University of Wisconsin-Stevens Point

The Habits of a Captive Alligator Snapping Turtle (*Macrochelys temminckii*) before and after an enclosure renovation

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Introduction

Monitoring the behavior of captive wildlife is an integral procedure in the management and husbandry of zoo animals. As husbandry practices improve and more knowledge about the species' Natural History and habitat requirements is ascertained, it becomes necessary to renovate Zoo animal enclosures to accommodate the actualization of natural behaviors and ecology. Furthermore, research studies are necessary to measure the effectiveness of renovated enclosures and enrichment (Swaisgood and Shepherdson 2004). The Alligator snapping turtle (*Macrochelys temminckii)* is the largest freshwater turtle in the United States (Ernst and Lovich 2009.). It is widely kept in Zoos around the world, though there are little to no studies on the captive behavior and activity of this chelonian. Our goal was to monitor and document the behaviors of a captive adult Alligator Snapping Turtle housed in the UW- Stevens Point Herpetology society live animal labs, before and after it was transferred from a 75-gallon sterile aquarium, to a 400-gallon naturalistic stock aquarium. The naturalistic stock aquarium included 3 inches of gravel substrate, aquatic plants (A*nubias spp.*) and minnow fish Our hypothesis was that active behaviors and naturalistic habits would increase when the Alligator Snapping Turtle was moved into the new enclosure.

Fig. 1 Bruce The Alligator Snapping Turtle (*Macrochelys temminckii*)

Methods

In order to test the benefits of transferring the Turtle to a larger enclosure, we followed a classic ethology model. We gathered an approximate thirty videos at thirty minutes long each and analyzed three random ten-minute sessions per day. This procedure was repeated before and after the Turtle was moved from the old enclosure to the new one. Every minute, in each of the trimmed videos, the action of the turtle was recorded at that exact time. Through this recording procedure we were able to estimate how much time the animal spent doing certain actions throughout the day. Two sessions were recorded before it was moved, and six afterwards. Though we wish we could have gotten more data from before the move, the method was effective in showing the different behaviors right after moving.

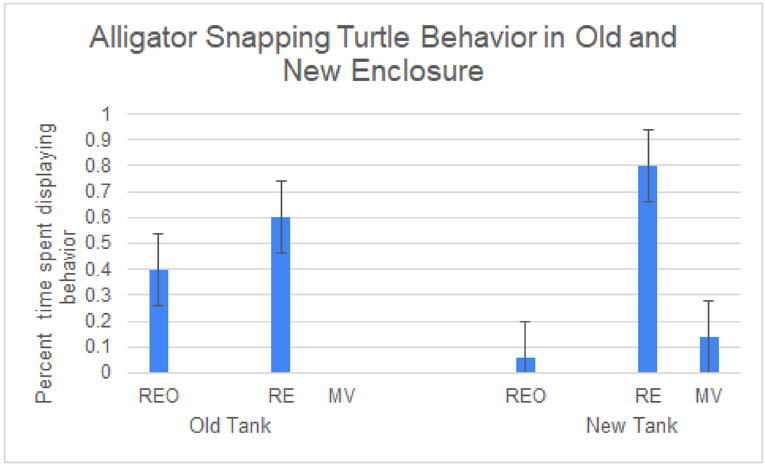

Fig . 2 Percent Time spent displaying various behaviors prior to and after the enclosure move.

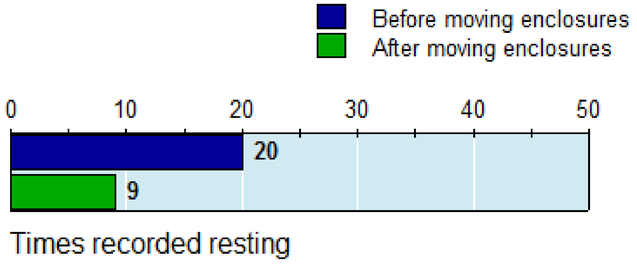

Fig. 3 Resting times recorded before and after immediate enclosure move.

Results

After fully reviewing and compacting hours of data, we have concluded that the Turtle is most likely more comfortable in the new enclosure. It spends more time with its head in the water and does more activities that were never previously seen (i.e. digging in gravel substrate, swimming and chasing fish, etc.). While the behavior of a captive Alligator snapping turtle should be further studied, we can safely say that this move was a success.

Fig. 2 Behavior Key:
RE= Resting in Water
REO= Resting with Head out of Water
MV= Moving

Discussion

- Diversity of behaviors did increase immediately after the Alligator Snapping Turtle was moved into the new enclosure. Though active behaviors leveled off a few days after the move. Resting with head out of water decreased after the move, resting in general increased. Moving did increase too. Alligator Snapping Turtles are storied sit and wait predators so a lack of movement does not imply poor husbandry or welfare.
- Behaviors never seen before by the Herpetology Society were observed in the new enclosure. These include digging, extended swimming and foraging for live fish.
- Future studies should add a physiological data component to measure stress response, and data should be collected for a longer duration.

References

Ernst, Carl H., Carl H. Ernst, and Jeffrey E. Lovich. *Turtles of the united states and Canada*. JHU Press, 2009.

Swaisgood, Ronald R., And David J. Shepherdson. "Scientific approaches to enrichment and stereotypies in zoo animals: what's been done and where should we go next?." *Zoo Biology: Published in affiliation with the American Zoo and Aquarium Association* 24, no. 6 (2005): 499-518.