

Almost everyone can describe an encounter with an eastern box turtle. Perhaps you helped one cross a road safely, or kept one as a temporary pet. Maybe you found one laying eggs in your flower garden. A meeting with a box turtle almost always leaves a pleasant memory—they're appealing animals with brilliantly colored shells and scales, and their animated facial features lend an air of intelligence. They're easy to capture and hold, and they don't often bite like so many other reptiles. Their ability to close up tight in their shell is an amazing feat.

These traits have earned the box turtle many human allies—but in spite of our affection, the "common" box turtle is gradually disappearing from landscapes all across eastern North America. And as you would expect, we humans are the cause. From Texas to Florida and throughout the mid-Atlantic region, biologists have documented disturbing declines in box turtle populations. According to Dr. C. Kenneth Dodd, Jr., author of *North American Box Turtles: A Natural History*, "Their habitat has been replaced by housing developments, strip malls, frighteningly busy roads, and the general mayhem of an urban and suburban lifestyle. Even well-protected populations have declined."

What can we do to reverse downward trends and make the environment safer for box turtles? Resource managers and herpetologists are grappling with this question. Our challenge is to halt the demise of this lovely and interesting species *before* they become officially threatened or endangered. By then it may be too late.

Populations in urbanized or fragmented habitats may be composed mostly of aging or non-reproducing adults. If there aren't enough turtles within a turtle's normal range of area, they may not meet frequently enough to mate and produce offspring. Additionally, lack of suitable nesting habitat, road mortality, the capture of turtles as pets, and predation on nests may combine to prevent a population from remaining stable or from recovering after past problems have been solved. As a result of these factors, turtles you might observe in urban parks like Rock Creek Park or in isolated forest fragments could well be members of a population that is on a long, slow slide toward extinction.

The box turtle is just one of many turtle species that have conservationists deeply concerned. Turtle populations are disappearing from creeks, forests, deserts and marshes, from backyards and fragmented woodlots, and even from lands that are completely protected. While the public may be aware of efforts to save the federally endangered desert tortoise and Maryland's own bog turtle, other less familiar species such as the spotted turtle, wood turtle, and Blanding's Turtle are becoming locally extinct throughout the East and Midwest. As is the case with neotropical migrant songbirds, the primary cause for turtle declines is

habitat loss and degradation. But turtles face additional threats: legal and illegal trade, road mortality, collection as pets, and predation of nests and hatchlings by predators like raccoons and foxes that tolerate and benefit from human-controlled environments. Conservationists are also concerned that global warming might begin to skew population sex ratios, since sex determination in most turtles is based on the temperature of incubating eggs, rather than by sex chromosomes; hatchlings in warmer nests generally develop into females.

Driven by my own curiosity and inspired by the long-term studies of box turtles by Dr. Lucille Stickel at the Patuxent Wildlife Research Center in Laurel, I began an investigation of box turtle natural history in 1995 at the Jug Bay Wetlands Sanctuary. This site is about 30 miles downstream from Dr. Stickel's study site; its expansive freshwater tidal wetlands that border the Patuxent River distinguish it from the previously-studied site. Working with a small crew of volunteers, naturalists, and college students—including especially volunteer Mike Quinlan, with whom I've worked for a decade, we started by searching for turtles in the forests and giving each a permanent mark by filing a small notch in the edge of the shell.

Our goal was simple at first: to estimate the size of the population in a 50-hectare (about 125 acres) study plot. Every summer we discovered many

unmarked turtles (which we dutifully marked), as well as some turtles we'd marked in previous seasons. Each year we were amazed to find new turtles, leading us to conclude that the riparian forests along the mid-Patuxent actually support a sizeable population.

After a decade of fieldwork our study population now exceeds 450 marked individuals. With such a large sample we've been able to refine our population estimates, to chart size and age into categories, and to determine with some precision the percentage of males, females, and juveniles in the population. Over time we can even determine survivorship rates. In 1998 we expanded our study to include radio telemetry. We attach tiny, battery-powered transmitters to the upper shell, enabling us to track 8 to 10 turtles each summer. Grid poles placed in our study plot every 100 meters, and using GPS

technology and a detailed habitat map, allow us to accurately map movements and habitat use. With these techniques we have plotted home range maps (the home range is the area used by an animal to obtain everything it needs in life) for more than 40 different turtles. In 2004 with my wife, Dr. Marilyn Fogel, we initiated a study of box turtle diet, using stable isotope mass spectrometry.

