
Virginia
Herpetological Society

9
Volume 9, Number 1

NEWSLETTER

January 1999

Catesbeiana Editor
Steve Roble

President
Mike Pinder
Bob Greenlee – Pres. Elect

Newsletter Editor
Mike Pinder

Secretary/Treasurer
C. Shay Garriock

WHERE HAVE ALL THE FROGS GONE?



*By Dr. Tim Halliday, Open University and International Director of the Declining Amphibian Population Taskforce
Reprinted with permission from People and the Planet, October 1998: 22-23.*

In 1987, the Golden Toad (*Bufo periglenes*) failed to appear at its usual breeding sites in the Monteverde Cloud Forest Preserve in Costa Rica; it has not been seen since. The Golden Toad is the most celebrated example of an amphibian species apparently becoming extinct over the last 20 years, but it is only one of many. In Monteverde alone, 20 out of 50 frog species have apparently vanished.

In 1989, the first World Congress of Herpetology was held in Canterbury, UK, and it became clear that sudden declines among amphibians were not confined to Central America. Similar events were reported from South America, eastern Australia and the Pacific Northwest of the USA. In many instances, amphibians were disappearing from nature reserves, national parks and other areas set up to protect biodiversity.

The declining amphibian phenomenon seemed to be telling us two things. First, it cast serious doubt on the assumption that animals can be protected by setting up reserves. Secondly, it

suggested that amphibians are subject to some adverse environmental process that affects them on a global scale. At first, this second conclusion proved to be highly controversial. Many ecologists working on amphibians, notably in southeastern USA, had not detected any declines in the populations of frogs, toads and salamanders that they had been studying for many years. What they had found is that it is characteristic of most amphibians that the number of adults returning to breeding sites from year to year fluctuates enormously. They suggested, therefore, that the declines reported elsewhere in the world might simply be population fluctuations.

It was clear that issues of this kind could only be resolved by carrying out appropriate research, and that the situation required urgency. The response of the herpetological community was the setting up in 1991 of the Declining Amphibian Populations Task Force (DAPTF), a global organization of scientists and volunteers. The DAPTF now has more than 3,000 members,

most of whom belong to one of over 100 regional or national working groups. The task of these groups is to find out which amphibians are declining and where. Other issue-based working groups are looking at potential causes of amphibian declines, such as chemical contaminants, climatic and atmospheric change, and disease.

The DAPTF has not yet answered the questions it set itself in 1991, but it has gathered together a mass of information that is helping us to better understand what is happening. It is clear, for a start, that declines are occurring on a global scale, although there are some regions in the world where they are not.

It is apparent that many declines are explicable in terms of habitat change resulting from human activities such as deforestation, draining of wetlands, and changes in agricultural land use. In Europe, for example, most population declines are explicable in terms of loss of suitable habitat, both aquatic and terrestrial.

Before the DAPTF was formed, amphibian declines were typically detected after the event; people noticed that frogs weren't there any more. More recently, however, biologists have been in position to witness some declines as they occur, notably in central America. A feature of these reports is that many are associated with outbreaks of disease.

Are amphibians being affected by totally new diseases, or by diseases that they can normally resist because their immune systems have been weakened by other factors, such as pollution or climate change? These are questions that require research and DAPTF is fostering appropriate studies as a matter of urgency.

A great deal of research has focused on the possibility that increased levels of UV-B radiation, caused by thinning of the Earth's ozone layer, may be a cause of amphibian declines. A number of

studies have shown that the levels of UV-B that are now reaching the ground, particularly at high altitude, are very harmful to the developing eggs of some amphibians, but not to all. Some of these studies also suggest that eggs exposed to elevated UV-B are also more susceptible to infection by fungus. It has yet to be established, however, that increased UV-B has actually caused any

amphibian populations to decline and it cannot account for declines in habitats such as tropical forest, where UV radiation does not reach the ground level.

