

Diet of Captive Three-toed Box Turtles and the Potential to Distribute Seeds of American Ginseng

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The turtles

In the years 1999 and 2001 we acquired two female three-toed box turtles (*Terrapene carolina triunguis*) at a local pet store and were told at the time the turtles had been caught in Missouri. According to T. R. Johnson (2000), Missouri citizens often capture three-toed box turtles. This origin is likely more so because both turtles have a great fondness for cantaloupe (Dodd, 2001). We speculate that both may have been captured on one or two of several Missouri cantaloupe farms. Alternatively, they may also have been locally captured because many three-toed box turtles have been released across the state of Iowa (LeClere, 2013).

Both of us have utilized the turtles to help as demonstrations in science classes or in literature classes to illustrate fictional turtles presented in such works as John Steinbeck's *Grapes of Wrath* and Joseph Bruchac and Jonathan London's *Thirteen Moons on Turtle's Back: A Native American Year of Moons*.

General plant diet

We have over the past 18 years tried a few native and store-purchased domesticated plant items for these turtles. One of the first plant items offered that both turtles consumed was apple (*Malus domestica*). Since many apples in orchards may fall to the ground upon ripeness, it is conceivable that both turtles had access in the past to such an orchard.

Another plant for which box turtles are documented as consumers is Mayapple (*Podophyllum peltatum*) (Rust and Roth, 1981). Mayapple is a common component of deciduous woodlands in the Midwest and SJ has several clones growing in his yard in Iowa. While this provides easy access to and ready availability of fruits, neither turtle showed any curiosity toward them.

While in northeastern Kansas in the early 1990s, SJ observed ornate box turtles zealously eating wild strawberries (*Fragaria virginica*) and later found a turtle in a neighbor's flowerbed that responded very positively to cultivated strawberries. So, we thought that since strawberry is a fairly common component of Midwestern forest edge habitat and because Allard (1935) suggests they are part of the eastern box turtle's diet, perhaps these three-toed box turtles might enjoy them as well. Again, neither showed the slightest interest.

Another commonly available forest edge species may be any of several species of blueberry (*Vaccinium* sp.), but neither turtle partook of these. It may be that these rejections show some degree of food preferences formed in the earlier lives of these turtles.

There are also a few dietary distinctions between the turtles.

While box turtle 2001 readily consumes store-purchased blackberries, box turtle 1999 shows no interest in them. Also, box turtle 2001 enjoys chunks of store-bought watermelon while box turtle 1999 again showed no affinity.

Both turtles commonly eat cantaloupe and various cultivars of lettuce. So, the plant diet in general seems to diverge from wild foods and instead embraces domesticated plants.

Then in 2015, SJ decided to introduce fruits of American ginseng (*Panax quinquefolius*) to the turtles. SJ purchased several American ginseng plants from an on-line nursery in 2010. All but one died, but the remaining one has flowered or attempted to flower every year. This plant produces sterile bright red fruits in mid-to-late summer. SJ noticed that often these bright red fruits fall to the ground within the reach of a box turtle so he collected several and presented them to the turtles. Box turtle 1999 showed no interest but immediately box turtle 2001 approached the fruits, placed her nose on one in the manner described in Dodd (2001), and proceeded to consume all of the fruits. SJ wanted to repeat this feeding trial the following year but in 2016 the ginseng stem was cropped most likely by a passing deer. In 2017 the aerial stem was broken and swept away by strong winds.

This recognition of and affinity for American ginseng fruits may indicate that box turtle 2001 had past experience with American ginseng. Since the range of American ginseng has considerable overlap with the range of the three-toed box turtle, it may be likely that in a natural forest setting that three-toed box turtles might distribute seeds of American ginseng.

American ginseng may receive long-distance dispersal by deer as does another forest understory herb, white trillium (*Trillium grandiflorum*) (Vellund et al., 2003), but among reptiles, box turtles are known seed dispersers and may retain seeds in their digestive tract for as long as 70 days (Stiles, 1989).



Box turtle 2001 consuming a ginseng fruit.

However, the fruit consumption of box turtle 2001 could also indicate that perhaps she may have had access to a ginseng farm

and thus all the dietary preferences of these turtles were derived from an almost complete access to cultivated plant sources.

Literature Cited

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Minutes of the CHS Board Meeting, April 20, 2018

Rich Crowley called the meeting to order at 7:44 P.M. Board members John Archer, Dan Bavirsha, Lawrence Huddleston, Zac Oomens and Jessica Wadleigh were absent. Minutes of the March 16 board meeting were read and accepted with changes.

Officers' Reports

Treasurer: In the absence of John Archer, Andy Malawy read through the financial reports.

Media secretary: Kim Klisiak plans to move the CHS website to a new host. A list of this year's grant awards is now up on the website. There is also a link to the CHS library database, which allows searching and browsing. Kim will be creating new business-card-size invitations to attend CHS meetings.

Membership secretary: Mike Dloogatch read the list of expiring memberships. Thanks to ReptileFest there was a net increase in members this month, including renewals from several former members.

Sergeant-at-arms: There were 40 in attendance at the March 28 meeting.

Committee Reports

ReptileFest: Frank Sladek did a great job. Frank praised John Archer as being a great mentor. Attendance was the second best ever, approximately 6,600. Online ticket sales through

Eventbrite.com were well worth it—2,200 sold. The Geographic Society of Chicago was very pleased with their participation. High school volunteers did a great job as usual.

Adoptions: Linda Malawy reported that homes were found for most of the animals up for adoption at 'Fest.

Junior Herpers: Frank Sladek reported that attendance was about 40 at the April meeting, which dealt with how to handle reptiles safely at 'Fest. May meeting will be Show & Tell. A field trip is possible for June.

Old Business

Because of two unfortunate incidents at shows over the past year, we have stepped up on protocol, including written incident reports, show guidelines and first-aid kits at shows.

New Business

Mike Dloogatch moved that the CHS reimburse Bob Bavirsha for any and all legal expenses arising from the incident this past January at the Chicagoland Fishing, Travel and Outdoor Expo. Mike Scott seconded. The motion passed unanimously.

The meeting adjourned at 10:00 P.M.

Respectfully submitted by recording secretary Gail Oomens