
Virginia Herpetological Society

Volume 7, Number 1

February 1997

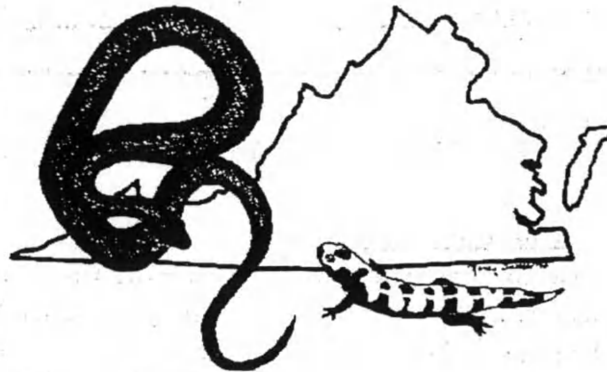
NEWSLETTER

Catesbeiana Co-editors

Paul Sattler
R. Terry Spohn

Newsletter Editor

Mike Pinder



President

Paul Sattler
Mike Pinder - Pres. Elect

Secretary/Treasurer

Mike Hayslett

A COMMUNITY-BASED APPROACH TO TURTLE CONSERVATION

Submitted by Michael W. Klemmens, PhD, Wildlife Conservation Society, Bronx, NY 10460

Over 100 of the world's approximately 260 species of tortoises and turtles are in need of some form of conservation action. Moreover, our knowledge of the distribution and current status of approximately half of these species is so fragmentary that detailed conservation assessments are precluded. Apart from a few critically imperiled species that have global populations of fewer than a few hundred individuals, there are several high risk groups. Declines in these groups are well documented and attributable to a myriad of inter-dependent factors. More than 75% of the turtle species threatened with extinction over the next 50-100 years fall into the following categories:

Groups At Risk-

Oceanic and river turtles are harvested for food; both the eggs and adults are exploited. Sea turtles are threatened by loss of their nesting beaches through development, beachfront replenishment and armoring, oceanic pollution, and harvest for tortoiseshell and leather. River turtle nesting beaches are also being lost, and riverine habitat is degraded by dams, sand mining, channelization and pollution. Oceanic and river turtles are the most economically important species, therefore, more attention has been focused on them, specifically interventionist techniques such as headstarting, ranching, and proposed sustained harvest programs.

The Testudinidae, or true tortoises, number over forty species, all characterized by a long reproductive life span, low egg output, and low juvenile survivorship. Tortoises are among the most sought-after turtle species in the international wildlife trade. In some areas, tortoises also serve as sources of protein for indigenous peoples. Their long reproductive life span is predicted on habitat stability. Tortoises are biologically ill-equipped to cope with the accelerated loss of adults due to human activities. Some of the most destructive trends have been habitat fragmentation, elevated predation levels from species that are commensal with humans, and over-collection for the wildlife trade.

Many semi-aquatic turtles share life history traits of tortoises, i.e., a long reproductive life span, low egg output, and low juvenile survivorship. They suffer from habitat loss, degradation, and over-collection. Inadequate protection of their wetland habitats is a major problem. Examples include wood, spotted, and bog turtles (*Clemmys*), Blanding's turtle (*Emydoidea*), and many of the South American and Asian Batagurines (e.g., *Rhinoclemmys*, *Pyxidea*, *Geomyda*, and *Cuora*).

Causes of Decline-

Loss and alteration of habitat is the major cause of turtle decline around the world. Habitat fragmentation is an

increasing problem, many species have complex habitat requirements and use a variety of different habitats. For example, spotted and Blanding's turtles often use a series of small wetlands over a season. They may hibernate in a marsh, move early in the spring to vernal pools, which are warmer and contain abundant food in the form of tadpoles and salamander larvae, as the vernal pools dry up, they move into wooded swamps, and as the weather cools, they move back into more open, warm habitats, before hibernating. Spotted turtles may move onto land and burrow into leaves for several days or even weeks. These complex habitat needs require the protection of habitat blocks, a mosaic of different wetland types with intact upland habitat joining them - a landscape condition that is not factored into most development plans. Instead, wetlands are individually protected, without maintaining ecological connectivity needed for many wetland-dependent species, including turtles. Developed habitat is further compromised by introduced species such as dogs, cats, rats, and purple loosestrife, as well as native species that flourish and increase in disturbed habitats, known as subsidized species, that include raccoons, crows, skunks, and the giant reed (*Phragmites*).

