

Peer Review

Review of: "Does Palaeolithic Resource Management Leading to Domestication Explain Human “Modernity”?”

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Comments on the manuscript entitled Does Paleolithic resource management leading to domestication explain human “modernity?”

This manuscript presents an alternative interpretation of human (*Homo sapiens*) evolution in view of artificial selection during resource management prior to domestication based on changing methods of exploiting environmental resources (50–40 thousand years ago). This is argued by the lack of firm support in the consideration of a shift in human characteristics indicating self-domestication linked to large mammals during the Late Pleistocene (approximately 129,000–11,700 years ago).

This idea is presented in a series of sections that I have revised, trying to disentangle the basic points. I would suggest that the manuscript could incorporate a more clearly explained objective and that the body includes the different aspects that support this objective. Also, the inclusion of evidence that could serve as proof or proofs of concept would be much appreciated. I now describe in more detail these ideas that could improve the presentation and discussion.

I finally note that an argument of evolutionary convergence is totally missing from this manuscript, which could be an important idea to support the existence of the same traits in evolutionarily independent lineages.

Comments

1. The Introduction is too large (eight pages or 44.4% of the text). I would expect that it could be divided into subsections that form the body of the manuscript so that the introduction would summarize the rest of the sections of the manuscript. Another possibility would be to change the “Introduction” to another title and include a more synthetic “Introduction.” A complementary alternative would be to include

subtitles in the now-called “Introduction” to help the reader get the main points. Otherwise, the reading of the ideas is very difficult for the reader.

2. Page 1, I do not see the utility of this argument. It shows that management and domestication have been performed by hominins, but this also can be applied to any vertebrate species; justify why you are using this particularly for hominins and include references.

3. Fig. 1, this figure does not have any novel information because only one of the interactions is more intense (carrying capacity of the environment). Remove it and include it as a synthesis in a new paragraph.

4. Page 4, first paragraph, this needs to be shortened and supported with more studies. Presently, there is only one reference and it should be supported with some of the references in the second paragraph but with specific citations (from 12 to 17 in the first part of the first paragraph). Refer to which part of the domestication syndrome is supported by which reference.

5. Page 4, second half of the second paragraph is related to the pleiotropic reaction. This needs a definition and a reference, for example, why is it called a “reaction”?

6. Page 4, third paragraph, “domestication complexities” include references in this direction.

7. Page 5, first paragraph, line 10, define “flight response,” which is a part of the “fight or flight response,” and include a reference.

8. Page 6, line 1, how common is the reduction of brain size? Include a reference.

9. Page 6, lines 4-5, this sentence is confusing; explain.

10. Pages 5 and 6 are the results and discussion of domestication; why is it here? And why is it related to the aim of the manuscript?

11. Page 6, paragraphs 2 and 3, what are the inferences that management occurred in pre-Neolithic times? It does not follow that humans (modern) have multiple origins related to management and domestication; please clarify. If animals were transported to islands, why does the conclusion that follows relate to the different origins of humans (modern)? A time frame using a chart of the different lineages of hominins and management should help here.

12. Page 7, second paragraph, use published examples to support this sentence.

13. Page 7, third and fourth paragraphs, why is it important to separate plant and animal domestication? Include a reference and the significance of your assertions to human origin and/or evolution. If it is only

because “archeological evidence of pastoralist and animal husbandry is less abundant,” you can include references from the archaeological literature.

14. Page 8, second paragraph; Page 9, first paragraph; and the first 11 lines of Page 9, second paragraph, the information is mostly anecdotal. Summarize this with relevant references for the ideas included. In the present form, these ideas are redundant to the reader.

15. Page 9, lines 15-21, and Page 10, lines 1-5, references are needed here.

16. “The case of the reindeer,” Pages 10 and 11. You need to include a summary of the results obtained for reindeer and its relevance for the argument used in the manuscript for humans. Is it that domestication is very recent? Very old? How can this change self-domestication in humans (modern or early)? These arguments also apply to the other examples: horses, bovids, and wolves/dogs (Pages 11-15). A comparative approach would be acknowledged so that common inferences are discovered when comparing distinct species. Further, the differences in management/domestication among species could also be highlighted.

17. Pages 15-16, “Hominin domestication,” this part is the center of the manuscript’s arguments and should naturally derive from the results and arguments presented in the rest of the manuscript. For that reason, it should explain further. I am including my comments to further support the arguments. One argument, which is quite novel, is that self-domestication has been a common process in hominin evolution and not only in (modern) humans. The arguments in this respect should also include tests that could support this idea even if we do not yet have the data to support it. How would anthropological, archaeological, demographic, or genetic data be in any way convincing? And how does the “domestication” hypothesis explain all these traits? References 15, 39, and 40 are used in this case, but no specific examples are shown in the discussion.

18. Page 16, “Hominin domestication,” the last paragraph about demography is not convincing; in other words, how a global demography or local demography supports the “modern human” hypothesis or the “domestication” hypothesis is not clear. Demographic processes are both local and global, but there is also abundant evidence of global migration and introgression between human clades like Denisovans and Neanderthals.

19. Pages 16-18, “Taphonomic logic of the fore,” this argument is rather interesting, and I appreciate its inclusion, but I do not see how it supports the “domestication” hypothesis because one could think of several cases in which other hypotheses could be described in which the “modern” hypothesis would be either partially or totally rejected.

20. Pages 18-19, the discussion is short considering the large introduction. Also, several parts are incorporated here without being properly described in the rest of the manuscript. This is the case, for example, for taphonomy in the way in which it supports the “domestication” hypothesis.

Declarations

Potential competing interests: No potential competing interests to declare.