

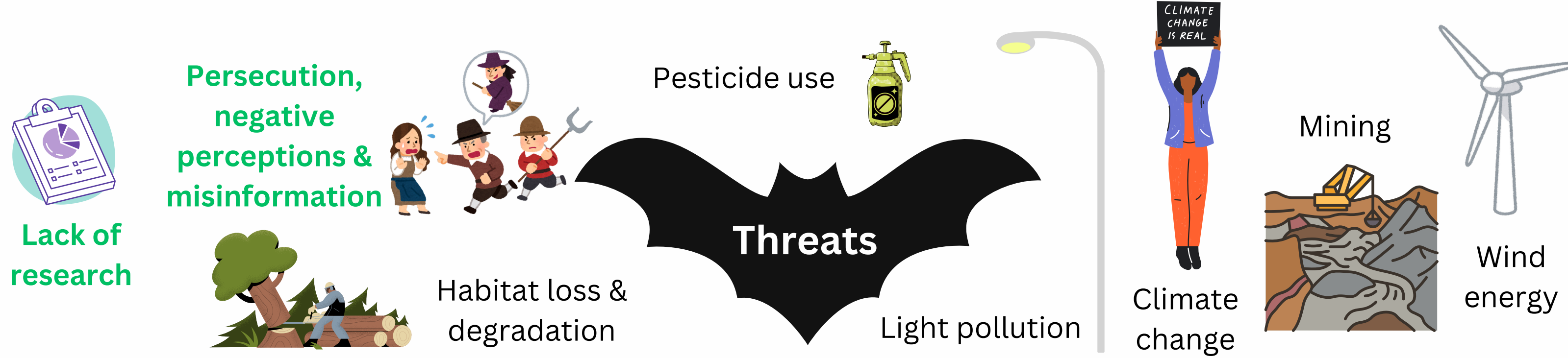
Building support for bat conservation through citizen science

Kelly Sheldrick^{1,2}, Rochelle Steven^{1,3}, Patricia A. Fleming¹

¹Murdoch University, ²Conservation Council of Western Australia, ³University of Western Australia

Introduction

Bats represent 22-25% of all mammals and play vital ecological roles, yet they remain under-researched in Western Australia, limiting conservation and management efforts.



This project aimed to address the threats of 'lack of research' and 'negative perceptions and misinformation'.

Key source: Frick, W. F., Kingston, T., & Flanders, J. (2020). A review of the major threats and challenges to global bat conservation. *Annals of the New York Academy of Sciences*, 1469(1), 5–25.

Citizen science has proven effective for biodiversity monitoring in other taxa, but its application to bats is still emerging. A literature review revealed that the majority of citizen science bat projects used **acoustic methods**, however only two evaluated **social impacts** of citizen science participation.

