

A Perspective on Box Turtle Derbies

by

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Turtle derbies have a long history in many communities in eastern, mid-western, and southern states, often in conjunction with Fourth of July celebrations. I understand the value of traditional celebrations to families; many people feel that turtle races are a wonderful form of harmless family entertainment. However, I would like to discuss some aspects of turtle derbies that people may not be aware of such as the health hazards they pose to humans and turtles, the enormous amount of distress they cause to the animals, the potential contribution of these races to the decline of our native box turtle populations, and the ecological role of these animals.

Hazard to People

Derbies pose a potential health hazard to participants and anyone else who contacts a turtle or surfaces it has touched. Turtles as well as other reptiles carry *Salmonella* bacteria that can make humans sick. It is impossible to tell if a turtle is harboring *Salmonella* simply by looking at it.

Following the advice provided by the Centers for Disease Control and Prevention¹ the Calvert County Health Department states on its website, “Children younger than 5 years of age and immunocompromised persons of any age should avoid contact with reptiles [i.e., turtles, lizards, snakes, crocodilians] and any items that have been in contact with [these animals].²



Child at a Maryland derby holding her pet red-eared slider. These turtles commonly carry *Salmonella*.

Symptoms of salmonellosis in humans include abdominal pain, cramps, diarrhea, dysentery, nausea, vomiting, and fever. Serious complications, such as meningitis or brain abscesses have occurred in cases of salmonellosis in young children.³

Another serious bacteria transmitted by turtles is *Campylobacter*. This bacterium can cause serious gastroenteritis, diarrhea, abdominal cramps, nausea, vomiting and fever. In one case, a father, 9 month old infant and 2 year old child became ill with a *Campylobacter* infection traced to their pet box

turtle (originally a wild turtle). The turtle was not affected by the bacteria, but served as a reservoir, periodically shedding it in its feces.⁴

To reduce the risk of contacting these infections, it is recommended that you wash your hands for two minutes with warm, soapy water and rinse well, or minimally rub the hands well for 30 seconds with antibacterial gel after touching a turtle or anything the turtle has touched. This can be difficult to carry out at a turtle derby with lots of young children dashing around touching each other and rubbing their contaminated hands on their clothes and other surfaces.

Adult male box turtles have long sharp hind claws that can inflict painful deep scratches. If a turtle scratches or bites a family member and breaks the skin, the wound site can become a potential site for infection and should be scrubbed with plenty of warm, soapy water right away. (I know this from personal experience in working with turtles for the past two decades.) Properly washing a wound can be difficult to do at a derby. Also, box turtles can close their shell on a finger causing a *very* painful bruise.

Hazards to Turtles

Derbies are physiologically stressful on turtles. Research has shown that handling turtles causes elevated plasma corticosterone (stress hormone) levels leading to immune suppression and negative affects on various metabolic processes, tachycardia (an increase in heart rate) and a behaviorally induced rise in body temperature.^{5,6} Derbies can be especially difficult for breeding age animals (which make up the bulk of the animals raced). Derbies generally coincide with the season in which turtles are undergoing physiological changes associated with reproductive activity which are themselves immune-suppressing.⁵

At many of the turtle derbies I have witnessed, I have seen turtles with respiratory infections and middle ear infections. It is always possible that the illness is due to a transmissible infection, and animals may infect each other when brought into close contact, even briefly.⁷ In the summer of 2008, the first two cases of a serious ranavirus in wild box turtles was discovered in Maryland.⁸ The mode of transmission of this virus has not been firmly established but may involve animal to animal contact in some cases. It strikes quickly and is untreatable. It has already killed many wild and captive turtles and tortoises in other States.^{9,10}



Wild-caught eastern box turtle with severe bilateral ear abscesses and cellulitis brought to a Maryland derby for racing.

Different species and sizes of turtles are mixed in many races, increasing the chance for disease transmission and injury of smaller animals.



This sick Russian tortoise was entered in a local derby alongside box turtles. Wild-caught Russian tortoises are common carriers of a highly transmissible herpes virus and lung parasites.

Turtles are sometimes painted or covered with decals for a derby. This can be detrimental to the turtle because it makes the animal more obvious and potentially vulnerable to predation once released. Moreover, paint can constrict the growth plates on the shell of young turtles, causing serious shell deformities; it can put the turtles at risk of poisoning from chemicals in the paint. Most people don't realize that the shell is comprised of *living* bone that can absorb and be affected by some chemicals through the keratin layers that cover it. Keratin is the same material that makes up human hair and nails.



Box turtles painted for a derby. The turtle on the right is painted on both the shell and head with finger nail polish. The participant had planned to remove it from the skin and shell with caustic nail polish remover after the race.

Derbies in which animals are released into the wild after the event represent a major avenue by which disease may be introduced into a wild population. Turtles brought from different geographic

areas for a derby may serve as a reservoir for a pathogen to which they themselves are immune but which can be transmitted to a vulnerable population. This is one reason why the Maryland DNR strictly controls the permits it issues as to where and under what conditions turtles may be released into the wild. (See **Legal Considerations** below.)



A family brought this group of eastern box turtle (over the legal limit) they had been collecting for a derby *for several weeks*. Fecal matter is smeared all over the interior of the cooler. There is no substrate to absorb waste.