As eggs, larvae and adults, amphibians lack any kind of protection from the environment, such as a shell or a dry skin. This makes them peculiarly sensitive to chemical contamination and a lot of research carried out by members of the DAPTF has examined the harmful effects of pesticides, herbicides and fertilizers on amphibians. For example, detailed research in Yosemite National Park in California suggest strongly that dramatic declines among amphibians over the last 80 years are due to chemical contaminants blown by the prevailing wind from the agricultural area in California's Central Valley to the west of the Sierra Nevada.

Why should we care that amphibians are declining? There are many reasons, most of them common to other components of the Earth's biodiversity. Amphibians may, however, be sending out a special message. Because of their great sensitivity to changes in both aquatic and terrestrial habitats, they may, like the coal miner's canary, be giving us early warning of major and widespread changes taking place in the environment. The factors that have been shown to adversely affect amphibians, like solar radiation and chemical contamination, threaten all forms of life, including humans. Amphibians may be harbingers of a global ecological catastrophe that is only just beginning.

“Amphibians may be harbingers of a global ecological catastrophe...”



EXOTIC REPTILES AT LARGE IN VIRGINIA

By Don Schwab, Regional Nongame Biologist, Virginia Department of Game and Inland Fisheries



Over the last year, exotic reptiles have been seen invading Virginia. An Asian water monitor (*Varanus salvador*) named "Godzilla" by local papers, and a 7-foot South American boa constrictor (*Boa constrictor*) escaped from the Virginia Zoological Park in Norfolk, while they were being moved because of a hurricane. Both animals were at large for a month before being recaptured and returned safely to the zoo.

In Williamsburg, a citizen dispatched a 3 ½-foot copperhead (*Agkistrodon contortrix*) on his porch which later (and miraculously) turned into a ball python (*Python regius*). A 4-foot spectacled caiman (*Caiman crocodilus*) was found in a drainage ditch in southern Chesapeake and picked up by the city's animal control officers. Another 3-foot caiman was confiscated by a VDGIF game warden from a trailer home in Giles County. The caiman was transferred to Mill Mountain Zoo, Roanoke and will be part of their exhibit. A close relative of the caiman, a 3-foot American Alligator (*Alligator mississippiensis*) was collected in a lake near Chesterfield.

Exotic species of turtles have also been discovered in the Commonwealth. Some kids

observed a large desert tortoise (*Gopherus agassizii*) strolling across a parking lot at Lakewood Park in the City of Norfolk. Luckily, the turtle's owner was found and both have been reunited. A male three-toed box turtle (*Terrepena carolina triunguis*) was found in a pit fall trap during a field survey by a VDGIF biologist. Both turtle and biologist now live

together in a spacious two-room apartment in southeast Virginia. Future plans in their relationship remain undecided.

Why did the chicken cross the road? Because it was being chased by a southwestern speckled rattlesnake (*Crotalus mitchellii pyrrhus*). In December, a speckled rattlesnake, a species native to Nevada, was found crossing a road in Virginia Beach. Was this an unprecedented range expansion or did someone get careless and release it?

How many more exotic critters are out there? The introduction of certain exotics could have serious consequences to Virginia's native flora and fauna. Exotic species, such as the three-toed box turtle and speckled rattlesnake, could transmit diseases, breed with similar native species causing genetic contamination, or

EXOTIC HERPETOFAUNA ILLEGAL IN VIRGINIA WITHOUT A PERMIT

- Marine toad
- African clawed frog
- Barred tiger salamander
- Gray tiger salamander
- Blotched tiger salamander
- Alligators
- Caimans
- Gavials
- Brown tree snake

SEE PAGE 10 / EXOTICS

Box Turtle Proposed As State Reptile

by Doug Eggleston

It's time to make a little noise. As some of you probably already know, the bill to designate the Eastern box turtle (*Terrepena carolina carolina*) for state reptile has passed the House of Representative's Subcommittee and will soon go to the floor.

It is now imperative that you contact your State Delegate and let that person know you are behind HB-1109 and you want them to be behind this bill too! It is also important to contact your State Senator and request that they seriously consider this bill if it receives a favorable vote in the House.

