

# T<sup>4</sup>

## The Tuckaway Turtle Tally

In 2020 Janie & Ric started a box turtle project on the 10.85 acres we live on just north of Cookeville city limits. Thus far we have identified 69 individuals! They can be identified by their shell patterns, which, like human fingerprints, are unique. At first we photographed the carapaces, taking direct vertical views, plus right and left side views, and giving each box turtle an ID number for our records, e.g. BT-11, the ID for the 11<sup>th</sup> individual we found. Later we discovered that the plastrons are also uniquely patterned and much easier to use for ID purposes because: a) the patterns are simpler (sometimes a very complex carapace pattern may superficially resemble another complex carapace pattern) and therefore easier to distinguish one from another, and also b) because the flatter plastrons are much easier to photograph in their entirety without lens distortion than the high domed carapaces.

In taking the photos we try to get some images before the BTs get disturbed by our presence and withdraw into their shells. The photos are inherently more interesting when a BT has its head out, is looking around alertly or maybe eating a mushroom, and with its legs extended because it has been or still is on the move. But equally important, the coloration or lack of coloration on the head and forelimbs is useful information to have for IDing and sexing the BTs.

Apparently there is no 100% surefire way to sex BTs just by looking at them. But there is a suite of characteristics commonly exhibited by males: red or reddish eyes; head and forelimbs marked with bright yellow or orange markings; trailing marginal scutes flared (they curve from vertical to flattened towards the ground); and, perhaps most importantly of all, a distinct depression in the middle of the plastron. Some males show all these features; some show only some of them. BT-11, for example, has very light colored, almost white eyes (which earned him his nickname "The Pale-Eyed Male"). Females are more likely to have brownish eyes, though we have seen some BTs with reddish eyes that otherwise had female characteristics. Females are likely to lack bright coloration on the head and forelimbs. And females are unlikely to have strongly flaring trailing scutes or prominently indented plastrons. Other visual male/female characteristics are reported in textbooks, but so far we have found them too subtle to be of use.



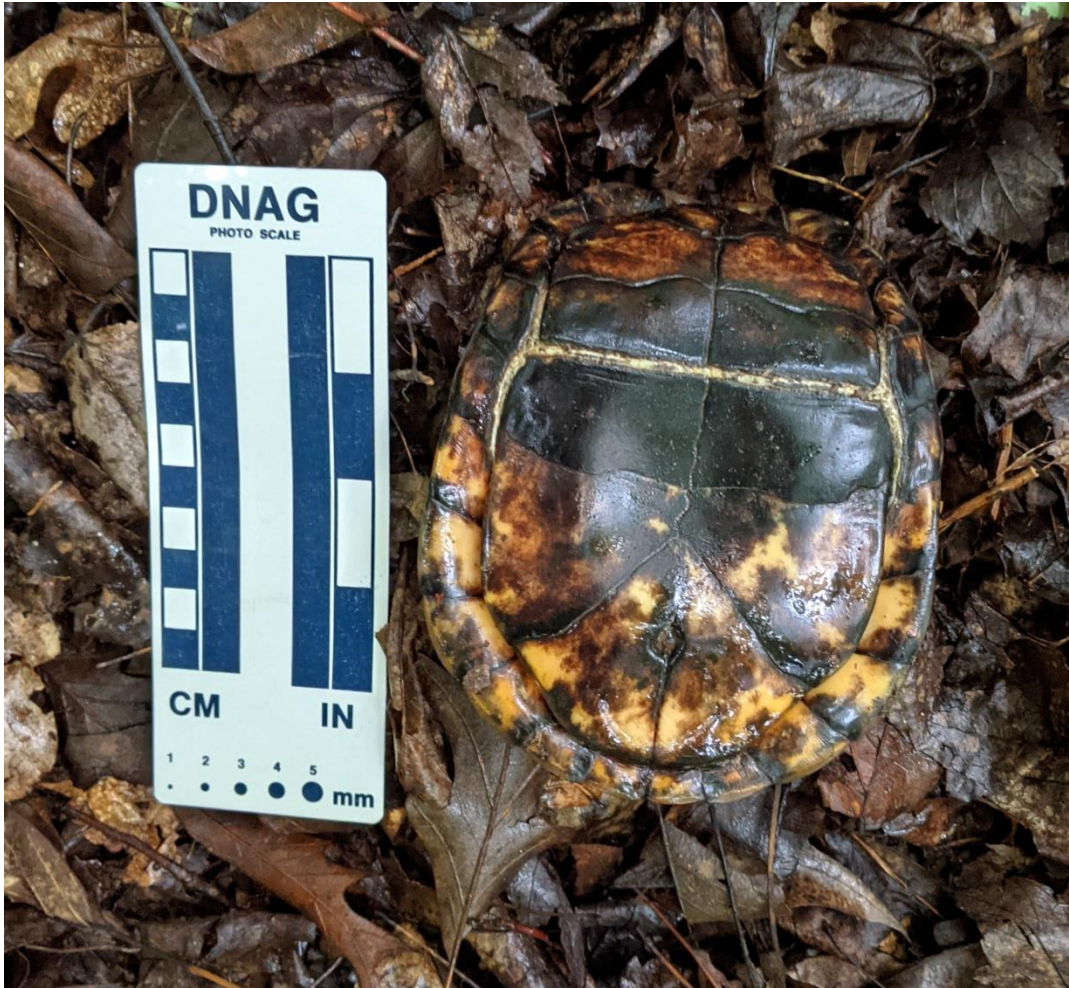
B-10 The "Pale-Eyed Male" Colorful forelimbs are typical of males; pale eyes are not.

