An Analysis of Injury Distribution and Correlation with Body Condition in the Maine Wood Turtle (Glyptemys insculpta)

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What is a Wood Turtle?
- Semi-aquatic, omnivorous turtle (1)
- Considered Endangered by the IUCN
- 50% decrease over the past 100 years (2)
- Main threats include animal trafficking and habitat loss (2)

What is a Body Condition?
- The amount of stored energy in relation to size
- Positively correlated with fitness
- Can be an indicator of how an individual is coping with environmental shifts (3)

Do Injuries in Wood Turtles Affect their Body Condition?

Where are Wood Turtles being injured?

Methods
- Data had previously been collected by Unity College and Maine Inland Wildlife and Fisheries
- A total of 159 turtles were used
- To calculate body condition, I used a volumetric body condition index created by Ashton et al. (2015).
- I created an injury index in which each scute would be given a damage score
  - Score 1: Minor damage, small scratches or scrapes
  - Score 2: Sections of scute are missing, small cracks and dents
  - Score 3: Large gouges, clefts, and missing scutes
- Amputation scores were based on proportion of limb missing
- Linear Regression models were created using R Studio

Results
- There was no significant correlation between injury severity and body condition. There was a significant difference in injury distribution between males and females. The darker grey areas were more likely to be injured versus those in lighter grey. The medium grey scutes represents those that injury frequencies were as expected for their size. As for amputations, females are more likely to receive tail injuries while males more frequently lose limbs. Overall, turtles were more likely to damage their scutes on the right side than the left.

Discussion
- This study concluded that there was no significant difference between body condition and injury presence or severity. As for injury distribution, the differences between sexes is likely due to courtship and mating behaviors. Females are more likely to experience injuries on their marginals and lower carapace, which are put under stress when mating. In related turtles, males nip at the females tails, which could explain high female tail amputation rates (1). Males generally have larger home ranges and are more likely to have experiences with predators, the likely cause of limb loss (4). As for the difference between left and right, limb preference is thought to have evolved before tetrapods. It is likely that turtles express motor laterization that influences turning behaviors when encountering a predator (5).

Literature cited

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