We need a Senator to spearhead this for us. Encourage them to draft a bill to make the Eastern box turtle our state reptile and be our patron on this issue in the Senate. Please advise your Senator to take up the cause!

Telephone, fax, email or write a letter or card and send it TODAY!

If you are a member of any herp or nature-oriented organization, rally the forces of your group behind this matter. If you are in school, or teach, get the students behind this. We need all the help we can get to make this happen in 1999! If the squeaky wheel is the one that gets the grease, then we need to squeak loud and clear right now. The legislative session will be over within a month, so let's make this happen!!!

WELCOME NEW VHS MEMBERS

Tom Cole	Donielle Rininger
Anne Chazel	Richard Hoffman
Erica Crespi	Don Church
William Martin	Julie Grady
Jack Brooks	Kahlil Pfaff
David Garst	Jamie Garst
Robert Elmore	Eric Wilhelm
Dennis Woodson	Scott Henderson
John White	Mike White
Don Merkle	Sandara Kilpatrick
The Zwicky Family	
Allen and Barbara Savitsky	

THE VHS HOPEPAGE HAS MOVED!!!



THE NEW ADDRESS IS

<http://vhsociety.home.mindspring.com/>

HERP HAPPENINGS

Fall Meeting – The Virginia Herpetological Society held its 40th anniversary meeting at Maymont Park, Richmond on October 31, 1998. Over 50 people attended this momentous occasion. A reptile and amphibian workshop for teachers was followed by a business meeting and anniversary festivities. The business meeting discussed the society's budget, several constitutional amendments, snake brochure photographs, and site selection for the spring field trip. During the invited speaker session, Frank Tobey was given the first VHS lifetime achievement award. Congratulations Frank! The VHS would like to thank Frank Tobey, Dr. Ronald Heyer, Marty Martin, and Dr. Joe Mitchell for their exceptional presentations. The meeting ended with a raffle, auction, social, and a tour of the park's nature center.

Reptile and Amphibian Workshop – A workshop to educate teachers on Virginia's reptiles and amphibians was held the morning of the society's fall meeting. Speakers included Mike Pinder (Threatened and Endangered Species), Doug Eggleston (Reptiles), Don Schwab (Amphibians), and Kathreen Harding (Herpetofauna in the Classroom). The VHS would like to thank everyone who presented and Bob Greenlee for organizing this event.

Snake Brochure – Do you have a fantastic snake picture you would like to show the world? Well, here's your opportunity!!! The VHS is looking for good, quality pictures for a brochure on the native snakes of Virginia. The brochure, funded by the VDGIF, will have pictures and written descriptions of all 30 snake species and be available free to the public. All pictures must be in slide form, color, and contain clear showing of identification characteristics of each species. Send all pictures to Mike Pinder, 2206 South Main St., Suite C, Blacksburg, VA 24060. Please remember to add your address so we can return your pictures.

Wood Turtle Study – The Virginia Department of Game and Inland Fisheries (VDGIF) has recently contracted Dr. Carl Ernst, George Mason University, to study wood turtles (*Clemmys insculpta*). The wood turtle is a state-threatened species found in and around streams of northern Virginia. The 3-year study uses radio-telemetry to track turtles to determine habitat use and movements. Co-principle investigator and Ph.D candidate, Tom Akre, will continue his research on this species in Fairfax County and begin studying additional populations in the northwestern portion of the state.

NSGSA Reptile & Amphibian Survey – VDGIF nongame biologists, Don Schwab and Mike McCoy, have just completed the first year of a reptile and amphibian survey of the U.S. Naval Base, City of Chesapeake. To date, the species list includes 11 anuran, 3 salamander, 4 lizard, 15 snake, and 9 turtle species. Of special interest was that while copperheads (*Agkistrodon contortrix*) and the state-endangered canebrake rattlesnake (*Crotalus horridus atrocandatus*) are common, surveyors have yet to find cottonmouths (*A. piscivorus*). The survey is planned until December 1999.