The prominent indentation of the plastron that males often have is an aid to mating. This indentation allows the male to snuggle in closer to the dome of the female's carapace. The flared trailing scutes of the male may also be an adaption for mating, perhaps helping the male remain steady when he is tilted up at a high angle mounting the female.

One thing we don't know is whether or not the sex-linked characteristics are present in small, young BTs, or if they are only secondary sex characteristics developed after turtle puberty. I suspect the latter is the case, and if so, then some of the smaller BTs we have tentatively designated females might well be males that have not yet developed their male sex linked characteristics.

In addition to IDing, sexing and photographing the BTs we find on our property, we record the date, time and place of each sighting, and something about the BT's activity if noteworthy. For example, we once found BT-25 in our mower shed chowing down on the remains of a cottontail rabbit that some predator had killed (we would not suggest that a BT could *catch* a rabbit!).





BT-41 A male with a prominently indented plastron, as well as a unique plastron coloration pattern, and a highly distinctive and unusual hole between its two caudal plastron plates.

Over the four years of our survey, 2020-21-22-23, we have seen most of our BTs more than once. Some we have seen many times, enough so that we believe we have been able to define their home territories. BT-11, the only BT we have seen all four years, is one that we think has revealed his home territory pretty accurately. According to published information, BTs typically do have a home territory. But not all do. Some are transient, which may be why we have only seen some BTs a single time.

We have read that BTs have a good sense of direction. And BT-29 demonstrated this for us. He (a big, very handsome male we have nicknamed “Old Yellowhead”) seems to have a home territory on the south side of a steep-walled gully that cuts across our property. He had been seen in this supposed home territory numerous times in 2021 & 22. On May 19, 2022 he was seen in his home range; four days later he showed up on the north side of the deep and steep gully, underneath a big mulberry tree where he was eating fallen ripe mulberries. He stayed here feasting on

the bounty almost a month, when on June 21<sup>st</sup> he disappeared. On July 5<sup>th</sup> he was found once again back in his home range on the south side of the gully. Though the straight line distance was only two or three hundred feet, he no doubt had to navigate a far more circuitous route to cross the deep gully, not once, but twice! But after the mulberry crop was done, he went back home.



BT-29 "Old Yellowhead" feasting on mulberries. Note red eye and colorful head and forelimbs typical of males.