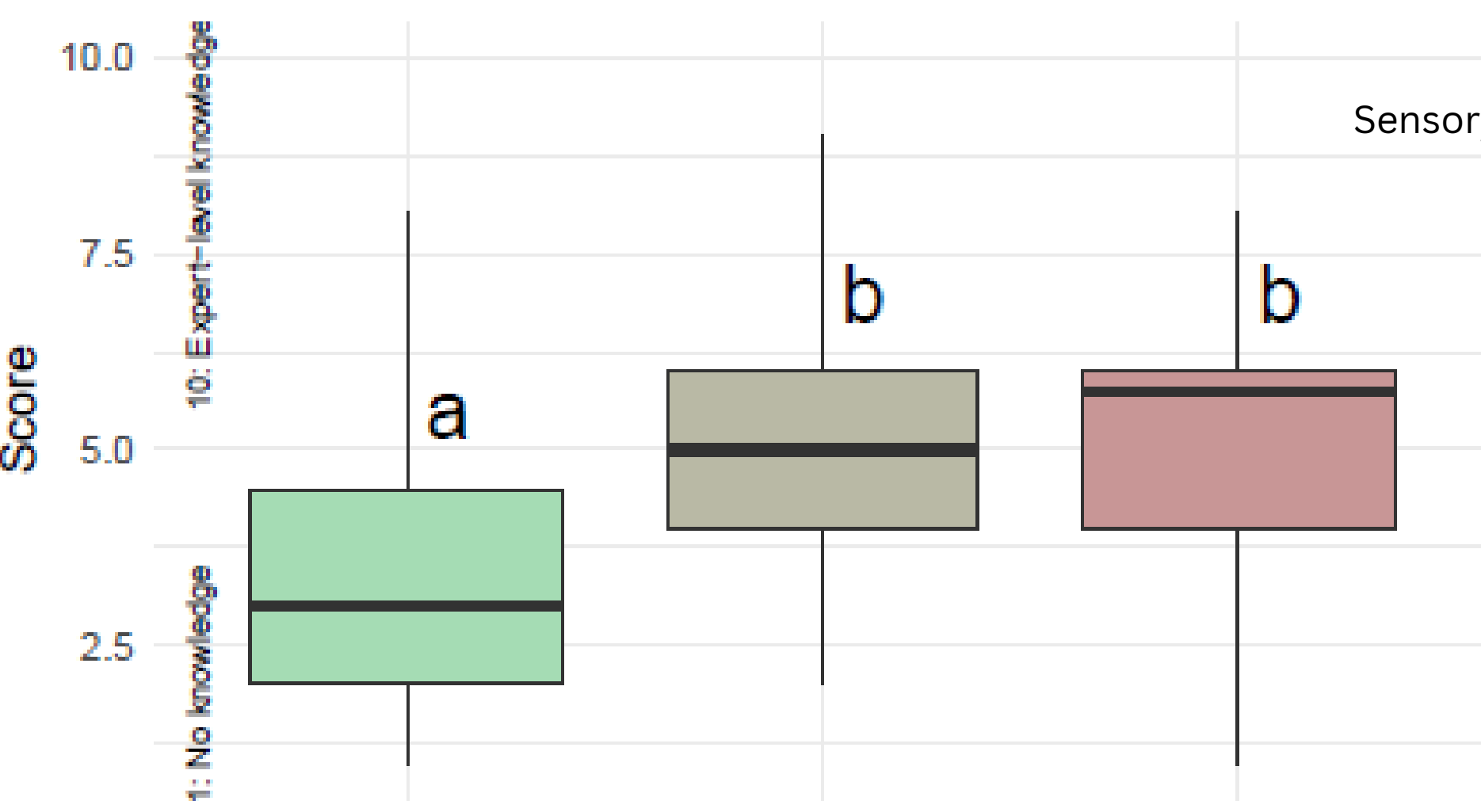
This study explored:

- Whether citizen science participation increases knowledge, nature connection, and positive attitudes toward bats.
- If seeing and hearing bats shape participants' engagement and attitudes toward them.