Virginia Frog & Toad Calling Survey - The anuran monitoring program (see VHS Newsletter January 1998 for a description of the program) is up and running. Approximately 10 volunteers will be out, across Virginia, starting this February. In November the first training session was held and each volunteer picked a route. The number of participants is being kept small this year to work out bugs in the system. If you are interested in being a part of this volunteer program (there are over 100 routes still available) you can contact D. J. Schwab by telephone at (757) 253-7072, e-mail dschwab@dgif.state.us.va or by mail at 5806 Mooretown Road, Williamsburg, VA 23188. You will need to supply your name, address, and telephone number. If you are a member of a group interested in participating in the program, a group training session can be arranged.

Herp Atlas - According to undisclosed sources, the long awaited atlas for Virginia's reptiles and amphibians should be ready by late spring. The current draft will soon be sent out for review after the maps are finished. The atlas will have an ISBN number so that it can be ordered from any bookstore and also be available on the DGIF's web page.

VHS SPRING SURVEY AT TWIN LAKES STATE PARK

The Virginia Herpetological Society will be holding its annual spring meeting and field trip at Twin Lakes State Park, Prince Edwards County. The event will be held from May 21-23, 1999. The business meeting will be held Friday 21st 7:00 p.m.-9:00 p.m. at the "Old Fire House" in Farmville. The meeting will include a short slide presentation of the herpetofauna of the region.

Direction to the business meeting are as follows: Take Main Street North to 4th Street, Turn right on 4th Street and go one block and take left onto South Street, Go ½ block and turn right into parking lot behind "Old Fire House." The meeting room is upstairs.

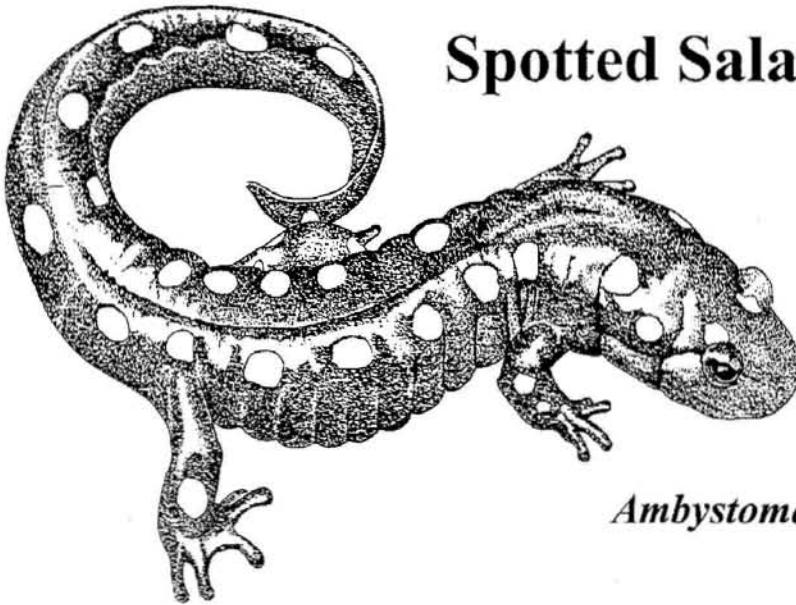
On Saturday 22nd, the VHS will survey Twin Lakes and Sailors Battlefield State Parks, as well as some privately-owned lands in the area. Lodging will be on your own. Some options include the following:

Days Inn (804-392-6611) Group rate until 30 days prior to meeting - \$56.00 plus tax
Super 8 (804-392-8196) Group rate until April 1, 1999 - \$50.00 plus tax
Executive Inn (804-392-3929)

With the exception of the Executive Inn, the accommodations are located on Main Street (Route 15 N), near the Hwy 460 interchange.

Look for additional details in the next issue of *Catesbeiana*. For further information please see the society's homepage or contact Mike Pinder at (540) 552-6992.

