

# Can We Teach Proactive Turtle Conservation in Our Classrooms?



RECOMMENDATION

L. GEORGE SELLERS, DAVID S. LEE

## ABSTRACT

The opportunities for meaningful classroom learning activities are everywhere. In this article, we explain some of the little known, widespread, horrific issues associated with one aspect of the pet trade. By the time they reach high school age, many students have personally experienced the end result of the deplorable business practices on which the commercial exploitation of pet turtles has developed. We provide suggestions for student-based activities that will draw local attention and provide solutions to the issues. These, in turn, could lead to broader resolution of the problem.

**Key Words:** Red-eared slider; commercial exploitation; conservation; student projects.

Teachers get so caught up in all the mundane activities of dealing with the preparation of lesson plans, state subject standards, parent contacts, paperwork, after-school functions, and many other things that they forget that there are meaningful conservation activities with a hometown focus that can be incorporated into their lessons. Biology lessons are a lot more interesting for students when the students become involved in a proactive, long-term project. Such projects can provide opportunities for your students to collect and analyze data, to work in cooperative groups, to give oral reports, to use cross-curricular activities, and to experience real conservation efforts in a meaningful endeavor.

Here, we present an important ongoing issue that can easily be introduced through a variety of lessons to achieve results that capture the attention and interest of all students. In fact, it should be student centered, and the students can come up with their own local plan of attack. We have included some ideas for the classroom or a biology club. This is an opportunity for students to use their imagination and come up with additional scenarios.

## ○ Myrtle Turtles: The Shell Game

As we all look forward to spring, there is one tradition that needs to stop: the sale of hatchling turtles in tourist areas. There are federal regulations banning the sale of hatchling turtles to the public because, while any reptile can carry salmonella, “baby” turtles are often purchased as

children’s pets, and children, besides having weaker immune systems, often put their unwashed fingers in their mouths. Yet in late May and early June of 2009, a total of 96 hatchling red-eared sliders were confiscated from two street vendors who were illegally selling the turtles on the streets of Baltimore. A Maryland Natural Resource Police officer explained to a reporter that this is an ongoing problem. In addition to illegal turtles sold by Baltimore vendors in recent years, over 1000 hatchling red-eared sliders were confiscated in Oregon in 2008, and 200 hatchling sliders were confiscated from tourist stores in Myrtle Beach, South Carolina, in 2004.

Shortly after the Baltimore seizure, the turtles were turned over to a local turtle rescue. Most of the hatchlings had very soft shells, including some that would bend like tissue paper. Despite the fact that the turtles were given proper care after confiscation and were eating readily, there was 65% mortality among this group of turtles up to 6 months after confiscation. The remaining turtles are growing much slower than would be expected.

This is an all-too-common problem with turtles that are mass-produced for the pet trade, and their poor health and lack of vigor result directly from a common marketing strategy in which newly hatched turtles are forced into so-called artificial refrigerator “hibernation.” The practice is inhumane by any standard, and it is unfair to the purchaser as well as the animal. The key to understanding the turtles’ health issues is their size. These turtles, bred in massive southern “turtle farms,” were all red-eared sliders, a turtle

native to the Mississippi river system. Slider eggs hatch out in July and August. Thus, the turtles being sold on the streets of Baltimore in May were nearly a year old, yet in size they were within the normal range of fresh out-of-the egg hatchlings. Their weights told the real story. Newly hatched turtles typically weigh about 8.2 g each, but the weights of these individuals averaged only 12.9 grams even after feeding for several days after confiscation. The turtle farms and the distributors of the pet turtles are overrun with hatchlings by midsummer, and the market is soon saturated. So tens of thousands of the turtles are piled into waxed boxes and put under refrigeration with humidity levels much lower than they would be in true hibernation. In the case of the Baltimore turtles, they

*Biology lessons are a lot more interesting for students when the students become involved in a proactive, long-term project.*

were apparently maintained this way, depending on their actual hatch date, for 7–10 months.

Even at cool temperatures, when kept out of water for extended periods, the turtles slowly dehydrate. Because they are dormant, mortality is extremely low during refrigeration. Visible health issues are not noticeable until several weeks after the turtles are removed from the refrigerators. By then, they are in the hands of retail dealers – in this case, illegal ones – or the customers. Individual turtles can languish for months prior to succumbing to their failing health. The upper and lower shells of all the turtles from this seizure were soft, actually mushy, and flexible, unlike the hardened shells of healthy turtles of this size class. Under normal conditions in 1 year, even with several months of natural hibernation, these turtles should have nearly doubled in size.