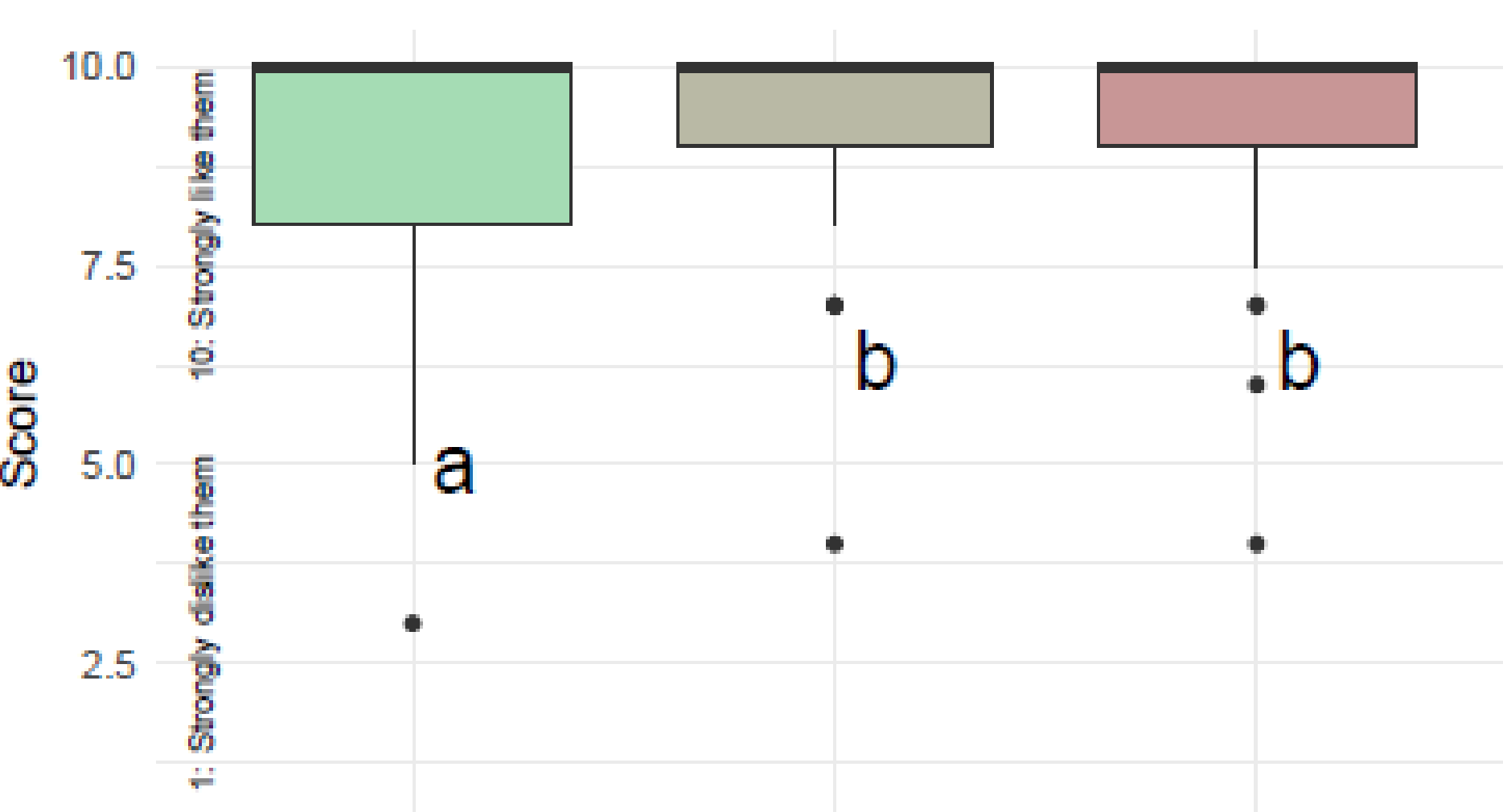
Results

Friedman tests indicated significant increases in knowledge, shifts in positive attitudes and connection to nature.