VIRGINIA NATIVE

Spotted Salamander*Ambystoma maculatum***Description**

Spotted salamanders belong to the Family Ambystomidae, better known as the mole salamander group. The spotted salamander is a relatively large, robust caudate with two irregular rows of large yellow to yellowish-orange spots on a steel gray or black dorsum. The spots extend from the head to the tip of the tail. Adults attain lengths of 4-7 inches with the largest recorded reaching 9 inches. There are between 11-13 costal grooves.

Larvae have external gills that are lost during transformation to adults. Larvae are dull olive to green and lack conspicuous markings.

Habitat

Spotted salamanders are most common in bottomland forests and sporadically in upland

forests and in mountainous regions. Breeding adults and larvae can be found in ephemeral, fish-free habitats such as vernal pools, swamps, roadside ditches, and flooded tire tracks, but they occasionally use permanent ponds. Mature deciduous forests offer optimal habitat.

Food

Spotted salamanders feed on a wide variety of food items. Adults feed on earthworms, mollusks, spiders, insects, and even other salamanders. Isopods, amphipods, ostracods, odonates and beetles comprise the diet of aquatic larvae.

Distribution

Spotted salamanders range throughout the eastern half of the United States and southern

Canada. They occur from Nova Scotia to southcentral Ontario, south to Georgia, and east Texas. Isolated records occur in east North Carolina and northwest Illinois. In Virginia, spotted salamanders occur statewide except for the southeastern counties and cities of Virginia Beach, Chesapeake, Suffolk, Southampton, and Greenville.

Breeding Biology

During late winter and early spring, spotted salamanders migrate to their maternal ponds. Within 2-3 days after mating, females deposit a firm, ovoid egg mass on twigs, tree branches, and aquatic plants. Larvae hatch after an incubation period between 4-7 weeks, depending on temperature. Most larvae transform from June to August; however, slow growing larvae in some populations overwinter and transform the following spring and summer.

Current Status and Threats

Although larvae are eaten by a wide variety of organisms, the skin of adults produce noxious secretion that repulse most mammalian, avian, and reptilian predators.

The primary threat to spotted salamander populations is modification to breeding sites such as draining, water pollution, fish introductions, and succession. Loss of spotted salamander populations in eastern Virginia is thought to be a result of low pH and elevated metal concentrations factors associated with acid deposition. Alteration of local hydrology may decrease the time water is available in ponds and thereby reduce larval survivorship.

Local populations of spotted and other *Ambystoma* species are becoming increasingly isolated from each other as habitat fragmentation, deforestation, and loss of breeding ponds reduce gene flow among populations. Furthermore, as roads separate breeding ponds from migrating adults, an increase number of salamanders are killed each

year by vehicles.

Spotted salamanders have no special status in Virginia. However, as a native species, it is they cannot be sold. It is also illegal to sell spotted salamanders as bait.

Research has shown that to maintain a healthy population of spotted salamanders a 650- to 820 ft radius of deciduous forest around breeding ponds is essential. Because of the secretive nature of spotted salamanders, the location of breeding ponds is often difficult to determine and when found, should be reported to state biologists or local conservation organizations.

To learn more about spotted salamanders and other Virginia amphibians, we suggest the following material:

Conant, R. and J.T. 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. 450 pp.

Martof, B.S., W.M. Palmer, J.R. Bailey, and J.R. Harrison III. 1990. Amphibians and Reptiles of the Carolinas and Virginia. The University of North Carolina Press. Chapel Hill. 264 pp.

Petranka, J.W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington, D.C. 487 pp.

Editor's Note:

This is a draft of what will eventually be a fact sheet for spotted salamanders. The fact sheet followed a description by Dr. J.W. Petranka (1998). Art work contribution was by Mike Pinder. Any suggestions or corrections should be sent to the editor.

