

Peer Review

Review of: "Feeding Ecology and Activity Rhythms of the Critically Endangered Hawksbill Turtle"

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The paper is interesting, well done, and I didn't notice any problem except the low sample size. But these data are difficult to obtain, and they will be useful in future studies.

Below is a list of commentaries that the authors should take into account in the revised version of the manuscript.

Abstract

Six individuals (one female and five males) were monitored using on-board cameras.

This is very few. It will be impossible to estimate the variation of behaviour between males and between sexes because no measure of variation within males is available.

14.43 ± 9.72 m

What does ± represent? Same question along the text (e.g., Page 11).

Video recordings revealed consumed prey, including plants and animals, and these were identified to the family level. Habitat sampling revealed potential prey from six distinct families.

Not clear. You have much more than 6 families in the habitat. I don't understand this sentence.

Give information about the higher ranking of the families Aplysinidae and Irciniidae: Porifera, Demospongiae

Aplysinidae was the most frequently observed family

What was the unit ? Number of individuals, mass ?

Spongin content and brominated metabolites are proposed among the plausible factors that could define turtle food preferences and strategies.

Why not simply the abundance ?

Further combined analyses could help to better define feeding strategies as an integrative and collaborative approach, which is essential for the long-term protection of this critically endangered species.

This sentence is a generic catch-all and doesn't mean anything in itself.

Introduction

1. ^McKeever A (2022). "What are keystone species?" National Geographic.

Give more information. Impossible to find such a reference.

I suppose it comes from here :

<https://education.nationalgeographic.org/resource/keystone-species/>

It would be better to use a peer-reviewed citation and be aware that the concept of keystone species is much more complicated to manipulate than the naive view given by the educational purpose of National Geographic :

Halm, D. (2024). Revising the keystone species concept for conservation: Value neutrality and non-nativeness. *Ethics, Policy & Environment*, 1-19. <https://doi.org/10.1080/21550085.2024.2389008>

The hawksbill turtle (*Eretmochelys imbricata* (Linnaeus, 1766)) is a keystone species, characterized by the quality, number, and importance of its interactions with its habitat and other species[2][3][4].

None of these references permit justifying this sentence. Information from the last paragraph of page 3 is more informative to justify this statement.

such as residential and commercial development

I don't understand this sentence. What are the authors referring to?

Page 3. mainly Prêcheur, Diamant, Sainte-Luce, and Sainte-Anne along Martinique's Caribbean coast[23]
[7].

At this stage of the paper, a map would be helpful.

In northern Martinique, males and juveniles are known to share spatial foraging areas

No females in these places? The information on the presence of adult females is not clear in the referenced paper:

Nivière M, Chambault P, Pérez T, Etienne D, Bonola M, Martin J, et al. (2018). "Identification of marine key areas across the Caribbean to ensure the conservation of the critically endangered hawksbill turtle." *Biological Conservation*. 223:170–180. doi:10.1016/J.BIOCON.2018.05.002.

Pre-Columbian estimates suggest that Caribbean reefs once supported up to 11 million hawksbills, contributing to effective sponge control[19].

The 11 million hawksbills information comes from reference 29, and this is only adults (both sexes). As the juvenile diet is also in the coral reefs ecosystem from the size of #20 cm, the true number is probably >100 million.

29 McClenachan, L., Jackson, J. B. C., & Newman, M. J. H. (2006). Conservation implications of historic sea turtle nesting beach loss. *Frontiers in Ecology and the Environment*, 4(6), 290-296. [https://doi.org/10.1890/1540-9295\(2006\)4\[290:Ciohst\]2.0.Co;2](https://doi.org/10.1890/1540-9295(2006)4[290:Ciohst]2.0.Co;2)

Sponges are the oldest multicellular organisms, lacking true tissues and differentiated organs[31].

This sentence is understandable but is wrong. Better to say: Sponge is a phylum that diverges from other multicellular animals very early, and they lack true tissues and differentiated organs[31].

Material and Methods

Page 5: However, this technique poses several challenges, including restricted study site access, limited underwater visibility, scuba-related depth constraints, and the problem of pseudo-replication due to unmarked individuals[34][33][33].

Individuals can be identified by head scale patterns.

Page 7. and tagging[7] (Bonola et al. 2019).

Page 7. Martinique (Jeantet et al. 2020a),

Page 18. [58] (Breed & Moore, 2012)

Page 19: in green sea turtles[35] (Chevallier et al., 2024).

Page 20. broader sampling[62][63] (Bjorndal, 1999).

Page 21. nutrient cycling (Fiore et al. 2013),

Page 23. outcompeting them for space (Pawlik, 2013)

Page 23. lubrication properties[90] (Kraan & Kraan, 2012)

Page 24. prey selection (Esposito et al., 2022).

Page 24. optimal foraging theory (Stephens & Krebs, 1986),

Page 24. bird species (Chevallier et al., 2008).

Page 24. ecological knowledge[92] (Wedemeyer-Strombel et al., 2019).

Correct citations.

Results

Page 9. Potential prey identified in the laboratory were compared to prey consumed as observed in video recordings to determine prey selection.

I don't understand what is done, and why.

Table 1. Replace the comma with a dot in CCW and the tail of #2.

In the legend of the date column, indicate dd/mm/yyyy.

Page 10: were labeled from six deployments and five individuals.

Based on Table 1, it should be 7 and 6.

Page 10. (2) rub its face with another male hawksbill.

How many interactions were noticed, and can you give information on the number of males and females?

Six families were identified both in the video recordings and in the habitat sampling: Aplysinidae, Irciniidae, Callyspongiidae, Petrosiidae, Tetillidae, and Agelasidae.

Change to:

Six families of Demospongiae (Porifera) were identified both in the video recordings and in the habitat sampling: Aplysinidae, Irciniidae, Callyspongiidae, Petrosiidae, Tetillidae, and Agelasidae.

Page 11 and 12: Please clarify: A potential prey is a species present in the habitat but never observed as a prey. So it is not a prey! This is just a species present in the habitat. The “potential prey” terminology is very confusing.

Discussion

Page 15. for three distinct biogeographical regions.

Naming the 3 spots in Martinique “3 biogeographical regions” is very ambitious!

Page 16: That said, studies on green sea turtles and freshwater turtles demonstrated that nocturnal activity could be exhibited to acquire nocturnal resources that influence their survival and reproduction[42][43][44].

“Exhibited” or rather “present”?

Page 18: with short surface intervals of 1 min 44 s ± 5 min 15 s.

I don't know what ± represents here, but the most interesting information is probably the extreme variability of this duration.

Declarations

Potential competing interests: No potential competing interests to declare.