Qeios

Peer Review

Review of: "Prey Selection of the Invasive Gastropod Rapana venosa (Valenciennes 1846) from the Río de la Plata Estuary Under Laboratory Conditions"

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Reviewer's comments

Manuscript details:

Journal: Qeios.

Manuscript ID: Preprint v1 CC-BY 4.0

Article type: Research paper.

Title: Prey selection of the invasive gastropod *Rapana venosa* (Valenciennes, 1846) from the Río de la Plata Estuary under laboratory conditions.

Authors: Diego Lercari, and Ernesto Brugnoli Olivera.

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Comments to the Editor and Authors

I have reviewed the manuscript titled "**Prey selection of the invasive gastropod *Rapana venosa* (Valenciennes, 1846) from the Río de la Plata Estuary under laboratory conditions**" authored by Diego Lercari, and Ernesto Brugnoli Olivera, which is under consideration for publication in "*QEIOS*".

Overall assessment

This study investigates the dietary preferences of the invasive gastropod *Rapana venosa* (Valenciennes, 1846) from the Río de la Plata Estuary under controlled laboratory experiments. It addresses an ecologically significant question: the prey selection behavior of this invasive gastropod, providing

 doi.org/10.32388/JI3UBJ

insights into the species' predation patterns that can inform targeted strategies for managing and reducing its ecological impact in estuarine ecosystems.

The manuscript is well-structured and clearly written, with concise descriptions of methods and findings. It offers relevant contributions to the understanding and management of biological invasions and aligns with Optimal Foraging Theory in the interpretation of results.

The experimental design, based on controlled conditions, effectively supports the analysis of prey preferences, and the results are clearly presented and easy to interpret. Ethical standards are appropriately addressed, with a complete and satisfactory ethical compliance statement.

Major comments and suggestions

1. Experimental design and replication

Issue: Only three individual snails were tested (n=3), which is quite limited for robust statistical inference.

Suggestion: While logistically understandable, the low replication should be discussed as a limitation, especially regarding the generalizability of the results.

2. Statistical analysis

Issue: The manuscript lacks statistical analysis (e.g., chi-square tests, t-tests, or ANOVA) to validate the prey preference observed.

Suggestion: Include basic statistics to determine if observed differences in prey selection are significant. If not possible, a clear justification should be provided.

3. Prey size standardization

Issue: It is mentioned that prey were of "similar sizes (0.8 ± 0.4 mm)", which seems implausibly small for bivalves.

Suggestion: Double-check and clarify the units—possibly a typographical error (perhaps 8 ± 0.4 cm?). Prey size influences prey handling time and preference.

4. Biomass intake interpretation

Comment: Although *Erodona mactroides* was preferred in frequency, more biomass was consumed from *Mytilus edulis*. This point is relevant and should be explored further in light of foraging efficiency, shell resistance, or meat content.

5. Ecological context

Issue: The claim that *R. venosa* poses limited risk due to "limited spatial overlap" with *E. mactroides* lacks spatial distribution data.

Suggestion: Consider supporting this claim with reference to specific distribution maps or field surveys, or suggest future field studies to validate this.

6. Figure captions and data

Comment: Figures are appropriate but could benefit from descriptive captions including sample sizes and units.

Suggestion: Add error bars to consumption figures if applicable.

Minor points

*** Abstract**: Consider adding explicit mention of sample size and experimental duration.

*** Grammar/Style**: Overall clear, but minor grammatical polishing would help (e.g., remove repeated "clam" in "clam *E. mactroides clam*").

*** References**: Some entries appear truncated or lack complete journal formatting—ensure uniformity and completeness in the final version.

Recommendation

Overall, the study enhances our predictive understanding of *R. venosa*'s feeding behavior in novel environments and contributes meaningfully to the field of invasion ecology. It aligns well with the aims and scope of "*QEIOS*" and will be of interest to its readership. However, some areas require improvement and would benefit from further refinement to strengthen scientific rigor and expand the broader applicability of the findings. Therefore, I **recommend acceptance with minor revisions** for publication in "*QEIOS*".

