

Peer Review

Review of: "Social and Spatial Drivers of the Multitiered Structure of Zebra Finch Social Networks"

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The manuscript is conceptually strong and well-articulated. It employs tracking techniques to construct avian social networks based on an extensive dataset of positional information, presenting an innovative and exciting methodological approach. The captive studies on multi-tiered social structures remain scarce, and this study offers robust and groundbreaking insights into such systems. I have several comments and questions.

Regarding the selection method of the null model, Farine (2017) (A guide to null models for animal social network analysis) recommends maintaining natural movement for data with temporal autocorrelation, such as trajectory data. The current methods may violate the natural movement of the finches (for example, it may be unlikely that a finch moves to a perch after one second and then moves to another one a second later). For instance, wouldn't it be possible to address this by following these methods?

null model 1: Randomly swapping the dates of the same individual's data

null model 2: Swapping the same day's data of different individuals

However, I believe the current method is robust and unlikely to yield significantly different results. In addition, altering the dates may introduce other confounding factors (e.g., disrupting physiological cycles). Therefore, I do not necessarily advocate for the proposed alternatives as superior approaches. However, I do recommend providing a clear justification for not preserving the trajectory patterns in the null model design.

I apologize if these methods are standard practice, but I am not very familiar with the Jenks natural breaks algorithm and Horton analysis. I suggest providing a short reason for selecting these methods over alternative approaches (such as the k-means method for clustering).

The authors concluded that the closest pairs were not stable enough to be considered a unit. It was also mentioned that the colony started with unfamiliar individuals (P5, first paragraph). Did the experiment begin immediately after the introduction of the finches? If so, could the observed instability be attributed to the process of the finches forming new relationships?

Other minor points:

P10, first paragraph of the discussion, “Horton branching ratio of 2.87 is similar to humans, primates, and other large mammals that all have values close to 3”. I think this is repeatedly stated in P12, the third paragraph. Please consider removing either of them or shortening the second one to avoid redundancy.

Figure 1 E: The legend overlaps with the node of the graph.

Please check the citation list again. In the reference list, you have 81 citations, but in Table 1, you have citations 82–94.

Table 1: What does “observation” refer to in the “clustering algorithm” column?

Declarations

Potential competing interests: No potential competing interests to declare.