In the mid-1990s, a number of the large commercial turtle farms were visited in an attempt to find hatchling-sized specimens of various species to photograph. The half dozen specimens of the types of freshwater turtles that were made available to photograph were being stored under refrigeration. In nearly every case, even while being fed and kept under ideal conditions, these hatchlings died within a few months after they were removed from cold storage. The few that managed to hang on did not grow and died within 6–8 months. The physiological damage of long-term dehydration seems to be irreversible.

Turtles shipped soon after hatching have a much better chance of survival, but even then the industry standard includes high shipping mortality as hundreds of hatchlings are packed into boxes that look like they were designed for pizzas and sent overnight by UPS. The freshly hatched turtles are still living off energy reserves absorbed from their egg yolks, and the turtle farms tell their retail customers that they can go for about 5 weeks without food. While this is true, with tens or even hundreds of thousands of turtles hatched at a single farm, no one is keeping track of when individual turtles actually hatched, so many of the

hatchlings are shipped long after the 5-week period. From the commercial aspect, these turtles are just low-end commodities, selling wholesale for 40–50 cents each when purchased in units of several hundred at a time. Frankly, carrots on the grocery store shelves get better treatment. The retail distributors can afford the high mortality rates because they are selling the turtles at \$10–15 a piece. The thinking is that most of them end up being flushed down a toilet in 6 months or so anyway because most of the retail customers have no idea of their husbandry needs. It's a disposable pet market, and it's a large one. Over 200,000 farmed pet turtles are sold in this country, and nearly 10 million are shipped to pet markets overseas, each year.

Red-eared sliders, as shown in Figure 1, are the most frequently sold turtle in the pet trade because of their bright colors and small size as hatchlings as well as their fecundity for the breeders. By the 1960s, there were over 150 turtle farms operating in the United States. In most cases, these farms were not self sufficient, and thousands of adult sliders were removed from the wild each year for breeding stock. This practice seriously depleted native populations in many areas of the South. In the mid-1970s, the U.S. Food and Drug Administration banned the U.S. sales of turtles under 4 inches, because they found that the turtles often transmitted salmonella to small children. This was, at first, devastating to the turtle farmers. Their solution was overseas sales and finding markets in the U.S. in states where the regulations were not well enforced. For almost every attempt at the subsequent regulation of the industry, there was a successful counter-move by the farms or the dealers. There was no regulation against giving the turtles away, so this led to the practice of selling the aquarium and other turtle paraphernalia to the customer, who receives a free turtle. When the European Union banned the importation of red-eared sliders, the turtle farmers circumvented this and cross-bred them with yellow-bellied sliders (an example is shown in Figure 2) and shipped their customized genetically designed young turtles to Europe.



**Figure 1.** Hatchling red-eared sliders and other species for sale at a herpetology show.



**Figure 2.** Intergrade between red-eared slider and yellow-bellied slider.

Florida recently stopped the sale of red-eared sliders because released pet turtles were becoming established and were competing with native species, so the turtle farms stocked up on different species to produce young turtles for the market. In time they, too, will become problems. Baltimore, of course, is not the only city to have street vendors selling illegal pet turtles to the public. Health officials in Philadelphia issued a health warning in October 2008 when salmonella cases spiked in the city from street vendors selling hatchling sliders. And let's not overlook direct online sales; the trade in wildlife over the Internet has become a huge industry in the past two decades.

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. Most of the issues involved animals for the pet market, but the investigation also uncovered turtles being sold for food. Thousands of native turtles were laundered through a Louisiana turtle farm and then shipped illegally to China, where there is an increasing demand for turtle meat. Others went directly to a meat processing plant on the eastern shore of Maryland. In addition to state and federal wildlife laws, there were also violations of the Lacey Act, as the sales represented illegal interstate commerce. Altogether the illegal trafficking in turtles resulted in 14 felonies, 11 misdemeanors, and dozens of violations.

As recently as mid-December 2009, U.S. Global Exotics, a distributor of exotic pet turtles and other animals, was raided and 27,000 creatures, over 4000 of them dead or dying, were seized from their Arlington, Texas, warehouse. The reptiles and other animals that were confiscated were taken because of the deplorable conditions in which they were kept. One of the examples cited was boxes of live hatchling sliders intended for the pet market that had sat for weeks unopened on shipping-room floors.

The owners of the Texas animal warehouse had an interesting defense. They pointed out that they were operating within the standards of the exotic pet industry. One witness for the defense noted a study documenting that often as many as 70% of the animals die before reaching their ultimate purchaser. Such informative statements, while sad, are unfortunately probably true. Perhaps the oddest aspect of all this is that it is the people who love animals and want to own a little turtle named Myrtle or Shelly that are directly driving this disposable “living/dead” pet marketing scheme.

We want to suggest some classroom activities that can help foster concern for turtles – starting with students and extending to the larger community.

