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December, 1995

## Some Box Turtle Conservation Issues

We who would like to help sustain remnant, or return extirpated, box turtle populations must develop our programs very carefully so that our actions don't do more harm than good.

Since removing only a few box turtles from a native population can doom that population's long term survival, conservationists must not harvest wild individuals (even from seemingly robust populations) to enable their repatriation or augmentation projects.

Besides undermining the "source" population, relocating a box turtle threatens that individual's survival. Box turtles are highly site specific and have a strong homing instinct. Relocated turtles rarely remain at a release site; they wander into danger as they cross highways, enter suburban areas with dogs, fail to find good food and hibernation sites, as they hunt for their home.

In our box turtle repatriation project in NW Pennsylvania, we use only turtles who have already lost their homes from habitat destruction, injury, pet collection, etc. Such turtles, if simply released into presumptively hospitable habitat, would likely wander off into harm's way. But entering them into a MONITORED repatriation project can protect such individuals while also aiding conservation efforts. We use radio telemetry to monitor the movements of all of our box turtles so that any who wander out of the preserve can be retrieved and kept out of harm's way. We have some who, after 3 years, still show no signs of establishing a home range; they continue to regularly make long, directional treks beyond the 200 acre reserve's boundaries. Their OFFSPRING, however, should establish home ranges within the preserve.

Spread of disease is also a critical issue. Relocated turtles can bring disease to individuals they may happen upon. Thus, repatriation projects (which, by definition, use former habitat that NO LONGER harbors members of the species) are far safer than trying to augment extant populations with relocated turtles.

The ravages wrought upon desert and gopher tortoise conservation by the pathogen, *Mycoplasma agassizii*, is instructive. Asymptomatic tortoises harboring this incurable respiratory tract pathogen spread the infection in many wild remnant populations when hobbyists and well-meaning conservationists released pet tortoises or relocated wild ones to

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help "build" a dwindling population... or to move individuals from doomed habitat, slated for "development", into protected habitat within reserves that already harbored the species. Because of such misguided actions, over 50% of the individuals in some desert tortoise populations now carry this contagious, incurable disease, pressing the species toward the brink of extinction.

Box turtles are notoriously susceptible to respiratory, middle ear and eye infections, but those common box turtle infections seem to be readily cured (when detected early) by therapeutic intervention (increased ambient temperature', vitamin A injection, and, in severe cases, antibiotics). We quarantine each donated box turtle for several weeks to assure good appetite, firm stools, absence of nasal or eye secretions, absence of unhealed wounds, etc. before release. Dr. Daniel Brown of the Veterinary College at the University of Florida, Gainesville, kindly ran DNA tests for the presence of *M. agassizii* in nasal flushes from all the box turtles in our repatriation project. The tests were all negative. We don't know\* whether this (or other) INCURABLE pathogens can infect box turtles; no one has extensively looked. Given the devastating consequences for many desert tortoise populations, we need to be on the look out for similarly virulent pathogens among box turtles so that box turtle survival is not jeopardized by introduced disease.

**\*author's August 2009 post-publication update:**

***Mycoplasma agassizii* has now been reported in box turtles {see Calle, P.P., J.M. Dougal, J.L. Behler, I. Schumacher and D. Brown. 1998. Eastern box turtle (*Terrapene carolina carolina*) *Mycoplasma* serosurvey. *Box Turtle Research and Conservation Newsletter*. 7:1-2.}**

Disease dissemination is a threat significantly magnified by well-intended (but misguided) humanitarian and conservation efforts on behalf of box turtles. Here in NW Pennsylvania's suburban parks or woods, we recently found a couple non-native box turtles (the three-toed midwestern subspecies) on the loose. We have heard of well-meaning individuals who would purchase such exotics from pet stores and release them in the woods because they were disturbed by the sight of their confinement and wanted to give them freedom . . . others have released them (after a summer's entertainment for children at home) in the belief that it would be the responsible thing to now (with approaching winter) give the animal its freedom so it could hibernate with its fellow wild creatures. We hear of individuals, school classes, etc. who have released this exotic pet with the misguided idea that its release would help rebuild (or establish) a box turtle population in some small plot of local habitat. We need to educate such well-meaning people, so they don't harm the species they so dearly love.

For an organized effort to rebuild a dwindling box turtle population, I advise against introducing any new individuals (even when they are members of the local subspecies). They will wander off and be killed. The perpetual monitoring and retrieval of such relocated turtles is beyond the time and financial resources most are willing to commit. Moreover, remnant members in the native recipient population may contract diseases from the new arrivals.

There are more effective and safer practices for helping a declining population. Our observations suggest that box turtles are unable to detect mates at distances beyond visual range. Box turtles have small home ranges, but they are not territorial and so the home ranges

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of individuals in a population overlap extensively, thereby allowing them to encounter one another and mate. In a dwindling population, the chance of a turtle, touring its home range, encountering a mate becomes critically low. Thus, conservationists could significantly help sustain a population by moving potential mates close to one another in the field. If the move is a long one (e.g. 100 m), you should wait till their hours-long copulation has concluded and then return the moved animal to where it was found. It would be a good practice to wear fresh disposable gloves for handling each separate turtle.

Another beneficial aid for a declining population would be to screen over nests, to keep predators away from eggs.

These types of careful, conservative practices should allow us to help the species and avoid harming remnant populations.

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