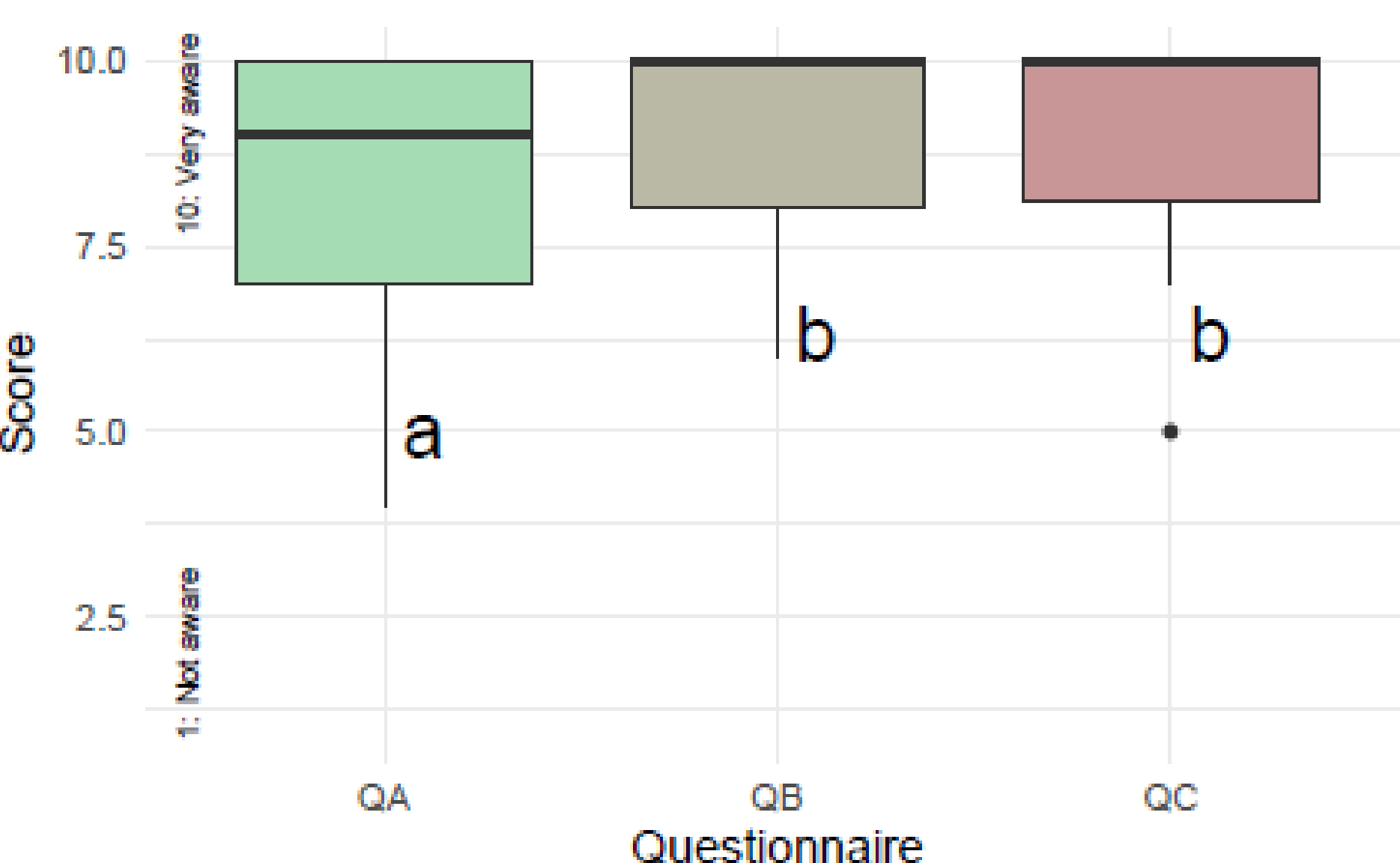
a. Knowledge



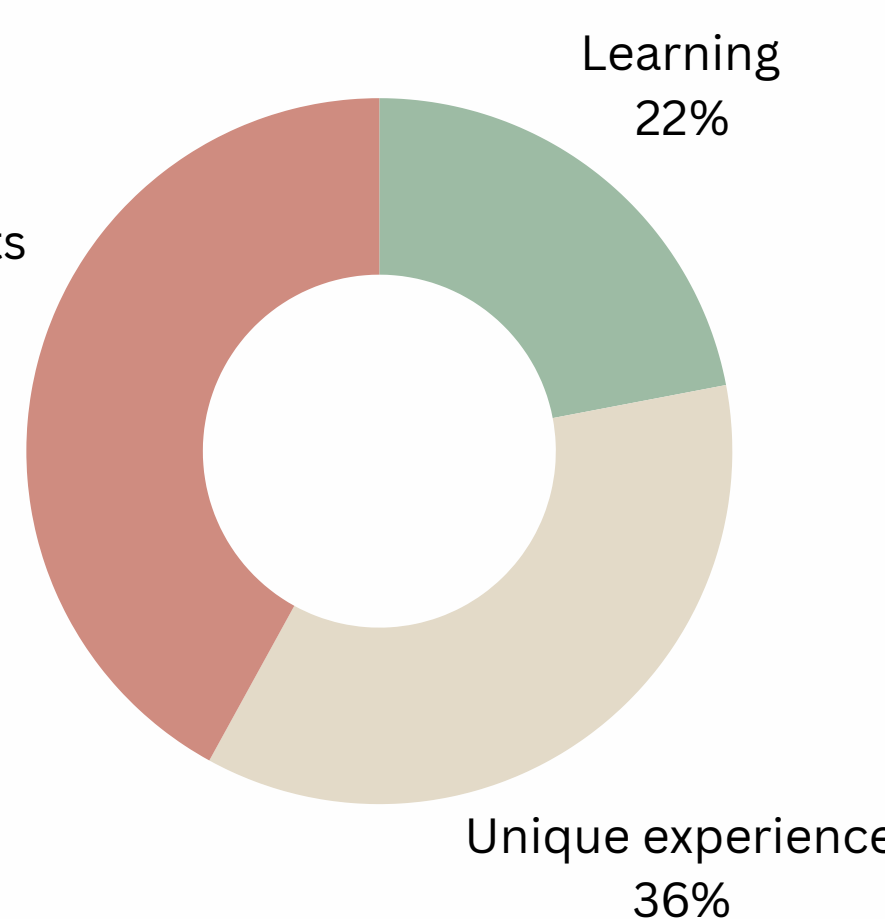
b. Attitude



c. Connection



Participant scores across three questionnaires measuring (a) perceived knowledge and (b) attitude change related to bats, and (c) connection to nature. Letters above boxes indicate groups that are not significantly different from each other based on pairwise comparisons. Sample sizes vary by questionnaire (Questionnaire C n=61, Questionnaire B n=61, Questionnaire C n=51).



Participant highlights from taking part in the citizen science bat acoustic surveys (Questionnaire C n=51).

