

TURTLES WITH ATTITUDES



Ill-tempered, misunderstood and by most standards ugly, snapping turtles fill an important role in our aquatic communities.

WRITTEN BY DAVID S. LEE PHOTOGRAPHED BY GEORGE GRALL

The October 1927 issue of *Outdoor Life* ran an essay entitled “Turtle Zones and Ducks.” It would be difficult to find an article that had more misinformation in a single page of text, but nonetheless, its premise is historically interesting. The storyline was that most native North American waterfowl nest north of the 40th parallel because their ducklings could not survive the hordes of hungry turtles that live in the latitudes to the south. The turtles were even blamed for keeping migratory ducks out of certain lakes during migration, and the author also accused the turtles of regularly raiding nests and eating eggs. Hunters wondered “why ducks will not use certain waters even when decoys are set in faultless array.”



Above: Female snappers nest in late spring, depositing clutches of eggs in holes they dig with their hind feet. Hatchlings emerge from the nest after about six weeks, often digging to the surface as a group. Opposite page: When confronted on land, snappers are extremely defensive and will strike out and bite perceived enemies such as this curious canine.

It was, of course, the snapping turtle that got the blame for eating the “tender ducklings” and scaring waterfowl off various bodies of water. The writer went on to state “that less than 5% [of the ducks] grow from shell to maturity” in the waters inhabited by turtles. I was surprised he had not used the term “infested” to strengthen his point.

Up through most of the early 1900s people classified wildlife into one of two broad categories — good and bad. The “good” species were things one could eat, or animals that preyed on the “bad” creatures. Agencies used the terms “beneficial” and “injurious” wildlife, as this made the categories sound absolutely official. The “bad” animals were vermin that ate our crops, preyed on game species or killed our domestic animals. There were some conflicts within this system: Snakes that ate rodents were still “bad,” yet rabbits and deer that ate our crops were nevertheless “good” because we could eat them. Snapping turtles, though edible, were vermin, because they were known to eat beneficial species such as hatchling ducks and game fish. And let’s not forget that they snap and bite, and that couldn’t be a good thing.

A 1928 typed manuscript I found in the files of the former U.S. Biological Survey put this into the context of the time. The report was titled “Data on the Snapper Crusade,” and the first line read, “It has always been a source of speculation as to what good purpose some living things served, and the snapping turtle was one of these.” One of the conclusions of this report was that skunks were actually beneficial after all because they ate turtle eggs and helped to keep the snapper populations in check. The negative opinion of snapping turtles even worked its way into the popular 1941 children’s book “Make Way for Ducklings,” by Robert McCloskey.

AN OBJECTIVE LOOK

I thought it would be interesting to take an objective look at the diets of snapping turtles as they were understood in the early 1900s, so I started to poke about. The U.S. Biological Survey (now the U.S. Fish and Wildlife Service) started tracking the food habits of snapping turtles. They examined untold numbers of turtle stomachs. As I looked through photocopies of a hundred or so original data cards from the 1920s and ’30s, it became clear that snappers have a varied diet.

In addition to the expected, including frogs, crayfish, freshwater clams, aquatic

insects and fish, there was a long list of unexpected food items — beavers, muskrats, grapes, freshwater sponges, acorns, blue crabs, spider egg cases, other turtles, salamanders, frog eggs, toads and water snakes. One surprise was a turtle with a stomach packed full of 17-year cicadas, suggesting that the snapper came on land to catch them. The majority of the stomachs contained bullheads, various species of crayfish and assorted plant material — rhizomes of grasses, duckweed, skunk cabbage and other wetland and aquatic vegetation, dead leaves of deciduous trees, filamentous green algae, and various seeds. And yes, there were a few ducks and other waterbirds, but very few considering all the stomach content cards I looked through (one black duck, one ruddy duck, one American coot and some feathers from a mallard).

Actually, these and similar investigations conducted by the U.S. Biological Survey were among the first to document the real roles various animals played in natural communities. Prior to these efforts, most natural history information was based on compilations of anecdotal observations and serendipitous reports, a system that tended to document isolated spectacular events, not the way animals typically made their day-to-day livings. The ecological concepts of the interrelationships of plant and animal communities had yet to be developed. Each living thing was viewed simply in terms of its direct relationship to us. At the time the term *conservation* was simply shorthand for “Let’s figure out how to locally maintain and produce more game species.”