Our studies are providing new insights into basic box turtle natural history, and have clear conservation implications. For example, we have shown that adult females depart the dry upland habitats to spend weeks living in the luxuriant, flooded tidal wetlands. Females, immediately before and just after nesting, visit these wetlands much more than we ever

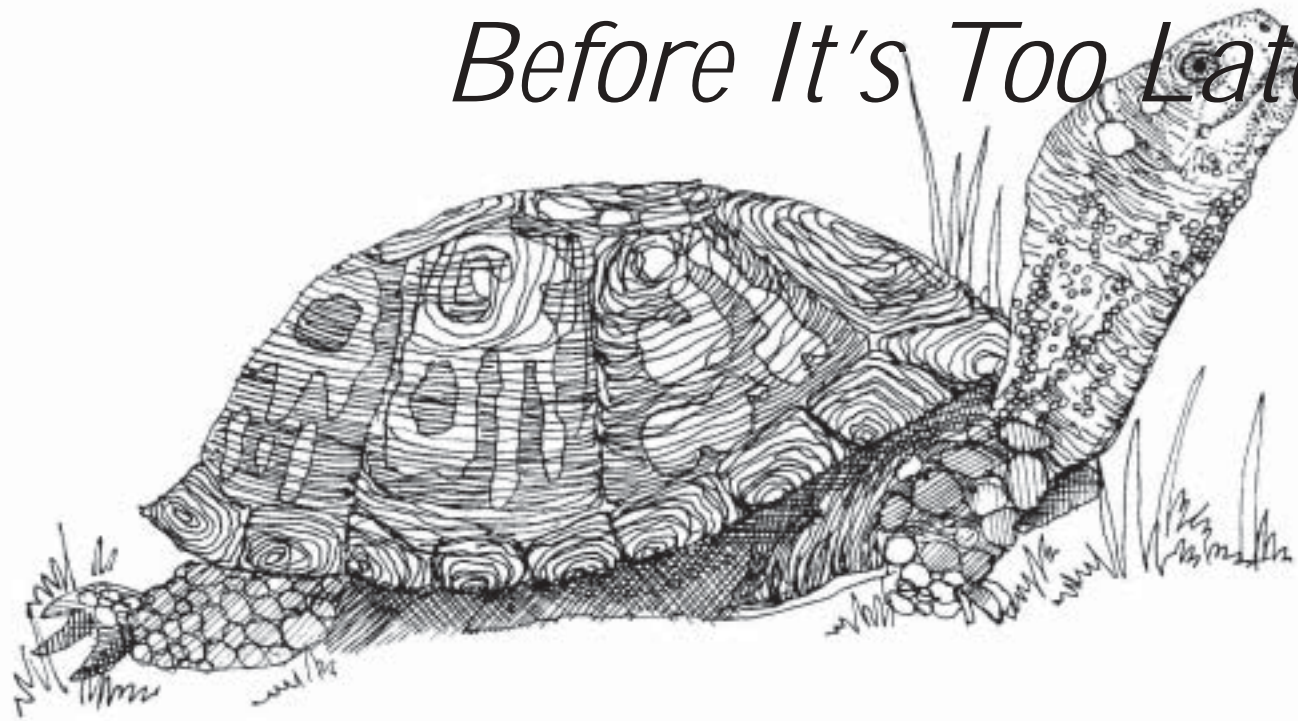
expected. After all, box turtles are supposed to be *terrestrial*. Imagine our surprise when we tracked telemetered turtles into meter-deep tidal wetlands or, in the case of one juvenile turtle, followed it as it swam a half-mile across the Patuxent River. One female spent two months in a tidal scrub-shrub wetland and others have occupied much-maligned phragmites marshes for weeks at a time. They mainly use wetlands immediately before and just after nesting, and it's suspected that females return to wetlands to "rehydrate" after spending hot days in open, exposed meadows where they have laid their eggs.

By measuring the stable isotopes of nitrogen and carbon in turtle toenails and comparing those data with isotope values of wetland food items, we've discovered that some females (and one male) derive significant nutrition from wetland-based food such as invertebrates, snails, and insects. We can distinguish between turtles that forage mainly in uplands and those that appear to feed exclusively in the wetlands. Who would have guessed that box turtles would mingle with their distant, fully aquatic cousins such as mud, musk, and painted turtles? Knowing exactly how turtles use habitats is crucial to effective conservation.