Turtles and tortoises have been over-harvested for food, both by local inhabitants, but increasingly for export to urban centers. Although the bulk of the harvest occurs in developing countries, there are active freshwater turtle "fisheries" in the southeastern United States. Although there has been much promotion of the concept of sustainable management of species, there are many, myself included, that question whether such long-lived animals as turtles and tortoises can be managed on a sustained yield basis. The wildlife trade has been implicated as a

contributing factor in the decline of tortoises and many freshwater turtle species. Usually, threats to turtles work in tandem, habitat destruction is often followed by increased human pressures, resulting in further destruction of the habitat infrastructure (i.e., fragmentation), followed by introduced species and

subsidized predators and commercialization for food and the pressures of wildlife trade. Disease is becoming a major issue in the management of turtles and tortoises. Outbreaks of disease in turtle populations is increasing. Epidemics have already decimated certain populations, such as the desert tortoise in southern California. Many of these outbreaks are attributed to captive animals that have contracted various

diseases while in confinement, and then are released into the wild where they rapidly infect free-ranging tortoises. Outbreaks of tumors on sea turtles may be caused by depressed immune systems resulting from chemical and heavy pollution of marine habitats. Increasingly, veterinary issues are becoming a major component of management programs of wild turtles and tortoises, as well as any program that releases, repatriates, or relocates chelonians.

Solutions-

Conservation programs must be firmly rooted in "good science", but good science alone will not be sufficient to conserve turtles and tortoises. Science and conservation must interact, and wildlife managers be able to access the types of scientific information to enable them to develop sound recovery and management strategies. What are the risks of acting with incomplete data versus the risks of not acting at all? Risk assessment is an integral part of conservation, yet it is rarely recognized as a pivotal part of the conservation planning and implementation process.

Virginia's Turtles In Peril

<u>Common name</u>	<u>Status</u>
Atlantic green sea turtle	Federally threatened
Bog turtle	State endangered
Eastern chicken turtle	State endangered
Hawksbill sea turtle	Federally endangered
Kemp's Ridley sea turtle	Federally endangered
Leatherback sea turtle	Federally endangered
Loggerhead sea turtle	Federally threatened
Wood turtle	State threatened

There has been an over-emphasis on interventionist management, including captive breeding, translocation, and headstarting. Headstarting is useful *only* if used in tandem with a strategy that will reduce the loss of adults. Clearly, if turtles have become scarce because of overharvesting, throwing more hatchlings into the rivers and seas, without clamping down on the exploitation of adults, will not meet with success. Yet, it is exactly these type of measures that have been, and are still being used, to "conserve" turtles. These measures have an intrinsic appeal to many institutional bureaucrats as they require visible infrastructure support, such as hatcheries, that serve a tangible proof that they are "doing conservation". Wildlife managers gain the hands-on control over nature that seems to be so deeply imbedded in human psyche. Hatcheries produce fairly predictable, consistent results - eggs are gathered, incubated, and hatchlings released, often as part of a "media opportunity".

In contrast, addressing the loss of adult turtles requires making hard, often politically unpopular choices, which have the potential to pit turtles against the perceived economic interests of the local communities. These choices can include evaluating impacts of proposed economic activities, such as developments, roads, and dams, or regulating turtle harvesting. However, although conserving turtles does require society to make some hard decisions about the importance of protecting wilderness and biodiversity, it doesn't have to result in controversy. A great deal of grass-roots conservation can be accomplished at the local communities to become engaged in conservation. Increasingly, some of the most effective conservation programs are being created at the local level.

I have increasingly chosen to work at local level because the complex landscape-scale habitat requirements for turtle conservation cannot be accommodated through regulatory mandates. For example, in New York, many wetlands are protected by a 100-foot upland buffer. However, these mandates focus on water quality, not biological diversity. In order to accommodate the rotational use of wetlands required by species such as the Blanding's

turtle requires habitat protection plans far beyond the regulatory scope. This can only occur when the owners of the land are convinced that it is in their own best interests to develop their land in a manner that will maintain the upland habitat that links small wetlands. It is vital that these choices are seen as voluntary decisions, decisions that not only conserve wildlife, but benefit the local community's economic well-being and quality of life. The major difference in these "bottom-up" conservation strategies, as opposed to more traditional "top-down" approaches, is that they originate and are supported locally, not imposed by federal, provincial, state, or even county government.