A Lost Opportunity to Appreciate Turtles on Their Own Terms

Children who participate in derbies fail to see turtles as the sentient creatures they are. At derbies these animals are frightened and upset at having been removed from their usual routine, carted around, extensively handled, and put into a new and exposed world. They run because they are trying to escape a situation that may be physically painful (too hot) and which they perceive as leaving them vulnerable to predation. Whatever “bonding” is occurring between a child and his or her turtle is one-sided and does not teach the child how to properly interact with and respect the animal and its needs.

There is *nothing* about turtle derbies that is positive from the view point of a turtle. *These events are cruel.* For example:

1. From the turtle’s perspective, being gripped in a human hand is no different that being held in the mouth of a predator – a very stressful event!
2. At derbies, I have seen turtles held upside down, dropped, spun or otherwise handled like rocks. Few people outside the animal science field probably realize that the internal organs do not move as quickly as the shell, and that rapid motion in a person’s hand can be painful if not deadly in causing the GI tract to permanently twist.
3. Derbies are most frequently conducted in the heat of summer, when there is the real risk of overheating. Although box turtles naturally bask in the sun for short periods, they are *moderate temperature-loving* and they know when to retreat to the cool water or shade to prevent overheating and maintain an optimal internal body temperature. Also, when turtles

are forced to stand on hot surfaces (e.g. outdoor carpeting, asphalt, cement, sand) that may reach temperatures of 130 - 140 F on a sunny day, they can burn their feet (sometimes below the outer layer of skin so it remains initially invisible); very small turtles can quickly suffer thermal shock.

4. Turtles are rarely brought to derbies properly packaged with fluffy bedding to absorb wastes, reduce the risk of injury and allow turtles to burrow down and feel less vulnerable. Some are brought in standing water which can cause aspiration pneumonia or drowning if water is inhaled. (I have seen box turtles brought in such deep water their legs could not touch bottom; even aquatic turtles can drown when transported in this manor and they often are!)

Legal Considerations

In Maryland, there are strict regulations regarding the possession of reptiles (including turtles). They are outlined in COMAR (the Code of Maryland Regulations), Chapter 11.¹¹ Among the regulations that are routinely broken at turtle derbies are:

1. No turtle of any species under four inches in shell length can be displayed at an event open to the public.
2. An individual may collect and possess only one wild box turtle in the State of Maryland no matter how briefly (such as for a derby). The same applies to the Eastern Painted Turtle, Midland Painted Turtle, Eastern Mud Turtle, Stinkpot and Northern Red-Bellied Turtle. Spotted turtles, wood turtles and diamondback turtles can not be collected from the wild by the general public. For further information on the regulations, see www.dnr.state.md.us/wildlife; go to "Permits and Licenses" then "Wildlife and Plant Permits," then "Captive Reptile & Amphibian Permit."
3. Wild turtles of any species that have contact with another reptile (including turtles) cannot be legally released back into the wild without the explicit permission of the Maryland DNR, Division of Wildlife & Heritage.



Undersized, wild-caught eastern painted turtle (left) and eastern box turtle (right) at a derby in Maryland.



Illegally held species (wood turtle) entered in a Maryland turtle derby.

Declining Population

Box turtles populations are declining throughout many parts of their range, most especially in the northeast and Mid-Atlantic region due largely to habitat lost and fragmentation and collisions with vehicles. In Maryland, the Eastern Box Turtle is now listed as a “Species of Greatest Conservation Need.”¹²

Wild box turtles live their entire life of 50-plus years in defined, overlapping “home ranges” generally 2 -12 acres in size.¹³ Research^{14, 15, 16} has shown that whenever box turtles are not returned to their home range they are at an increased risk of death as they attempt to return home. They may be hit by cars as they cross roads, wander aimlessly and lose valuable weight, and suffer stress-induced illness and death in a foreign environment. Many don’t make it if displaced by more than a short distance. This poses a significant threat to the long-term survival of local populations of box turtles. Turtle derbies often use wild box turtles with no guarantee that the turtles will be returned to their home range.

Even removing or moving just a few turtles a year from their home range can have a substantial impact on a local population. In fact, remove just 2% (two out of 100 adults) a year with no influx of new turtles (few box turtles leave their home range; none probably do as adults) and the population will slowly spiral toward extinction.¹⁷ The reason is tied to the life history characteristics of this animal. It is slow to mature (it takes 10 –12 years) and experiences very high (nearly 100%) mortality of eggs and young juveniles due to predation. As a result, adults must live very long lives to produce enough eggs so at least a few young survive, grow and bear young themselves.¹⁸ In other words, every adult turtle is vital to the future of the population.

The Role of Box Turtles in the Environment

The loss of the box turtle population could affect our forest community. These animals play an important role in the dispersal of some native plant seeds in their feces. Examples include pokeweed, black cherry, mayapple, summer grape, huckleberry, and jack in the pulpit. In some cases, passage through the turtle’s gut improves germination rates.¹⁸ Box turtles also play an important role in the dispersal of some fungal spores (mushrooms and toadstools).¹⁹

An Alternative to Box Turtle Races

As more communities are realizing the negative impacts of turtle and tortoise derbies throughout the United States, a new wave of “turtle celebrations” are springing up to replace them. These events bring families together for a morning of fun centered on turtles but without racing the animals. Activities may include face painting with a turtle theme, races in which children wear green pillows

on their backs and run to the finish line in a quest for a trophy or ribbon, story telling about turtles, presentations by local reptile clubs, and the sale of turtle-related items.

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