Female box turtles travel far from the wetlands to nest in open sunny areas with sandy or loamy soil. Unmowed or lightly mown meadows are popular, as are lawns or flower gardens. On the Coastal Plain, the edges of soybean and cornfields fit the bill. At Jug Bay we manage a three-acre meadow specifically for turtles and songbirds, and this small meadow is used for nesting by dozens of females. Habitat management strategies should always include maintaining open areas. Next season we will attach tiny transponders (each is the size of a grain of rice) to track movements of hatchlings after they emerge from their underground nest cavities in late summer and fall.

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Box Turtles: Can We Save Them Before It's Too Late?



Student Gregory Bultè tracks turtle signals by catching 'beeps' in a freshwater marsh at Jug Bay.

Photograph by Chris Swarth

The elusive history of the box turtles of Woodend

By Jane Huff

I know spring has truly arrived when I come upon my first box turtle of the year.

Buried under six inches or more of leaves and soil on the forest floor, they begin to feel spring's warmth in late March or early April. These reptiles are so closely attuned to the subsurface temperatures in their hibernaculae that they rouse from their winter hibernation only when they've felt at least five days of soil temperatures 45° F or higher. Not given to impulsive moves, they wait to emerge until worms are moving, mushrooms are growing, and other reptilian delicacies are plentiful.

Thus, somewhere in the Woodend woods on a warm April morning after a wet spring night, an ancient reptilian head will poke up from the leaves and look around. Then one of these gentle, unassuming reptiles will heave out of the leaves and begin another year of slow wandering around its one-to-ten acre home. The turtle that I come across on such a morning may have repeated this wake-up regimen for 50 springs or more.

In the spring of 1991, I continued a study of the box turtles at Woodend which had been initiated by Karen Molines while she was Children's Program Coordinator. For the next 10 years I measured, weighed, marked, and photographed every box turtle that I found on the grounds or that was brought to me. The result is a veritable rogues' gallery of turtles. During those 10 years, a total of 86 individual turtles were marked or photographed. Twelve of these (9 males and 3 females) were known to have been donated by rescuers, who plucked them from dangerous traffic, or by turtle rehabbers—to be released in the relative safety of Woodend. Unknown numbers were no doubt simply let go on the grounds, including at least two ornate box turtles (*Terrapene ornate*), native to areas west of the Mississippi. These had to have been released pets.

Box Turtles Marked at Woodend, 1991-2001

Sex	Total	seen more than once the first year	seen in multiple years
Males	52	15	12
Females	34	16	11

All of the marked turtles were adults. Only one tiny hatchling was found, but she was too small to be marked, and although retained in protective custody she accidentally became a raccoon snack, a fate common to soft hatchlings. Young box turtles are vulnerable to predators—raccoons, crows, and other predators—until they are at least teenagers. They wisely spend those years secreted under the forest leaf litter and are almost never found, even by the most diligent searchers.

The age of a box turtle can be estimated by counting the linear circles on the scutes (plates) of the carapace (top shell). Often the tiny plate of the hatchling shell remains in the center. However, after about 25 years, the scute lines begin to smooth out as the turtle

Two researchers look at Woodend box turtles

rubbs and bumps on obstructions in the woods. Most of the turtles we found were at least 25, but some, worn completely smooth, could have been 50 years old or even older. Other long-term box turtle surveys, including a 50-year study at Powdermill Nature Reserve in Pennsylvania, have found turtles at least 80 – 100 years of age.

Initially, at Woodend, we marked the turtles with a coded series of notches filed into the marginal scutes where the shell flares out. We used a marking system standard with many herpetologists. I also marked some individuals with the year and number on the flat plastron (the under-shell). These marks were made with a file and a scribe and only seemed to tickle the turtles.

Carvings on box turtle shells are notoriously liable to be fabrications – anyone can carve 1776 on a shell with a pocketknife. While I hoped my code would remain uncopied, 2-9, for example, certified the 9th turtle found in 1992, the numbers did tend to wear. Another problem affected the marginal notches. A number of the turtles were found to have significant rodent

gnawing marks on their shells. Squirrels or rats hungry for calcium were making their own set of notches on the edges of the turtle's shells. Our notches were literally being eaten away.