In conclusion, if turtles are to become beneficiaries of such community-based conservation enterprises, the following measures must be implemented:

- 1) Building conservation partnerships to conserve turtles by integrating turtle and tortoise conservation into larger multi-disciplinary efforts.
- 2) Linking conservation initiatives to public policy issues-especially in the spheres of regional land-use planning, watershed management, landscape preservation, and the sponsorship of legislation to enhance sound land-use planning at the local, regional, national and international level.
- 3) The development of educational programs, including programs to foster national and regional pride in natural resources and to develop conservation awareness in both developed and developing countries.
- 4) The development of ecotourism and other economically driven systems which will value wildlife resources *in situ* and that will reflect the real (i.e., economic), costs of resource depletion.
- 5) The inclusive nature of conservation, which requires the formation of coalitions to maximize human capital, linking scientists, conservationists, turtle fanciers, zoos, museums, educational institutions, and other concerned individuals and institutions with the local communities that share their land with turtles.

U.S Fish and Wildlife Service Proposes Endangered Species Act Protection for Bog Turtle

The U.S. Fish and Wildlife Service is proposing Endangered Species Act protection to conserve the remaining bog turtle population, which has seriously declined in the Northeast United States, the Service's Northeast Regional Director Ronald E. Lambertson announced today. "We have an opportunity to recover the northern population of the bog turtle if we take this crucial first step of Endangered Species Act protection," Lambertson said.

The northern population of the bog turtle, ranging from New York and Massachusetts south to Maryland, would be designated threatened, Lambertson said. The southern population of the bog turtle, ranging from southern Virginia to northern Georgia, would be protected with a threatened designation because its physical appearance is similar to the northern population. A species qualifies for threatened protection under the Act if it is likely to become endangered (and face extinction) within the foreseeable future.

Bog turtles are highly prized in the pet trade, bringing high prices from collectors and dealers, according to Lambertson. Many of the bog turtles presently in captivity were likely taken from the wild in violation of state regulations. If the species is designated as threatened, activities such as interstate sale or the export or import of bog turtles will be prohibited by the Act.

The northern population of the bog turtle (*Clemmys muhlenbergii*) has declined by 50 percent, mostly within the past 20 years. Illegal collection, primarily for the national and international pet trade, as well as loss and modification of the bog turtle's wetland habitat, have resulted in a reduction of the species' range and a decline in the size of the remaining population. Currently, bog turtles are known to remain at fewer than 200 sites in their northern range. Based on site habitat quality, only 35 of the 165 sites assessed may be capable of supporting a

healthy bog turtle population in the future unless measures are taken to maintain or enhance bog turtle habitat.

Because most bog turtle habitat is on private land Lambertson said representatives of the Service, state wildlife agencies and conservation groups will work cooperatively with landowners to ensure that both the turtles and private landowners "can literally find common ground." Lambertson said appropriate permits for activities such as wetland filling and draining would require further consideration if the turtle is protected by the Act, but added that the emphasis will be "to find alternatives for the landowner that will also protect the turtles." The Service will not designate critical habitat for the bog turtle because such designation has the potential for increasing illegal collection. Since 1975, the Convention on International Trade in Endangered Species of Wild Fauna and Flora has monitored international trade in bog turtles, requiring permits for legal trade. However, significant illegal trade in bog turtles exists.

Bog turtles are easily distinguished from other turtles by the large, conspicuous bright orange, yellow or red blotch found on each side of the head. Adult bog turtle shells are 3 to 4-1/2 inches in length and range in color from light brown to ebony. The southern bog turtle population is separated from the northern population by approximately 250 miles. However, individual bog turtles in the southern population closely resemble individuals in the northern bog turtle population, causing difficulty in enforcing prohibitions protecting the northern population. *Therefore*, the Service proposes to designate the southern population as "threatened

PLEASE SEE BOG TURTLE/10

HERP HAPPENINGS



Fall Meeting - The Virginia Herpetological Society's fall meeting was held at Maymont Park, Richmond on October 26, 1996. Although attendance was low, discussions were interesting and lively. A teacher's workshop started the day's activities and was followed by a business meeting and paper session. Business topics included selection of a depository site for Catesbeiana, the newsletter, and vouchers, developing a snake information brochure, a homepage, and site selection for the spring field trip. The meeting ended with a raffle, social, and a tour of the park's nature center. The VHS would like to thank Mike Hayslett for his excellent job in organizing this event.