Reasons for improved attitudes:

"Being able to locate them on the detector gives a better appreciation that they are there."

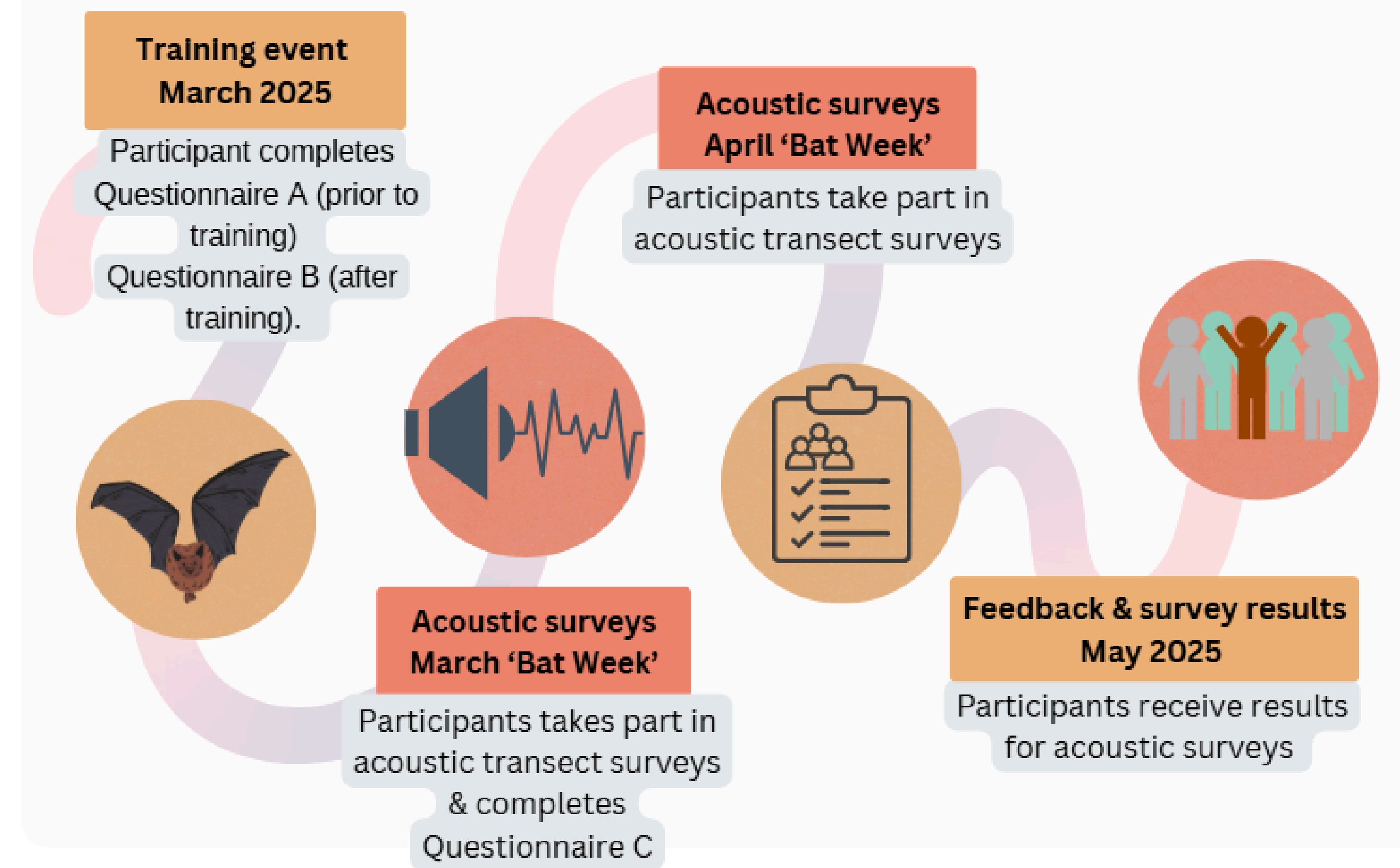
"It was great to see the trace on the acoustic monitor, and hear the calls. Then I saw the bat!!"

"It's always really interesting for us to see/record animals in their natural habitat."

