804) 748-1124.

WELCOME NEW MEMBERS



BOOKS

Reptiles of Virginia
By Joseph C. Mitchell

Beginning with Captain John Smith's observations of the region's reptilian fauna , this book offers the first complete catalog of the reptiles of Virginia, from the sea turtles of the Atlantic Coast to the snakes, turtles, and lizards of the Piedmont and Blue Ridge Mountains.

Including full-color illustrations of numerous habitats and thirty-two of the species, distribution maps for each species, and easy-to-use keys for quick identification (with a separate key for young snakes), The Reptiles of Virginia is a practical resource and an essential overview of this faunal group and its habitats.

The book is based on data derived from examination of some 10,000 Virginia specimens, yielding a wealth of new information on the ecology, life histories, and biogeography of reptiles in the state. Each of the 62 individual species accounts provides local common names, the historical context for scientific names, present habitat affinities, and information about geographic variation in color, pattern, and morphology, as well as reproduction, predators, and prey. The book also explores the human impact on Virginia's natural habitats and species' distribution patterns, presenting a historical perspective on the conservation of these animals.

About the Authors

Joseph C. Mitchell is an adjunct professor of environmental and conservation biology at the University of Richmond and is a research associate of the Virginia Museum of Natural History. John M. Anderson, a curatorial assistant at the Virginia Museum of Natural History, participated in a herpetological survey of Assateague Island funded by the National Park Service.

Amphibians and Reptiles of Assateague and Chincoteague Islands
By Joseph C. Mitchell and John M. Anderson

Assatague and Chincoteague islands are among the best-known barrier islands off the Atlantic coast of North America. Millions of people visit them every year for recreation. Most visitors are well acquainted with the famous Assateague ponies, but few know that these islands are home to unique assemblages of plants and animals.

This book provides information on some of the islands most secretive inhabitant, the amphibians and reptiles. Most of the frogs, salamanders, turtles, lizards, and snakes have occupied these islands since they were formed thousands of years ago. The reptiles and amphibians have learned to live in a harsh environment characterized by hot and dry sand, scarcity of freshwater, and periodic overwash by saltwater. Each of the seven species of amphibians and eighteen species of reptiles can be readily identified using the keys, color photographs, and descriptions in this book. Many interesting aspects of their biology are summarized in highly readable form.

Within these pages we discover why the islands are inhabited by far fewer species than are known to occupy the Delmarva mainland. We also learn about measures proposed to insure their longterm conservation, and how to observe these animals in their natural habitats. This book is the only source available that provides a window into the biology and ecology of two fascinating groups of animals on these barrier islands.

Order Form

All books purchased through the VHS are 20% discounted from the list price. This offer is open to everyone, members and nonmembers, as quantities last.

____ copies of Reptiles of Virginia @ $32.00 each. Postage $2.25 for first book; $1.00 each additional book.
____ copies of Amphibians and Reptiles of Assateague & Chincoteague Islands @ $11.96 each. Postage $1.00 for the first book; $0.50 each additional book.

Send orders to: VHS Treasurer, 301 Grove St., Lynchburg, VA 24501

$_____ Subtotal
$_____ Sales tax (4.5% VA Residents Only)
$_____ Total

Make checks payable to:
VA Herp Society

Ship to:
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Membership Application

Please sign me up for a one year membership in the Virginia Herp Society

Name:_____

Address:_____

City:_____ State:_____ Zip:_____

Check Membership Type		
Youth	$6.00	_____
Regular	$10.00	_____
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Mail to: Mike Hayslett, Secretary/Tresurer
301 Grove St.
Lynchburg, Va 24501

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Virginia Herpetological Society
140 Riverview Lane
Eggleston, Virginia 24086

1995

Mike J. Clifford
PO Box 81
Nottoway, VA 23955

*****ATTENTION*****
If the date on this label is highlighted, then its time to renew your membership.