VHS Homepage - The VHS is trying to find the on-ramp to the information super highway. Member Shay Garriock is helping the society to develop its home page on the Worldwide Web. The home page will contain basic society information (i.e., mission statement, membership forms, upcoming events etc.); however, if all goes well, we hope to include information from the newsletter and Catesbeiana. The current address is <http://www.fw.vt.edu/fishex/VHS.html>. All suggestions are welcome and should be sent to Shay's e-mail address: cgarrioc@vt.edu.

Peaks of Otter Salamander - On December 11, 1996, representatives from private, state, and federal organizations met at the U.S. Forest Service Office in Roanoke to review a conservation plan for the Peaks of Otter salamander (*Plethodon hubrichti*). The salamander, which total range is restricted to a small area on and around Peaks of Otter Mountain, is vulnerable to clearcutting and other forestry-related activities. The plan written by Dr. Joe Mitchell will help ensure the continued existence of this unique amphibian.

Reptile and Amphibian Advisory Committee - After a long hiatus, the Virginia Department of Game and Inland Fisheries (VDGIF) has reconvened the Reptile and Amphibian Advisory Committee (formerly the Taxonomic Committee). The committee, which was originally formed for an endangered species symposium in 1987, is comprised of individuals from state agencies and academia. The committee objectives are to update species protective status, prioritize herp-related research, and maintain a dialog to protect Virginia's herpetofauna.

Bog Turtle Study - Over last summer, VPI researches tracked 23 bog turtles using radio telemetry at four study sites. New techniques were tried to get a better insight on turtle movement. Thread spooling, a technique which involves attaching a bobbin of thread to the turtle's carapace, was used to determine the actual distance turtles traveled between radioed marked locations. To determine nocturnal movements, researchers monitored turtle activity hourly from dusk to dawn. Researchers found that turtles, unlike themselves, sleep at night. Further work is planned this winter to find additional hibernaculas. Work will continue on this project through Spring 1997.

Amphibian Monitoring Survey - An alarming decline of amphibian populations worldwide has prompted several governmental organizations to investigate the scope of this problem. To this end, the Northeast Nongame Study Group has requested that each state develop protocols to survey and monitor amphibian populations. The VDGIF is currently contracting Dr. Joe Mitchell to establish specific survey methods for calling frogs, terrestrial salamanders, aquatic amphibian larvae, and large aquatic salamanders. Once developed, protocols will be tested on department-owned wildlife management areas and federal lands.

Virginia Herp Atlas Project- The VDGIF has begun work on a herpetological atlas of the amphibian and reptile species of Virginia. Dr. Joe Mitchell will also participate in this effort by soliciting, reviewing, and verifying information. This project will answer a variety of information needs for the herpetological community, biologists, planners and the general public by providing current distribution maps. Data for the atlas will be compiled from a number of sources, including field collections, museum records, and peer-reviewed scientific literature. DGIF recognizes that these data are critical to scientific research, but sees even greater value in them as management and conservation tools. Species-specific and other related maps will be produced in an easy to read, atlas-style publication. Because there will be minimal text associated with each species, the appendices will provide additional references or other relevant information not detailed in the atlas. Data integrity will be further assured through review by the Herpetological Advisory Committee (see above). The atlas should be ready for publication by July 1998.

Teachers Workshop - A workshop to teach educators about reptiles and amphibians was held during the VHS fall meeting. All programs were well received. The VHS would like to thank Doug Eggleston, Mike Hayslett, Laura DeVan and Mike Pinder on their efforts towards promoting understanding of Virginia's herpetofauna.

***** COME ONE, COME ALL *****

to the

**Virginia Herpetological Society Spring Field Trip
in Southeast Virginia**

May 9-11, 1997

You are cordially invited to attend the VHS spring field trip in Southeast Virginia (aka herp central). The spring meeting will be held on May 10th. The society has reserved 20 double rooms (12 nonsmoking and 8 smoking) and a conference room at the Suffolk Super 8 Motel. The rate is \$40.52/night and must be guaranteed by credit card by April 15th. Call (757) 925-0992 to reserve your room and indicate that you are with the VHS. Those wishing to attend should check the next *Catesbeiana* for additional information.

We look forward to seeing you this spring!!!