Section-by-section comments and recommendations

Title & Abstract

Comment: The title is concise and informative. The abstract provides a clear summary of the study, methods, and findings.

Issues:

- The abstract lacks mention of the sample size (n=3) and experimental duration.

- The conclusion that *E. mactroides* is preferred might be overgeneralized due to limited replication.

Suggested fixes:

* Add a sentence such as:

"Three adult specimens of R. venosa were observed over 11 days under controlled laboratory conditions to assess prey selection."

* Rephrase the conclusion with caution:

"Preliminary evidence suggests a preference for E. mactroides, warranting further investigation under field conditions."

Introduction

Comment: The introduction effectively frames the ecological significance of *Rapana venosa* and highlights gaps in knowledge regarding its feeding ecology in the target region.

Issues:

- Lacks background on the ecological importance of the prey species.

- Does not reference previous lab-based feeding studies for comparison.

Suggested fixes:

* Include a clearer hypothesis or research question at the end of the introduction.

* Briefly mention why *M. edulis* and *E. mactroides* were selected—e.g., "important ecosystem engineers" or "commercially relevant species."

* Include citations to prior studies on *R. venosa* feeding behavior (e.g., Harding & Mann, 1999; Savini & Occhipinti-Ambrogi, 2006).

Materials and Methods

Comment: The experimental design is clearly explained.

Issues:

- Sample size is too small (n = 3 individuals).

- Prey sizes are reported as "0.8 ± 0.4 mm," which is likely an error.

- Absence of statistical analysis.

Suggested fixes:

* Clarify unit error, possibly 8 ± 0.4 cm instead of mm.

* Acknowledge small sample size as a limitation.

* If possible, include non-parametric tests (e.g., Wilcoxon signed-rank) to compare consumption.

* Add a rationale for the test duration (11 days)—why this time frame?

Results

Comment: The results are logically presented and supported by visuals.

Issues:

- Lack of statistical significance testing.

- Figures lack details such as error bars or sample size indication.

Suggested fixes:

* Include at least basic statistical comparisons (e.g., prey consumed per day).

* Add error bars or variation indicators to figures.

* Improve figure captions:

"Figure 1. Mean number of prey items consumed by R. venosa (n=3) over 11 days. Error bars indicate standard deviation."

Discussion

Comment: The discussion offers a solid interpretation of the data and connects it to optimal foraging theory.

Issues:

- Some claims are too strong given the limited sample size.

- The conclusion that *R. venosa* is unlikely to threaten *E. mactroides* due to spatial distribution is speculative.

Suggested fixes:

* Soften conclusions by stating that findings are "indicative" or "preliminary."

* Suggest the need for *in situ* verification.

* Discuss how prey handling time or shell strength might have influenced results (even if qualitatively).

Conclusion

Comment: The conclusion recaps key findings but should reflect limitations more clearly.

Suggested fixes:

- Modify to read:

"This preliminary study suggests that R. venosa may prefer E. mactroides under laboratory conditions, though further research is needed to confirm these patterns in natural environments."

References

Comment: The references are relevant and mostly complete.

Issues:

- Some entries appear incomplete or missing formatting (e.g., volume/issue numbers, DOI).

- Important feeding ecology references (e.g., Harding, Mann, Savini) are missing.

Suggested fixes:

* Double-check and complete all reference entries.

* Include foundational feeding ecology studies for *R. venosa*.

Figures and captions

Comment: Figures are appropriate but minimal.

Issues:

- Lack of labels, units, and sample size indications.

- Captions are too brief.

Suggested fixes:

* Add units to axes, sample sizes, and statistical indicators.

* Extend captions to be self-explanatory.

Final recommendation: Minor revision

The paper is valuable and publishable, but the authors should improve transparency, acknowledge methodological limitations, include basic statistical analysis, provide clearer unit descriptions, make minor stylistic improvements, and bolster the rigor of analysis and interpretation.

Attachments: available at https://doi.org/10.32388/JI3UBJ

Declarations

Potential competing interests: No potential competing interests to declare.