BTW, because BTs have a good sense of direction, when a BT is headed somewhere, it is most probably going that way because it knows where it wants to go. SO...when a would-be Good Samaritan stops on a road to get a BT out of danger, the BT should always be taken to the side of the road it was already heading towards. If you set it down on the side it came from, there is a good chance that after you leave, it will start back across the road in the direction it was headed when you found it. And you will have increased, rather than decreased, the likelihood of it being run over and killed.

We have also read that BTs try to avoid steep slopes, supposedly because of the danger of rolling over and winding up trapped helplessly upside-down...having "turned turtle" as they say. This may well be true. But definitely true is that unless the



topography really traps them somehow, BTs can right themselves, flipping over from upside-down to rightside-up. Here's how they do it:

The overturned BT first extends its head to one side, to use as a lever to push its body up off the ground. About the same time it extends its feet, flailing about, apparently attempting to find some purchase with which to gain some additional leverage. With either just the head as a lever or a combination of head and feet, the BT rotates its body around a longitudinal axis, with one edge of its carapace thrusting upwards, the other pressing downwards. It is a mighty effort to get the body raised up perpendicular to the ground, but once this is achieved, just a little bit more of a push will cause the BT to roll on over and flop back down to the ground rightside-up! The following images of BT-24, taken just a few seconds apart, show the process.



Extending the head & neck to use as a lever.



Finding some purchase with the feet.



Commencing the roll.



Raising the body perpendicular to the ground.





And BT-24 makes successful flop-down rightside-up!

Two things we have learned from our population of BTs: a) they have personalities; b) they are survivors. That BTs have personalities should come as no surprise; most animals of any significant brain capacity do. The most noticeable aspect of BT personality is timidity vs boldness. Some BTs withdraw into their shells as soon as a person or dog comes anywhere near them; others will remain still, but with head and legs still extended, if approached slowly and quietly; some (a minority) will go about their business without paying much attention at all to that larger creature nearby. Virtually all will withdraw into their shells when picked up; and the shy ones remain withdrawn for many minutes, whereas the bolder individuals soon are poking their heads out to see if the coast is clear. And a few truly bold will not withdraw when picked up, but instead extend their legs and flail about trying to find a push against the hand holding them off the ground, and pry their way out of the grasping fingers. When set back down on the ground, these bold BTs hurry away from the site of their disturbance, and it is remarkable how fast a BT can cover ground when motivated.

As for survivors, we have found BTs with seriously scarred and deeply gashed carapaces, but now healed and apparently fully recovered. One, BT-41, nicknamed



“Old Baldy”, has permanently lost about 50% of his scutes, with the carapace bones exposed to view. We wonder if he might have been caught in a fire when some felled brush was burned on a neighbor’s property, but this is mere speculation; he could be the victim of a disease; but he carries on: he was first seen in 2021, and has been seen again in 22 & 23.



BT-41 “Old Baldy” What has caused the loss of so many dorsal scutes? Note the deep red eye color and brightly colored head and forelimbs common to males.

So far we have only ever found one baby (BT-26), with a carapace just barely longer than the cap to a Bic pen. But it is good to have confirmed that females are nesting on our land, even if we do not see hatchlings very often. Also, we learned that in the very young the carapace pattern consist of only a few simple yellow spots which presumably develop later into more ornate patches. So how will we be able to recognize BT-26 several years down the road? Don’t know.

And so far we have confirmed only two BT deaths, from causes unknown (BT-23 & BT-52).



BT-26 A baby box turtle. Is it a hatchling or a yearling? We don't know.

Finally, we wonder just how big a BT population our 10.85 acres can support. This obviously depends on a lot of factors such as habitats, food and water sources. In any case, thus far in 2023 we have seen a total of 11 individuals, and 8 of them are BTs we have seen in previous years. Only 3 are new BTs to our ID list. This may well suggest that we have seen the great majority of the BTs living on our property.

We are very pleased (we would even say blessed) to have a healthy, active BT population on our little plot of land.

--Ric & Janie Finch  
June 2023