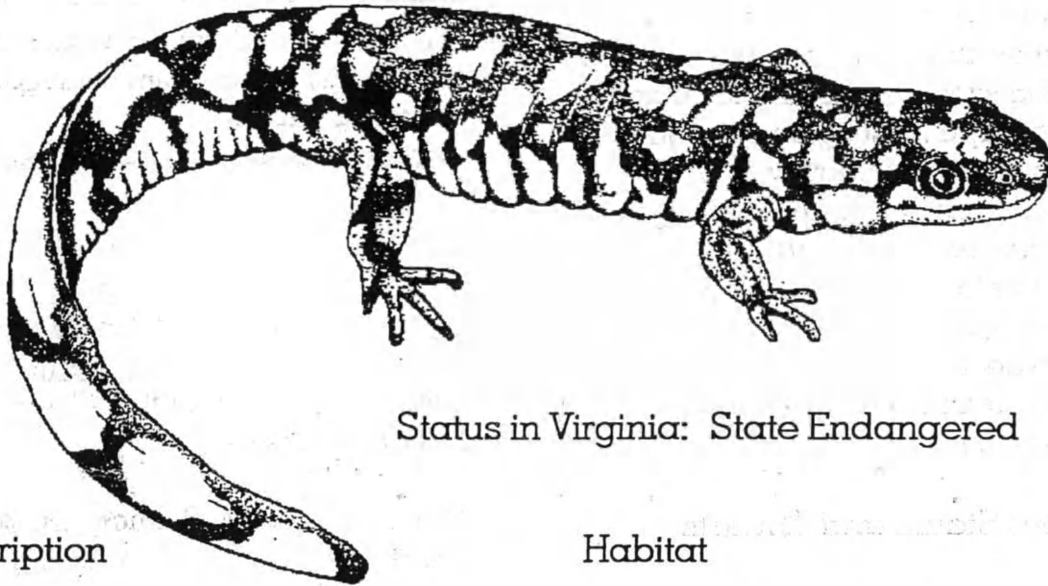
**WELCOME NEW
MEMBERS**

Phronia Jane Cash
Virginia Shepard
Mike Cherok
Nicholas Podlaski
Vicki Clark
Jana M. Ellingson
Steven Krichbaum
Jordan Gray
Laura DeVan
William H. Martin
Dan Feller
David McCarthy

VIRGINIA NATIVE

Eastern Tiger Salamander

Ambystoma tigrinum tigrinum



Status in Virginia: State Endangered

Description

The eastern tiger salamander is a robust bodied salamander with a broad depressed head and widely separated eyes. The tail is compressed except at the base and comprises 45 to 51 percent of the salamander's total length. There are 12 costal grooves. The general color is dark brown to dull black with irregularly spaced and variously shaped yellow to olive blotches on the back. Yellow and olive dominate the chin and throat. The underside is yellow with dark blotches.

The eastern tiger salamander is the largest of all species of *Ambystoma* reaching a maximum total length about 10 inches (254 mm).

Larvae have external gills that are lost during their transformation to adulthood.

Habitat

Tiger salamanders belong to the Family Ambystomidae, which is better known as the mole salamander group. Like moles, the habitat of adult tiger salamander is essentially underground in any substrate suitable for burrowing. Habitat for breeding adults and larval salamanders includes sinkhole ponds and vernal pools.

Food

True to its name, both adult and larval tiger salamanders are voracious predators, feeding on insects, crustaceans, amphibian larvae, and mollusks.

Distribution

The eastern tiger salamander ranges along much of the east coast. It is also

found from central Ohio to northwest Minnesota and south to north Arkansas to the Gulf of Mexico through Georgia. In Virginia, it is known from Mathews, York, and Augusta counties.

Breeding Biology

Even when ponds are still covered with ice, adults migrate during the winter to breeding sites to mate and lay eggs. Females lay a loose, globular egg mass containing approximately 50 eggs attached to submerged twigs or grasses, or bottom substrate. Eggs take from 24 to 30 days or longer to hatch. The larvae are approximately 9/16" (14 mm) at hatching. The larvae transform in late spring and summer at an average length of about 5 inches (120 mm).

Current Status and Threats

The primary threat to tiger salamander populations is modifications to breeding sites such as draining, fish introductions, and succession. Alteration of local hydrology may decrease the time water is available in ponds and thus may reduce larval survivorship.