## ○ Suggested Shell Game Classroom/ Outreach Activities

An excited student walks into your biology classroom early in the morning before school and proudly states that he has brought you something. You notice that he is carrying a bucket, and you can hear something moving around in it. The student's enthusiasm is very refreshing, so you get up, look into the bucket, and see that he has captured a box turtle. What are you going to do? This is a real “teachable moment” that can have long-lasting effects on both the student and the turtle. You certainly do not want to destroy the enthusiasm of the student, but you also want to teach values and ethics regarding our native wildlife. Again, what are you going to do? We will address that question with suggestions on what to do with your students and with background information on the general plight of turtles in this world.

We suggest that you thank the student for bringing in the specimen and, at the same time, explain to him about the plight of turtles. The student should understand that box turtles, when taken into captivity, will spend the rest of their lives trying to get back “home.” Box turtles (one is shown in Figure 3) have a very strong homing instinct, and they exhibit strong territorial behavior. In captivity they will also be susceptible to diseases that they are not used to being around. Tell your student that during his class he can show the box turtle to his classmates, and explain that the turtle will have to be taken back home after school and released in the exact same location where he found it. You can explain to your students that they should leave nature in the wild, and that the best way to bring specimens into the classroom is with a digital camera.

Now that you have captured the attention of your students, you need to make the most of this opportunity. How? There are several things that can be done. If you have a biology club (or any type of science club), the club can take the turtles' plight on as a long-term project – the exact same thing can also be done in your classrooms. If you do not have a biology club, you should form a BioClub at your school – check out NABT.org, click on BioClub on the left-hand side, and see how easy it is to form one. Meet with the officers of the club and discuss with them



**Figure 3.** Box turtle in South Carolina.

how serious a problem it is for turtles. Tell them that at the next club meeting you want them to present the problem to the group, which means they will have to do some research on the topic. Explain that the club is going to tackle this as an ongoing community outreach activity, and form appropriate committees with assigned duties.

Once the students have done their background work, there are other things that they can do. For example, they should visit their local pet stores, talk to the owners, and inform them about the inhumane treatment of turtles in the pet trade. They can write letters to the owners of pet chain stores, informing them that they will not buy turtles from them and that they will inform their friends to do the same. The students can contact the local newspaper to see if they can get an article in the paper about what they are doing to help put a stop to the inhumane treatment and needless death of turtles on a daily basis in this country. Of course they should write a story for their own school newspaper.

This is a great opportunity to get your students tackling some real issues in their state and nationally. For example, it is illegal for anyone in the United States to sell turtles less than 4 inches long. Guess what? People are selling illegal turtles in a lot of places. In South Carolina it is very common to find them for sale at flea markets and in pet stores. So what can you and your students do about this? Why not write to your state and federal representatives? BioClub members can compose a letter complaining about the sale of illegal turtles, sign it, and send it to the South Carolina Department of Natural Resources, the state representatives, and the federal representatives. What a great way for the students to learn how to take an active stand. It shows them how to voice a complaint in the correct way.

A good place to visit is a reptile show that is held in your state. Before you encourage students to attend such a show, they should learn the state herp laws so that they will have a better idea of what is legal and what is not. In South Carolina, there are several shows each year. Students like to attend these gatherings, and it is a great place for them to view a lot of illegal selling of turtles. Usually, the students are totally mesmerized the first time that they attend such an event. They have never seen so many herps in one place, nor have they seen so many different types of herps in one setting. Have the students see if they can find any juvenile turtles for sale and take pictures of the turtles to document what they have seen. We have found that the vendors do not mind people snapping pictures; sometimes they will even pose with their turtles for you. This type of activity makes for a great show-and-tell at your next club meeting or even during class. This type of documentation will come in handy at a later date when the students are protesting the sale of these animals. It is not our suggestion that the student accuse the vendors of illegally selling turtles. However, we have been known to say a few things to them. Last year, one of us asked a man where he obtained the bin of hatchling box turtles that were a lot less than 4 inches in length. He would not answer the question, so he was asked if it was legal for him to sell such specimens. He did not answer that inquiry either. A return visit about 20 minutes later found that the bin of juvenile turtles was nowhere in sight.

It is not unheard-of to go into a pet store and see a sign that reads something like "Free Turtle with the Purchase of a Turtle Habitat." This is a sneaky way to get around the law, but it is not a good thing to do. Instruct students about this "shady dealing" and encourage them to see if they can find places that are doing just that. This makes for a wonderful opportunity for the students to write letters to the pet store owners.