Though the total list of snapping turtle food items is long, when all the various studies are compiled, it appears that fish, aquatic invertebrates and plant material make up the bulk of the diet, with plants constituting a surprising 36 to 60 percent of the volume and frequency. These turtles are also major carrion eaters, and I suspect a number of the larger food items catalogued from the stomachs of snappers were ones scavenged by the turtles. Studies by the staff at the N.C. Museum of Natural Sciences of the diets of North Carolina snappers showed similar food items are consumed, but interestingly no remains of waterfowl were reported.

One of the most surprising recent accounts of snapping turtle feeding behavior was a report of numbers of adult turtles emerging from a pond at night and crawling 150 feet onto someone’s front lawn to forage on pears



that had fallen to the ground. It was not just a turtle or two that did this; dozens of snappers were under the tree at any given time. Turtles would pursue others, trying to steal the pears from their mouths, and some waited in ambush at the water’s edge to intercept pear-toting individuals returning to the pond. One wise old female avoided all the chaos and simply remained under the tree eating the pears where she found them. Smaller turtles had trouble getting a good bite; the pears would pop out of their mouths and start rolling downhill, with the turtles in pursuit. A few turtles continued feeding after sunrise and found themselves competing with the local squirrels for the pears. Stranger yet, a friend in Iowa told me of watching with flashlights as snappers fed at night. The turtles would work their way into daphnia blooms, gulp mouthfuls of the souplike daphnia-laden water and then expel just the water back out through their nearly closed jaws. The turtles did this every night for over a week until the daphnia bloom subsided.

TRUTH AND DEMAND

OK, now that you know a little more about snappers, here is the real story behind the “turtle zone” and ducks. Yes, turtles eat ducklings and occasionally capture adult ducks, but the adult birds are arguably sick or injured ones. And keep in mind, largemouth bass are also known to eat ducklings, yet no one put them on the injurious wildlife list. There is a latitudinal line in North America above which there are very few turtles of any species. This is because at more northern latitudes the

hibernation period required for turtles does not allow them enough time to feed and grow in the summer, and the soil temperatures are too cool for successful egg incubation.

Many species of waterfowl migrate north of this line in the summer to nest and raise their young. The longer periods of daylight provide greater opportunity for feeding, allowing their young to grow and the ducks and geese to quickly build up needed fat reserves for migration. Yet keep in mind that mallards, black ducks, blue-winged teal, hooded mergansers and wood ducks all successfully nest and raise their young well into the “turtle zone,” and in recent decades the expansion of nesting Canada geese and semi-domestic mallards in North Carolina attests to the fact that snapping turtles and nesting waterfowl can coexist.

So they bite, steal baits and fish off lines and from nets. And snappers are known to occasionally bite horses’ noses and cows’ tongues when livestock come to drink. If you have a duck farm or a fish hatchery, you don’t want snapping turtles in your ponds. Nevertheless, snapping turtles are not Public Enemy No. 1. They are versatile predators and, as such, they are an important component of our aquatic systems. Predation has been shown to be a necessity for maintaining a balance in populations and for health and vigor of the prey species. Furthermore, snappers are efficient scavengers and play an important role in cleaning up dead and injured fish and ducks, which of course partly explains the villainous interpretation of data obtained from examination of stomach contents.

SNAPPING TURTLE FACTS

Scientific name: *Chelydra serpentina*

N.C. distribution: Statewide

Habitat: Nearly all permanent freshwater and brackish-water habitats

Length of shell: Adult females 8–14 inches, adult males 9–16 inches

Weight: 12–40 pounds

Record size for N.C.: 16.9 inches, 49.17 pounds

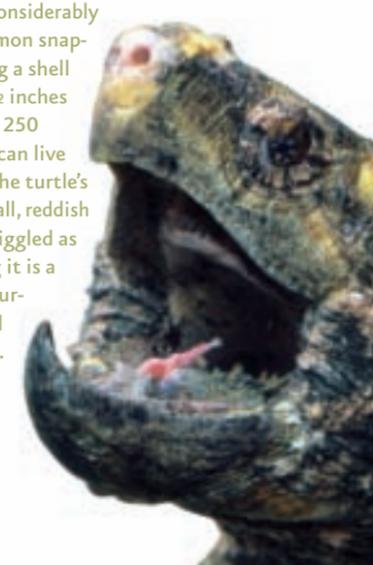
Record size for species: 19.5 inches, 75 pounds

Reproduction: Nest in early summer. Average clutch size about 25 eggs, but because females are long-lived, they may produce 500–1,000 eggs in a lifetime.