The introduction of nonnative tiger salamander subspecies via fish bait or released pets could result in genetic contamination of native populations. Subspecies including, the barred (*Ambystoma tigrinum mavortium*), blotched (*A. t. melanostictum*), and gray (*A. t. diaboli*) tiger salamanders are illegal to possess without a permit issued by the Virginia Department of Game and Inland Fisheries.

The tiger salamander was listed as endangered in 1992 by the

Commonwealth of Virginia. Because possession without a permit is illegal, any found should be left undisturbed in their natural environment. Most of all, protection of breeding sites will be essential to preserve this unique amphibian in the Commonwealth.

To learn more about tiger 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. 1980. Amphibians and Reptiles of the Carolinas and Virginia. The University of North Carolina Press, Chapel Hill. 264 pp.

Terwilliger, K. and J. Tate. 1994. A Guide to Endangered and Threatened Species in Virginia. The McDonalds & Woodward Company, Blacksburg. 220 pp.

Editors Note:

This is a draft copy of what will eventually be a fact sheet for the eastern tiger salamander. Fact sheet was modified from the eastern tiger salamander description by Chris Pague and Kurt Buhlmann in Terwilliger and Tate (1994). Art work contribution was from Mike Pinder. Any suggestions and corrections should be send 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 subject to the approval of the editor.

- Bahret, R.. 1996. Ecology of Lake Dwelling Eurycea bislineata in the Shawangunk Mountains, New York. *Journal of Herpetology* 30(3): 339-401.
- Beachy, C.K. 1995. Age at maturation, body size, and life-history evolution in the salamander family Plethodontidae. *Herpetological Review* 26(4): 179-181.
- Bricker, J., L.M. Bushar, H.K. Reinert, and L. Gelbert. 1996. Purification of high quality DNA from shed skin. *Herpetological Review* 27(3): 133-134.
- Burns, G., A. Ramos, and A. Munchlinski. 1996. Fever response in North American snakes. *Journal of Herpetology* 30(2): 133-139.
- Doody, J.S. 1996. Larval growth of known age Ambystoma opacum in Louisiana under natural conditions. *Journal of Herpetology* 30(2): 294-297.
- Dunaway, M., B. Knisley, and J.C. Mitchell. 1996. Community structure of an anuran community at Fort A.P. Hill, Virginia. *Virginia Journal of Science* 47(2): 150.
- Ernst, C.H., T.P. Boucher, S.W. Sekscienski and J.C. Wilgenbusch. 1995. Fire ecology of the Florida box turtle Terrapene carolina bauri. *Herpetological Review*. 26(4): 185-187.
- Garrett, C.M., and D. Chiszar. 1996. Foreword: Advances in zoo herpetology. *Zoo Biology* 15(3):205-207.
- Grover, M.C. 1996. Microhabitat use and thermal ecology of two narrowly sympatric Sceloporus (Phrymosomatidae) lizards. *Journal of Herpetology* 30(2): 152-160.
- Hucksucker, C.M. 1996. Distribution and habitat associations of the Eastern mud salamander, Pseudotriton montanus montanus, on the Delmarva Peninsula. *The Maryland Naturalist* 39(1-2): 11-14.
- Johnson, S.A., and L.M. Ehrhart. 1996. Reproductive ecology of the Florida green turtle: Clutch frequency. *Journal of Herpetology* 30(3): 407-410.
- McAllister, C. T. and S.E. Trauth. 1996. Food habits of paedomorphic mole Salamanders, Ambystoma talpoideum (Cumdata: Abystomatidae), from Northeastern Arkansas. *The Southwestern Naturalist* 41(1): 62-64.
- McCoid, M.J. and P. Bettoli. 1996. Additional evidence for rotenone hazards to turtles and amphibians. *Herpetological Review* 27(2):70-71.
- Mitchell, J.C. 1996. Establishing amphibian monitoring sites on three military bases and two national parks in Virginia. *Virginia Journal of Science* 47(2): 152.
- Mitchell, J.C. 1996. Frozen frogs and cold salamanders. *Virginia Wildlife* 57(12): 26-30.
- Peterson, C.L. and R.F. Wilkinson. 1996. Home range size of the hellbender (Cryptobranchus alleganiensis) in Missouri. *Herpetological Review* 27(3): 126-127.
- Prior, K.A., C.M. Shilton. 1996. Post hibernation mortality in black rat snakes, Elaphe o. obsoleta. *Journal of Herpetology*. 30: 275-278.
- Williams, J.P. 1996. Another Atlantic leatherback turtle observed in the upper Chesapeake Bay. *The Maryland Naturalist* 39(1-2): 23-24.
- Windmiller, B. 1996. Tracking techniques useful for field studies of anuran orientation and movement. *Herpetological Review* 27(1): 13-15.
- Wity, B.W. 1996. A new device for capturing small and medium sized lizards by hand: The lizard grabber. *Herpetological Review* 27(3): 130-131.
- Wright, R.S. 1996. Historical review and distributional status of canebrake rattlesnake and its habitat on the James-York Peninsula of Virginia. *Virginia Journal of Science* 47(2): 155.