Literature Review

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

- Balent, K.L., and P.T. Andreadis. 1998. The mixed foraging strategy of juvenile northern water snakes. *J. of Herpetology*. 32(4): 575-579.
- Blackburn, D.G. and V.A. Bernardo. 1998. Sexual dimorphism and testosterone responsiveness in hypoxial muscles of the northern leopard frog, *Rana pipiens*. *Amphibia-Reptilia*. 19(3):269-279.
- Conant, R. 1997. A field guide to the life and times of Roger Conant. Canyonlands Publishing Group. L.C. Provo, Utah. 498p.
- Cooper, W.E.Jr. 1998. Effects of refuge and conspicuousness on escape behavior by the broad-headed skink (*Eumeces laticeps*). *Amphibia-Reptilia*. 19(1):103-108.
- Crossland, M.R. 1998. Predation by tadpoles on toxic toad eggs: the effect of tadpole size on predation success and tadpole survival. *J. of Herpetology*. 32(3): 443-446.
- Diemer-Berish, J.E. 1998. Characterization of rattlesnake harvest in Florida. *J. of Herpetology*. 32(4): 551-557.
- Ernst, C.H., Wilgenbusch, J.C., Boucher, J.P. and S.W. Sekscienski. 1998. Growth, allometry and sexual dimorphism in the florida box turtle, *Terrapene carolina bauri*. *The Herpetological Journal*. 8:72-78.
- Green, D.M. 1997. Amphibians in decline: Canadian studies of a global problem, edited by David M. Green. Society for the study of Amphibians and Reptiles. St Louis, Missouri. 338p.
- Grover, M.C. 1998. Influence of cover and moisture on abundances of the terrestrial salamanders *Plethodon cinereus* and *Plethodon glutinosus*. *J. of Herpetology*. 32(4): 489-497.
- Litzgus, J.D. and R. J. Brooks. 1998. Reproduction in a northern population of *Clemmys guttata*. *J. of Herpetology*. 32(2): 252-259.
- Manthis, A. and D. Lancaster. 1998. Response of terrestrial salamanders to chemical stimuli from distressed conspecifics. *Amphibia-Reptilia*. 19(3):330-335.
- Mendex-De LA Cruz, F.R., Cruz, M.V., and R.M. Andrews. 1998. Evolution of viviparity in the lizard genus *Sceloporus*. *Herpetologica*. 54(4):521-532.
- Quinn, V.S. and B.M. Graves. 1998. Home pond discrimination using chemical cues in *Chrysemys picta*. *J. of Herpetology*. 32(3): 457-461.
- Resetarits, W.J. Jr., 1998. Differential vulnerability of *Hyla chrysoscelis* eggs and hatchlings to larval insect predators. *J. of Herpetology*. 32(3): 440-443.
- Sagor, E.S., Ouellet, M. Barten, E., and D.M. Green. 1998. Skeletochronology and geographic variation in age structure in the wood frog, *Rana sylvatica*. *J. of Herpetology*. 32(4): 469-474.
- Sattler, P., and N. Reichenbach. 1998. The effects of timbering on *Plethodon hubrichti*: short-term effects. *J. of Herpetology*. 32(3): 399-404.
- Townsend, V.R. 1998. Territorial conflicts over prey: domination by large male salamanders. *Copeia*. 1998(3):725.
- Townsend, V.R. 1998. The significance of small body size in territorial defense in the red-backed salamander, *Plethodon cinereus*. *J. of Herpetology*. 32(4): 579-581.
- Tucker, J.K., Janzen, F.J and G.L. Paukstis. 1998. Variation in carapace morphology and reproduction in the red-eared slider *Trachemys scripta elegans*. *J. of Herpetology*. 32(2): 294-298.
- Tucker, J.K., Paukstis, G.L. and F.J. Janzen. 1998. Annual and local variation in reproduction in the red-eared slider, *Trachemys scripta elegans*. *J. of Herpetology*. 32(4): 515-526.
- Tyler, T.J., Liss, W.J., Hoffman, R.L., and L.M., Ganio. 1998. Experimental analysis of trout effects on survival, growth, and habitat use of two species of Ambystomatid salamanders. *J. of Herpetology*. 32(3): 345-349.
- Tyning, J.H. 1997. Status and conservation of turtles of the northeastern United States: A Symposium. *Serpent's Tail Natural History Book Distributors*. Lanesboro, Minnesota. 53p.
- Whiting, S.D. and J.D. Miller. 1998. Short term foraging rages of adult green turtles (*Chelonia mydas*). *J. of Herpetology*. 32(3): 330-337.
- Young, B.A., and J. Lalor. 1998. Sound production in the eastern hognose snake *Heterodon platyrhinos* (Serpentes: Colubridae): Does it snore? *Amphibia-Reptilia*. 19(4):345-456.