Age: Large adults average 30–40 years, but some individuals can live 50 years or more.

ALLIGATOR SNAPPERS

The alligator snapping turtle doesn’t live in North Carolina. It is a different species that is confined to rivers flowing into the Gulf of Mexico. As the largest freshwater turtle in North America, the alligator snapper is considerably larger than our common snapping turtle, attaining a shell length of up to 31 1/2 inches and weighing up to 250 pounds. Individuals can live 80 years or longer. The turtle’s tongue features a small, reddish appendage that is wiggled as a lure. Fish, thinking it is a worm, swim to the turtle’s open mouth and quickly become prey.





TYPES OF TURTLES

Snapping turtles are the single member of one of six families of turtles native to North Carolina. Of the 300 or so species of turtles and tortoises in the world, only four are true snapping turtles. They are confined to the New World with two of them living in North America, and two others occurring in Central America.

FAMILIES OF TURTLES NATIVE TO N.C.	NO. OF SPECIES IN N.C.	NO. OF SPECIES IN NORTH AMERICA	NO. OF SPECIES IN THE WORLD
SEA TURTLES	4	5	6
LEATHERBACK SEA TURTLES	1	1	1
SNAPPING TURTLES	1	2	4
MUD AND MASK TURTLES	4	10	24
N. AMERICAN POND TURTLES	10	32	48
SOFTSHELL TURTLES	1	3	30



Snapping turtles are simply doing their jobs, and because of their versatile appetites they contribute to the community on a number of levels. They are quite good at what they do.

It is actually surprising that snapping turtles were considered to be harmful species, as they once were widely consumed by people. Archeological research indicates that Americans fed on snapping turtles through much of the turtle's range. They were eaten in colonial America, and by the late 1800s there were major turtle butchering and distribution centers in various parts of the country. In the 1930s snapping turtles were bringing 10 cents a pound, and today they are going for 60 to 80 cents a pound live weight—perhaps, considering inflation, one of the few foods to go down in price over the decades. The commercial harvest of snapping turtles remains a big business in areas of the Midwest, but many states now control their harvest, with seasons, size limits, quotas and outright bans. In North Carolina licensed turtle collectors are allowed only 10 turtles a day and 100 per year.



With different states having different wildlife regulations, turtles caught in one state are often sold out of an adjacent state in order to mask their true origin. Last year a massive investigation involving undercover work in nine eastern states and one Canadian province documented the illegal sales of large numbers of protected reptiles and amphibians. Many of these violations involved snapping turtles. Thousands of snapping turtles were laundered

through a Louisiana turtle farm and then shipped illegally to China, where there is an increasing demand for turtle meat. Other snappers went to a meat processing plant in Maryland. In addition to violations of state and federal laws, there were also violations of the Lacey Act, as the snapper sales represented illegal interstate commerce. Altogether the illegal trafficking in turtles resulted in 14 felony charges, 11 misdemeanors and dozens of violations. It would appear that there has arisen quite a demand for our worthless injurious wildlife.

HUMAN AND REPTILE ADAPTATIONS

The rich fossil history of snapping turtles shows that the very species that we find in North Carolina farm ponds today was widespread in prehistoric times. The earliest fossils that have been found date back 5 to 9 million years, and the fossil record shows that related forms of snappers lived as far back as 76 million years ago. They are a primitive form of turtle, but the species' design was such that change was unnecessary, even in our ever-evolving world. Both the current and fossil shells of snapping turtles are quite different from those of other aquatic species. They are lighter in weight, and the lower part of the shell is less complete, leaving the legs and base of the tail totally exposed, even when the turtle tries to retreat into its shell. Although this provides less protection, it allows the turtle much more leg mobility, enhancing both



How Do Slow Snapping Turtles Catch Swift Fish? See *Nature's Ways*, page 39.

swimming and the turtle's ability to travel quickly over land.