Bog Turtle

FROM PAGE 4

(similarity in appearance)." This designation will prohibit collecting individual turtles from this population and ban interstate and international commercial trade. It will have no effect on the land management activities of private landowners in the southern states.

If the species is federally protected, people who now legally possess bog turtles would be allowed to retain the turtles, but the Service recommends that individuals contact their state wildlife agency or the Service to obtain a statement indicating that they legally possessed the turtle prior to federal protection. All seven states in its northern range and all five states in its southern range provide varying degrees of protection for the bog turtle.

Several agencies and organizations support Endangered Species Act protection for the bog turtle, including state wildlife agencies in New York, Pennsylvania, Massachusetts and Connecticut. Following a 90-day comment period on the proposed listing beginning today, Service biologists will review the information and comments received. Then, based on the best available science, Service staff will make final decision on whether to add the northern population of the bog turtle to the federal List of Endangered and Threatened Wildlife and Plants.

For additional information or to provide comments, contact:

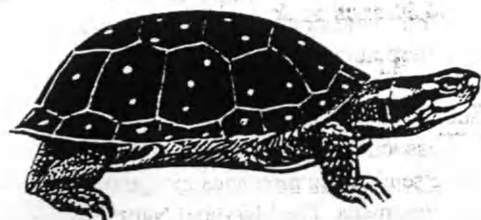
Carole Copeyon
 Pennsylvania Field Office
 U.S. Fish and Wildlife Service
 315 South Allen Street, Suite 322
 State College, Pennsylvania 16801
 (814) 234-4090

Calendar of Events

February 20-21. Winter Meeting, Virginia Chapter, The Wildlife Society. Location: Longwood State College, Farmville. Workshop on managing early succession habitat and is open to the public. The registration is February 14. For additional information, call Martin Lowney at (804) 739-7739.

March 5-6. Tri-State Fisheries Conference and Virginia Chapter AFS Meeting. Location: Howard Johnson Motel, Lexington, Va. The 43rd Annual Tri-State Fisheries Conference will be held in conjunction with the Virginia Chapter AFS Annual Meeting on March. This year's conference will include an all-day session on Wednesday, March 5 and a half day session on March 6. Registration on March 5 will begin at 8:00 a.m. and the session will begin around 9:00 a.m. The registration fee will be \$10.00. Contact Paul Bugas at (540) 248-9360 for additional information.

May 16-18. Becoming an Outdoors Woman Workshop. Location: Holiday Lake 4-H Center, near Appomattox. Workshop sponsored by Virginia Department of Game and Inland Fisheries' Women Outdoors Program. Variety of sessions to choose from. For example, past workshops have included a confidence course, Dutch oven cooking, handling a firearm, outdoor survival, fishing, canoeing, prepared game food, etc. You will receive an announcement about the workshop; registration forms will also be available upon request. For more information contact Carol Heiser, Resource Education, VDGIF, 4010 W. Broad St., Richmond, Va 23230.



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.

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.

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

Make checks payable to:

VA Herp Society

Send orders to: VHS Treasurer, 923 Euclid Ave., Lynchburg, VA 24501

Ship to:
 Name: _____

Address: _____

City: _____ State: _____ Zip: _____

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.

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.

Membership Application

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

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

E-mail: _____

Check Membership Type

Youth \$6.00 _____

Regular \$10.00 _____

Family \$12.50 _____

Mail to: Mike Hayslett, Secretary/Treasurer
923 Euclid Avenue
Lynchburg, Va 24501

Please make your check out to: **Virginia Herpetological Society**



Virginia Herpetological Society
140 Riverview Lane
Eggleston, Virginia 24086



1995

Mike J. Clifford
PO Box 81
Nottoway VA 23955

***** ATTENTION *****

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