Photography was the answer—since the shell patterns of Eastern box turtles are all individually unique. The extent of the color varies, the shade varies from yellow to orange, and the pattern of the various blotches is vastly different. Thus photos, eventually digital, of all of our turtles became the most accurate record. Each of the turtles we marked now has a “rap sheet,” that includes where it was found and released in each encounter, as well as its sex, estimated age, weight, carapace length, width, and height. The second year of the study we included photos of the carapace and plastron.

Of the 86 turtles marked over 10 years, only 31 (36%) were ever seen again, most recaptured during the same year. Only 23 (27%) were found in a different year. Those that were found in another year were often found on a regular basis—and usually in the same area, attesting to

the site fidelity for which box turtles are known. One male was found almost every year for the entire 10 years. A female was found nearly every year for eight years. Females spend most of their lives in an area about the size of an acre while males may wander further but usually remain in a 10-acre home range (see article about Jug Bay research, page 4).

A study in the Midwest did find that males searching for mates will leave their home range and strike out for new areas, often traveling for miles. This may account for the fact that most of our known donations were males rescued while attempting to cross streets. It may also account for the fact that none of them were seen again—they probably continued on to parts unknown when we released them.

Although capable of following scent trails, finding a mate for a box turtle appears usually to be a matter of luck. Readily capitalizing on their luck, male turtles will attempt to mate with any female they run across. Females are able to store sperm from a mating for several years so that they can lay their

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Unlocking the complex dynamics of box turtle populations

By Susan Hagood

Dr. Archie Carr wrote in his 1952 classic, *Handbook of Turtles*, of the evolution of the unique skeletal arrangement of turtles that, however it came about, “it satisfied the early turtles and allowed full expression of their philosophy of meditation and passive resistance. Making as few compromises as possible as they joined the landward movement of species, turtles watched as “*Eohippus* begat Man o' War, and a mob of irresponsible and shifty-eyed little shrews swarmed down out of the trees to chip at stones, and fidget around fires, and build atom bombs.”

But what has served turtles so well for two hundred million years—a rigid shell and long-lived complacency—is not faring nearly as well with the success of the descendants of those “shifty-eyed little shrews.” And perhaps no other species illustrates this better than the common box turtle, *Terrapene carolina*. Each of the four subspecies of *T. carolina* is believed to be declining, and concern is increasingly being expressed about the future of these reptiles.

The chief culprits in the decline of the box turtle are those that readers of this publication know all too well—habitat loss and fragmentation. Compounding these threats is one to which the box turtle is particularly

vulnerable—road kill. The shell that protects adult box turtles from most predators is useless against an SUV, and a placid and plodding nature helps not at all in navigating busy roads. In many areas within their range, box turtles survive in what must be small populations, effectively isolated from other box turtles by roads and development.

This may well be the case at

Woodend.

To determine what genetic effect this isolation might be having on Woodend's and other

box turtle populations, ANS has graciously granted me permission to search for Woodend's turtles and attempt to obtain a small amount of blood for DNA analysis. Woodend is one of seven study sites on which I am conducting this research as part of my doctoral program at the University of Maryland. Two sites—Patuxent Wildlife Research Refuge and Jug Bay Wetlands Sanctuary—are relatively large, and their turtle

populations more or less protected from the effects of habitat isolation. The other sites at Woodend and around the metropolitan area are surrounded by roads and development.

Genetic theory predicts that small and isolated populations of a species also are susceptible to inbreeding, leading to reduced genetic diversity. To the extent that eastern box turtle

populations in central Maryland are isolated from other populations by roads that they cannot successfully cross, individuals confined to small habitat patches may

exhibit less genetic diversity than individuals in relatively contiguous habitats. This research will test whether we have enough evidence to determine if there are genetic differences between isolated populations. As a secondary objective, I am investigating box turtle genetic structure, information that has not yet been determined for any eastern box turtle population, and is critical to

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Photograph by Arlene Ripley

Box Turtles

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Male turtles at Jug Bay seem to lack wanderlust, and as a result are much less interesting than the females. They can spend an entire season in the forest, sticking to an area smaller than a football field. At our study site, males have home ranges that are barely a third the size of most female home ranges. Considering that males do not lay eggs nor run a high risk of dehydration, they may not need to visit meadows and wetlands like females do. However, studies elsewhere have found that males have larger home ranges than females.