Once familiar with the concerns of the local pet markets, students will be interested in other aspects of turtles' conservation needs – habitat

destruction, international pet and food markets, and pollution. This could be on regional, state, or international levels. The students can make posters to put in the halls and classrooms of the school depicting how the pet trade is abusing turtles. They can research their own communities to see if there is any destruction of turtle habitat taking place. Contact the state Department of Natural Resources and request that a speaker come to one of your meetings and talk about turtles in your state. Check with the biology departments of the colleges in your state; often they will be more than happy to send a guest speaker to one of your meetings. Perhaps there is a member of a state or local herpetology group that would be willing to talk to your students, and your students could attend one of their meetings. Also, there will probably be some type of wildlife rescue/rehab facility in your state or a neighboring state that would send a speaker and/or let the students volunteer to help with their program.

Another good thing to do in your classroom is to have students establish a bulletin board that shows the concerns of turtles in your state. The bulletin board could contain pictures of all turtles found in your state, common and scientific names, pictures, and a map showing the geographic range in the state. It should also have information about the illegal selling of turtles and what people can do to help stop that practice.

Once the students have pictures of turtles for sale at herp shows, flea markets, and other places, you should have them present their findings at some local meetings in their town. Have the students make a PowerPoint presentation that includes the legalities of turtle sales, the different types of turtles in their state, their pictures documenting such activities, including pictures depicting turtles being held inhumanely, and suggestions for what can be done to stop these harmful practices. The students can approach the public library and ask if they can give a public presentation on a weekend or a night after school. Contact a local civic group to see if the students can get on their meeting agenda to give their presentation. These groups usually welcome presentations by students, and it is a great way for the students to take an active stand to get their point across.

Students like to use the Internet, so have them do a Google search for turtles for sale. See if they find any sites that are selling juvenile turtles. When they find them, request that the company or individual forward pictures to them so that they can see the choices. Establish a computer file to store all that they can find. Eventually, enough sites will be located to send to enforcement agencies in an attempt to prevent such listings in the future. These can also be posted on the bulletin board that the students have made to alert other students and faculty of the illegal selling of juvenile turtles.

In addition to searching the Internet, bring some recent issues of a herp magazine (like *Reptiles*) to your classroom and have the students look through them to find businesses that sell turtles. They can cut out the ads, paste them on a sheet of notebook paper, and write letters to respond to the turtle ads. The students should request a current price list of the species that are for sale and pictures of them and ask whether they were captive bred or wild caught, as well as any other information that they would like to know. This will help to acquaint the students with what is going on in the herp trade. They can make a list of herp businesses that abide by the 4-inch law. This would be a perfect opportunity to write the editor of the magazine and ask why such businesses are being supported.

One of our BioClubs spent a morning at the local county library reading a recently published book, *Stormy's Return*, to the children in attendance. This is a wonderful nonfiction book about a turtle that spends a lot of time trying to find its way back home. The students read

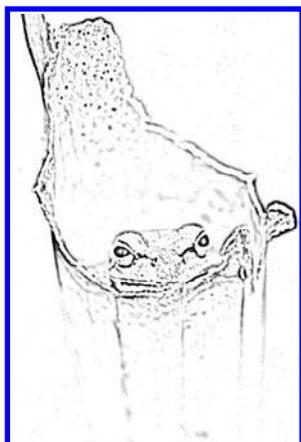


**Figure 4.** BioClub students presenting a book to a student.

excerpts from the book, and they gave away two autographed copies to two lucky kids who came for the program (see Figure 4). As a result, the county library purchased several copies of the book for all of its branches. Part of the students' presentation included lessons on conservation concerns for turtles, and reasons for not bothering turtles in the wild. This made a huge impact on these children, and they now understand why they are to observe and enjoy wildlife in their natural surroundings. The BioClub students also encouraged the children to only obtain pets that

have been captive bred and to never release those animals into the wild. This is a unique way to get students *involved* in real science that has the potential to make a difference.

L. GEORGE SELLERS is a biology teacher at Ware Shoals High School, Ware Shoals, SC 29692; e-mail: georges1524@gmail.com. DAVID S. LEE is Director of The Tortoise Reserve, White Lake, NC 28337; e-mail: torresinc@aol.com.



**For Information:**  
**bioscol@clemsun.edu**  
**864-656-2153**



## Online MS in Biology

### Master of Science (Non-thesis option)

Online Master's Degree in Biological Sciences for K-12 teachers and others interested in biological sciences

- **All courses offered online**
- **Reduced tuition**
- **30 semester hours of graduate credits**
- **Open to degree and non-degree seeking students**
- **Research project involving your classroom**
- **Up to 12 credits of graduate courses below the 800-level may count toward the degree requirements**

The courses offered in the **BIO SC ONLINE** Program are fully accredited through Clemson University by the Southern Association of Colleges and Schools (SACS). CU is an equal opportunity employer