EXOTICS FROM PAGE 3

depredate native wildlife. For example, populations of native yellowbelly sliders (*Trachemys scripta scripta*) have hybridized with introduced red-eared sliders (*Trachemys scripta elegans*) brought in and released during the pet turtle craze of the 1960's and 70's.

Native species have not evolved the appropriate defense mechanisms needed to survive against exotic animals. The brown treesnake (*Boiga irregularis*) of New Guinea has virtually wiped out native bird populations on the island of Guam. Originally imported to Hawaii to control insects, the marine toad (*Bufo marinus*) is now itself considered a pest because it breeds uncontrolled, a result of no natural predators. Additionally, poisonous secretions from their parotoid and dorsal glands kill thousands of domesticated and wild animals each year.

The numbers and kinds of exotic reptiles being held in Virginia is expected to increase as their popularity expands. However, as conflicts arise and as the public becomes more aware of the potential threats, the greater the chances local, state and federal governments will begin restricting their possession. In fact, the DGIF already prohibits the possession, importation and sale of four exotic reptile species without the proper permit (See above list). A bill currently in front of the General Assembly will require the owner of any exotic reptile to pay for the recovery costs of that animal if it escapes. Furthermore, several counties and cities have begun enacting their own laws to prohibit the possession of exotic species. People must realize that keeping exotic animals as pets, especially dangerous ones, comes with a responsibility for the safety of the animal, people, and native species of the Commonwealth.

**THE VHS WOULD LIKE TO THANK
THE FOLLOWING
ORGANIZATIONS AND
INDIVIDUALS FOR MAKING THE
40TH ANNIVERSARY RAFFLE AND
AUCTION A GREAT SUCCESS**

- FOR THE BIRDS, INC.
- MORGAN REPTILE REPLICAS
- DR. RONALD HEYER
- SOCIETY FOR THE STUDY OF REPTILES AND AMPHIBIANS
- FORESTRY SUPPLIERS, INC.
- THREE LAKES NATURE CENTER AND AQUARIUM
- SMITHSONIAN INSTITUTION
- DR. JOSEPH MITCHELL
- VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES
- DR. GEORGE ZUG
- VIRGINIA MUSEUM OF NATURAL HISTORY
- MR. DOUG EGGLESTON



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

Assateague 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* @ \$20.00 each (soft cover only). 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: Shay Garrick, VHS Secretary/Treasurer, 8622 Chapel Hill Road, Cary, NC 27513

\$ _____ Subtotal
 \$ _____ Postage
 \$ _____ Total

Ship to: Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone () _____

Make checks payable to:

Virginia Herpetological Society

MEMBERSHIP APPLICATION

Please sign me up for membership in the Virginia
Herpetological Society for the year(s) of _____.
Membership begins and ends on a calendar year.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime phone: (____) _____

E-mail address: _____

Make check or money order payable to:
Virginia Herpetological Society

Check Membership Type	
Youth	\$6.00 _____
Regular	\$10.00 _____
Family	\$12.50 _____
Life	\$150.00 _____

Mail payment to:

Shay Garriock, Secretary/treasurer
8622 Chapel Hill Rd.
Cary, NC 27513

VIRGINIA HERPETOLOGICAL SOCIETY
232 RIVERVIEW LANE
EGGLESTON, VIRGINIA 24086

IF THE YEAR ON YOUR LABEL IS HIGHLIGHTED, THEN ITS TIME TO RENEW YOUR MEMBERSHIP