Females differ considerably in their seasonal movements, and individual females may do one thing one season and quite another the next. By tracking the same female over successive seasons we've been amazed at the variability that exists. Some females confine their seasonal movements to just three-to-four hectares one season, but will expand their home range to ten hectares or more the next. A

female may nest once or even twice in one season, and then refrain from nesting at all the next year. We found that some females will visit widely separated fields, apparently to lay a clutch of eggs in each field. Some of these journeys cover a kilometer and take turtles down steep ravines, over high bluffs and across creeks. One female we tracked in 2001 moved far beyond the Sanctuary boundaries, ultimately traveling over 1,400 meters (straight line distance) between a marsh on the west and a farmer's field on the

east where she nested! Although we're not certain why some females travel so far to nest when seemingly suitable sites are closer at hand, this behavior could be a form of "bet hedging"—by using multiple nesting sites, they can improve the chances that more of their eggs survive. From a management perspective, protecting habitat becomes more complicated when we learn that box turtles may need to travel far and wide to satisfy their needs—we may need to protect much larger areas in order to encompass enough turtle habitat to meet the needs of a healthy population. With roads now finely dissecting and fragmenting woods and fields across Maryland, the challenge is indeed daunting. Though Jug Bay populations seem healthy and perhaps stable, most

other areas are not nearly so lucky. Knowledge gained from our studies can serve as a benchmark for others conducting assessments elsewhere.

What can we do?

To address the causes and potential solutions to declining box turtle populations, Susan Hagood of the Humane Society of the United States and I organized a workshop at the Patuxent Wildlife

Research Refuge in September, 2004. Sixty herpetologists, resource management professionals, and turtle experts met to examine the causes and potential solutions to the population declines. Dozens of issues were debated and discussed. Passions for this animal run high! The September workshop is just the first in a continuing series, as the needs of the species and the challenges it faces are complex and will demand decades of concentrated conservation and research efforts. Listed below are

Turtle Class Explores Box Turtle in Depth

Sandy Barnett, president of the Mid-Atlantic Turtle and Tortoise Society and herpetologist at the National Aquarium in Baltimore, will teach "The Eastern Box Turtle: Natural History and Conservation" at Woodend. The class, which is from 7:30 - 9:30 p.m. Thursday, March 24, will cover the natural history of this amazing animal, as well as threats to its continuance.

To register, visit our website, www.audubonnaturalist.org, or call 301-652-9188 x16 or 14. The cost is \$13 for members, \$18 for non-members.

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For more information . . .

Contact Carol Shaw at (301) 652-9188 ext. 31, cshaw@audubonnaturalist.org, or write to her at ANS, 8940 Jones Mill Road, Chevy Chase, MD 20815.

Box Turtle Facts

- Box turtle fossils date from the Miocene, about 15 million years ago.
- They prefer a mix of habitats, including dense shrubby tangles, soft forest soils with thick leaf litter and plenty of downed logs and branches, shady woods, ample sources of water and open, sunny areas for nesting. Though primarily terrestrial, they also use wetlands and will readily cross deep streams.
- If you love Mayapples, you may want to pay attention to box turtle conservation, since box turtles are one of the most important distributors of the Mayapple seeds.
- Box turtles dig out of their underground over-wintering sites in April and are active until late October. Similar to a perennial plant, turtles grow and are active for only half the year. In spring and summer they forage, gain weight and grow, find mates, and lay eggs. The rest of the year they sleep comfortably in their below ground hibernaculum.
- They can tolerate freezing and are the largest animal to have this ability. They are often subjected to temperatures that dip below freezing for long periods.
- Box turtles are omnivores, eating pretty much whatever happens to cross their path. I have seen them eating mushrooms, 17-year cicadas, earthworms, aquatic snails, slugs, berries, dead shrews, and opossums—one managed to capture and devour a red-eyed vireo from one of my mist nets.
- Box turtles are very long-lived animals. Natural mortality is high in the early life stages (egg, hatchling and juvenile stages) but declines markedly as adults. Their lifespan is roughly equivalent to ours and there are a number of verified records of wild turtles living to 50 years and beyond. In captivity they can live to 100. Like humans they are slow to reach sexual maturity.
- You can only tell the age of a box turtle with certainty up to about 18-20 years. Until that time, age can be determined by counting the growth rings on the plates covering the shell. After 20 years, the shell no longer grows to accommodate growth rings, and they get smashed together until indistinguishable. The only way to tell with certainty is if the turtle has been marked in a way that identifies the year in which it was tagged.

