

Peer Review: Genetic aspects of interspecies hybridization between sable and pine marten based on microsatellite loci data

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Collaborators: Katie Moriarty & Aleksey Oleynikov

Accepted by 2 of 2 reviewers

Funding Information

The study was carried out with the financial support of the Russian Foundation for Basic Research (project 122021000084-4).

Conflicts of Interest

The authors declare no conflict of interest.

Publishing History

Submitted 6 May 2024
Accepted 17 April 2025
Published 23 May 2025

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Peer-Reviewed



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Recommended Citation

Ranyuk, M.N., Modorov, M.V., & Monakhov, V.G. (2025). Genetic aspects of interspecies hybridization between sable and pine marten based on microsatellite loci data. *Stacks Journal*: 25005.

<https://doi.org/10.60102/stacks-25005>



Reviewer Summaries

Katie Moriarty

Initial Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

What did the authors do a good job with?

The authors posed an interesting question regarding hybridization of 2 species with a fairly significant sample size. Both the introduction and discussion cited relevant research and provided some context to their results.

How do you think this research will contribute to the field?

This provides additional context for marten populations here, and in other areas with hybrid zones. I recommend adding more to the discussion to provide context.

Regarding the study design and methods, what do the authors need to fix or improve upon to be fit for publication?

Authors could be more direct with their method language and I provide some examples. For this study and observation, it's not helpful in my opinion to suggest changing the design.

Regarding the analysis and interpretation of their findings, what do the authors need to fix or improve upon to be fit for publication?

Here, I would recommend spending time in the discussion describing the implications and context from the genetic diversity metrics. If the skills are available, additional figures similar to the 3 citations I listed for North American martens might be helpful.

Is there anything else you think the authors need to fix in their article to be fit for publication?

Because the style of the article can be flexible, I would focus less on the minor challenges and more on the interpretation of the results.

Do you have any concerns about the ethics of this research?

No

Do you believe the article, in its current form, is fit for publication?

Revise & Resubmit

Revised Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

How well did the authors respond to your comments?

4/5

What - if any - feedback do you feel the authors did not adequately respond to?

Based on your review, what should happen next?

This article should be sent back to the authors for *more revisions*



Why is this article not ready to be published?

Minor edits - editorial, not context - then could be published.

What do the authors need to change for you to accept this article for publication?

Minor edits to improve the English, spacing, and writing.

Would you like to be listed as a Collaborator on the final publication?

2nd Revised Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

How well did the authors respond to your comments?

5/5

What - if any - feedback do you feel the authors did not adequately respond to?

No

Based on your review, what should happen next?

This paper requires minor revisions but does not need further peer review

Would you like to be listed as a Collaborator on the final publication?

Yes, please list me as a Collaborator

Aleksey Oleynikov

Initial Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

What did the authors do a good job with?

The manuscript characterizes the features of interspecies hybridization between the pine marten and the sable. Most aspects of this process have been poorly studied so far, leaving many gaps in our understanding. The authors reviewed the literature on this issue, clarified the current hybridization zone between the two species, and described the historical processes that have occurred in the populations of these closely related species. They analyzed the genetic structure of populations based on the analysis of 11 microsatellite loci from a significant number of sable and pine marten samples from different regions of the hybridization zone. The complexity of morphological identification was confirmed, highlighting the necessity of using genetic methods for accurate species and hybrid identification in the intergrade zone. Original data were obtained that will contribute to understanding the processes of interspecies hybridization between the two species.

How do you think this research will contribute to the field?

Yes, the study contains new data and will contribute to the understanding of interspecies hybridization.

Regarding the study design and methods, what do the authors need to fix or improve upon to be fit for publication?

The introduction should clearly state the research objective. It is necessary to include a description of the specific criteria used by the authors to classify a sample as a hybrid. It would be beneficial to calculate the hybridization coefficient for different populations and compare the differences between the hybridization



coefficient and the number of different alleles. Additionally, the introduction should explain the significance of the term "kidas" ("kidus").

Regarding the analysis and interpretation of their findings, what do the authors need to fix or improve upon to be fit for publication?

The Discussion does not reflect all the results obtained by the authors. The authors present allele number and heterozygosity indices (Na, Ne, Ho, He) in Table 1, but the Discussion does not address the peculiarities of their distribution. Specifically, why do the species have different levels of heterozygosity, and what are the reasons for this? Are there differences in these indicators among hybrids? Explanations for Figure 2 should also be added.

Over the last century, the ranges of the pine marten and especially the sable have changed significantly. The Discussion does not sufficiently address the changes in the sympatric zone and their trends. The authors do not discuss issues such as the mass reintroduction of the sable and how it has affected the level of genetic diversity in populations and hybridization processes.

The topic of interspecies hybridization should be covered more extensively, including among species of the family Mustelidae, and whether similar processes occur among other species of the genus *Martes*. Examples should be given of other species where hybrids are difficult to distinguish morphologically from native species.

Is there anything else you think the authors need to fix in their article to be fit for publication?

Correcting some deficiencies, in my opinion, would improve the article. I would recommend the authors change the title of the article. It is too general since interspecies hybridization is a broad concept encompassing many different aspects, while this article covers general points, provides a literature review, and presents the results of microsatellite locus analysis of two species from sympatric distribution areas. I would suggest the following title: Genetic Aspects of Interspecies Hybridization Between the Sable and the Pine Marten Based on Microsatellite Locus Data.

Table 1 requires revision. The first column does not correspond to the title, and there are discrepancies with the map (Fig. 1) in the names ""Oktyabr"" and ""Oktyabrsky."" The table indicates the number of samples for the pine marten as 20, but the text states 30.

Fig. 2 also mentions the pine marten but does not include the sable in the title.

The reference list lacks sources: Modorov et al. 2020; Ranyuk et al. 2021. The publication year in the text and references for Ranyuk, Monakhov 2015 differs, which needs clarification.

Do you have any concerns about the ethics of this research?

I have no ethical concerns regarding this research.

Do you believe the article, in its current form, is fit for publication?

Revise and resubmit

Revised Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

How well did the authors respond to your comments?

4/5

What - if any - feedback do you feel the authors did not adequately respond to?

Based on your review, what should happen next?

This article should be sent back to the authors for *more revisions*



Why is this article not ready to be published?

The authors added new concerns in their edits that need to be addressed

What do the authors need to change for you to accept this article for publication?

The authors of the study took into account the comments made and significantly revised and improved the paper. It is necessary to make a small revision and pay attention to the places in the text highlighted. Delete unnecessary information and add the information missed due to inattention. I would recommend for publication after minor revision.

2nd Revised Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

How well did the authors respond to your comments?

5/5

What - if any - feedback do you feel the authors did not adequately respond to?

The authors respond adequately.

Based on your review, what should happen next?

This paper is ready for publication

Would you like to be listed as a Collaborator on the final publication?

Yes, please list me as a Collaborator