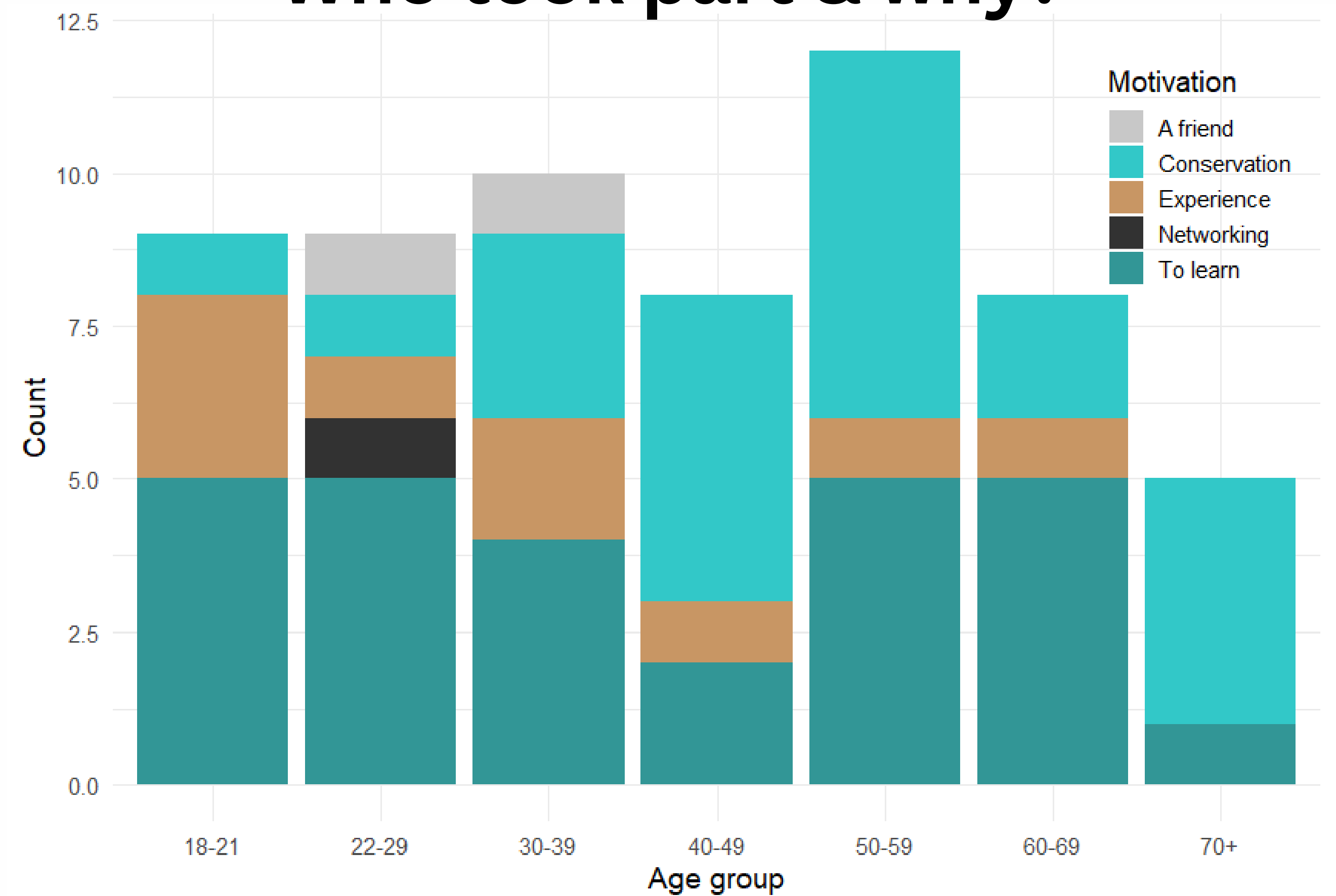
Methods

Participants carried out acoustic transect surveys at urban bushland sites. Bat calls were analysed to determine species presence and contributed to local biodiversity monitoring. Questionnaires were used to assess social impacts to participants over time.

Citizen Scientist Journey



Who took part & why?



Conclusion

This study achieved:



Wellbeing and enjoyment: Participants valued the novelty, sensory experienced and social connection.



Learning and connection: Knowledge, nature connection and conservation confidence all improved and sensory immersion played a role.



Urban relevance: A low-barrier way to foster coexistence with underappreciated species and fill gaps in urban biodiversity.



Dual goals: Collected biodiversity data and engaged the public with urban bats.



Positive shifts in attitudes: Even participants with neutral or negative views developed greater appreciation for bats.



Reaching new audiences: Strong engagement from all ages, including younger adults. Future projects could expand reach through schools or workplaces.