several of the major concerns and recommendations put forth by workshop attendees:

- ✓ Study the geographic and habitat differences among populations
- ✓ Examine the effects of small population size and reduced gene flow on the genetic structure of populations
- ✓ Coordinate population status assessments and management plans among states
- ✓ Study hatchling survival and mortality
- ✓ Investigate the impacts of suburban and rural housing development on population structure and stability
- ✓ Work with housing developers to reduce the impact of development on turtles and their habitats
- ✓ Better enforce existing population conservation regulations
- ✓ Determine the costs and benefits of repatriation efforts
- ✓ Discourage keeping box turtles as pets
- ✓ Determine the effect of infectious diseases
- ✓ Study effects of habitat fragmentation and natural succession on populations
- ✓ Work with state Departments of Transportation to provide input into their management of road edges, culverts, and other features so as to reduce turtle crushing by vehicles
- ✓ Determine the effects of invasive plants on turtle habitats
- ✓ Identify key road crossings and methods to reduce vehicle mortality and the other negative effects of roads on turtles

Much of the mystery of this elusive creature remains—but research and conferences such as the Patuxent workshop are beginning to bear fruit. Hopefully, another conference will convene this summer, and cooperative research is ongoing to find out whether, for example, global warming is influencing the onset of hibernation.

If, like many, you are fascinated by box turtles and interested in box turtle conservation, read the conference proceedings published by the Humane Society (available at the end of March; e-mail mfinkle@hsus.org to receive a free copy), and check the Jug Bay Wetlands Sanctuary website, www.jugbay.org, the ANS website, www.audubonnaturalist.org, and nature preserves in the area for courses and other programs. Another website, www.wtgrain.org offers excellent advice on actions that you can take in your own backyard to enhance box turtle conservation.

Chris Swarth is the director of the Jug Bay Wetlands Sanctuary in Lothian, Maryland, and teaches estuarine science in the Advanced Academic Program at Johns Hopkins University

Photographer Arlene Ripley of Calvert County, whose work appears in this issue, has a great website offering photos of Jug Bay's box turtles, as well as bird, butterfly, and nest shots. You can see these at www.nestbox.com

Population Dynamics

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structuring conservation programs involving repatriation of turtles to areas from which they have disappeared, relocation of individuals from sites destined for development or those "rescued" by well-meaning but uninformed individuals, and decisions to permit small and isolated populations to disappear.

What percentage of the estimated adult population in several isolated habitat patches is lost to mortality, particularly road-based mortality? According to G. Kenneth Dodd, Jr., author of *North American Box Turtles: A Natural History*, roadkill is the most serious direct threat to the box turtle. Road mortality has not been compared with population size for any box turtle population, which is why my research will also focus directly on this issue. A recent model predicts that road mortality represents an excess of 5% of the total mortality of terrestrial turtle species. Given what we know of turtle life histories—that they reach sexual maturity relatively late and have high juvenile mortality rates—the model suggests that road densities typical of the eastern half of the U.S. jeopardize the persistence of these species. If actual mortality levels reach or exceed this level, conservation programs must consider providing structures that enable box turtles to safely cross roads, or alternatively concentrate efforts on large blocks of suitable habitat with low road densities.

My research at Woodend and other

sites involves walking transects—north/south lines spaced about 12 meters apart—looking for turtles. When I find one, I record its exact location using a handheld

GPS unit. I note whether it has been marked before by Dr. Jane Huff or other researchers (see article on page 5). If not, I give each a unique mark by filing a small triangular notch in the edge of the shell at specific points. I weigh and photograph the turtle, record the temperature and humidity of the capture site, and take a number of measurements of the turtle's shell. I then put the turtle in a specially designed turtle holder (rather like a hammock on top of a three-foot stick), that secures him while I begin what can be a long wait for the turtle to emerge from its shell.

My objective is to grab hold of the tail, but I know not to even anticipate seeing a tail before the head and front legs have emerged and the turtle decides he's had enough of the view from three feet up and wants to get down. Once those back legs begin to move, the tail emerges. I quickly disinfect it, and insert a small gauge needle in hopes of hitting

If you'd like to read more about the natural history of box turtles . . .