Their long-term success probably lies more in their adaptability than in actual body design. Snapping turtles are able to remain under ice-covered waters for extended periods without breathing in air from the surface during hibernation. Like other turtles, snappers are capable of extracting dissolved oxygen from the water through special membranes in their throats and cloacas. They are extremely efficient at this, and unlike many of the other large aquatic turtles, they are capable of hibernating in swamps and marshes and other sites where the dissolved oxygen levels remain low. Because of this, snappers can survive farther north than many species of turtles and exploit habitats unavailable to others.

Due to their size, snappers are able to produce two to 10 times as many eggs per season as our other freshwater turtles. Typical clutch size is about 25 eggs, and in the Deep South some females may lay more than one clutch per year. Snappers also grow faster than most other turtles. Because of this combination of factors, their populations are less likely to collapse due to nest predation, road mortality and other issues that are detrimental to our native turtles. Furthermore, young snappers have some prehensile use of their tails, helping to hold them in place in currents, and the long tails act as a counterbalance and provide buoyancy, allowing floating turtles to poke their eyes above the surface with less expenditure of effort. Let's not overlook the tail's function as a rudder and its possible use for propulsion through the water. And talk about holding your breath, though they don't typically do this, laboratory studies of non-hibernation snappers in 50-degree water showed that they can survive submersion for over 14 days. Add to this their temperament. There is a reason they are named snapping turtles, and with their long flexible necks they are capable of swift snakelike defensive strikes. These are well-adapted creatures with an opportunistic diet, and that helps understand their 9-million-year success story.

Our attitudes have changed considerably since the early 1900s. The quote provided earlier was not unique. In my files are numerous similar articles that were written between 1916 and 1939 as editorials, and they appeared regularly in newspapers, popular outdoor hunting

and fishing magazines with names such as *Fins, Feathers, Fur*, and even in the professional game association bulletins of the time. The article in *Outdoor Life* that I cited at the beginning of this story ends with the thought "It may be possible some day to rid the country of turtles, but there is no remedy in sight now, in fact turtles very likely are increasing in numbers." So, by and large, it is refreshing to see how far we have advanced in our understanding of the natural world. Despite the concerns loudly expressed 60 to 90 years ago, I don't think we need to be too worried about global warming allowing turtles to expand their range further north in the future, eliminating ducks from the face of the earth.

Although many people still consider snappers vermin, fortunately today not everyone sees them that way. Last summer I came across a lady helping one to cross a highway safely. Her husband directed traffic while two children stood by her car as she prodded the back end of the large turtle with a rolled-up newspaper, encouraging it to move off the road. An approaching driver quickly positioned his pickup to help block one lane of oncoming cars. The turtle was confused. Traffic was a little backed up, but no one seemed to mind. A number of drivers gave thumbs-up signs as they edged past the commotion.

Once the snapper was safely on the shoulder of the road and could see the swamp was only 30 to 40 feet away, it started moving faster. With its neck fully extended, and the shell and long tail held high off the ground, the turtle quickly reached the water's edge. The joyful children high-fived and giggled as their parents herded them back into their car. Horns beeped in recognition of a job well done. Young faces pressed against back windows in attempts to get a glimpse of the turtle as the line of vehicles passed by. The female snapper, apparently having successfully completed her nesting chores, was back home, safe from the asphalt's inherent dangers for at least another year.

Good people; happy and content turtles. A half-century of wildlife public relations is paying off. The so-called vermin now at least have our respect. ♡

Longtime WINC contributor David S. Lee is director of the Tortoise Reserve, an international turtle conservation organization.



Opposite page: Predator predation on snapper nests is high, and typically the entire clutch is consumed once the nests are found. Humans are another predator of snappers (empty shells spread out on a dock), capturing them for food or accidentally killing them on the road (above). **Top two photos:** With strong jaws and a large, gaping mouth, the bite of an adult snapping turtle is something best to avoid. The snapper's long, flexible neck is useful when striking. It also allows them to easily flip over when overturned.