The inspiring naturalist Archie Carr offers box turtle lovers a great deal to think about. See especially his, *Handbook of turtles: The turtles of the United States, Canada, and Baja California* (1952, Cornell University Press, Ithaca, New York) and *A naturalist in Florida: a celebration of Eden* (1994, Yale University Press, New Haven, Connecticut.)

for later analysis. With another two years worth of samples from all my study sites, I hope to be able to assess the degree to which Maryland box turtle populations are losing genetic diversity, and whether populations at some distance are nonetheless closely related.

I have found just two turtles in nearly 19 hours of searching at Woodend, but have only searched about half of the sanctuary's wooded habitat. In my searches over the next few months I hope to find several more. I am concerned, however, that Woodend's turtle population is declining, as are so many, and could continue to do so without the active protection of surrounding landowners and those who travel the area's roads.

The greatest hope for the future of box turtles lies, however, in the fact that, as Archie Carr once said: "Everybody

likes box turtles." And there are things that each of us can do to protect these animals and to help ensure that populations will survive into the future.

- Leave box turtles (and all turtles) in the wild. Many turtles are removed from the wild by well-meaning people who believe they know a "better" place for the turtle or who decide to keep it for a pet. Though turtles are said to make good pets, they have specific dietary and habitat requirements and can pass diseases, such as salmonella, to humans. To the future of its population, a turtle removed from the wild is as good as dead.
- If you can do so safely, help a turtle across the road by moving it in the direction it was headed, and well off the road on the opposite side.
- If your property borders a park or wooded area where box turtles may survive, walk grassy areas before you mow, and mow during the heat of the day when turtles are less likely to be in open areas.

Long-term solutions to road mortality—in addition to the active concern of drivers throughout their range—will inevitably involve fencing and the installation of turtle-friendly culverts under the road; the challenge will lie in determining where such structures should be placed to protect the greatest number of turtles.

Susan Hagood is a doctoral candidate at the University of Maryland and works on road and wildlife interaction issues for the Humane Society of the United States.

Box Turtles at Woodend

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eggs when they find a warm, sandy hill in the spring and early summer.

Adult box turtles are relatively safe from wild predators. Their bony shells are thick and they can close tightly enough to repel inquiring fox teeth or raccoon fingers. They can resist and survive some freezing, and they are so omnivorous that they can usually find food. They are capable of storing water in their bladders to survive short periods of drought, but I have found turtles that have washed into flooded spring streams as they emerged from hibernation. In the intact forest, however, they can live out their slow lives for decades.

But their boxy shells and careful lifestyle offer no protection from human threats, as suburbia overwhelms their forest homes. Lawnmowers and automobiles are deadly, even in sanctuaries such as Woodend. At least one Woodend turtle was squashed on the drive, and four others found dead appeared to be lawnmower victims.

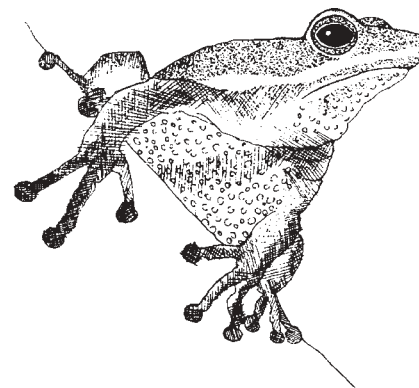
Another threat cannot be measured in bodies found. These are the turtles picked up by humans looking for interesting pets. Many of the Woodend turtles that we saw once, and never again, may have been released by well-meaning folks wishing to give a former

pet its freedom. Good intentions perhaps, but most of these turtles probably set out to attempt to return to the place from which they were taken, directed by a deep homing instinct urging them to cross miles, and risk their lives crossing dangerous streets. Were an equal number picked up at Woodend and carried off to live for a while in back yards and glass tanks?

Many Eastern box turtles are deliberately collected and sold as pets in other states or overseas. We will never know how many Woodend turtles may have suffered that fate.

Nevertheless, there will still be some box turtles poking their heads up out of the leaf mold in the woods this spring, looking for mushrooms, earthworms, carrion, and turtle mates. If you find one by chance, the way we found all our marked turtles, pick it up and make its acquaintance. See if you can guess its sex and age, and look for one of our marks. Then release it back to resume its merry way. I plan to be looking for old friends once a week or so from April through October this year, especially on warm mornings after rainy nights. You are welcome to join me in the search.

Jane Huff is former ANS Director of Education and now coordinates the GreenLabs programs for teachers and teaches in the Natural History Field Studies program.



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MAY 1

10:30 am - 5:00 pm

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