

Round #2

by Esther Sebastián González, 22 Dec 2022 11:49

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Minor changes needed before recommendation

Dear authors,

Please, I am very sorry this took so long. I was waiting for a second review that finally did not come. However, one of the reviewers was able to re-read your study and is very happy with the changes performed. He/she only has some minor comments that I think can help to improve a little bit more the quality of the paper.

On my side, I only have a few minor comments to add to those of the reviewer:

Thank you very much! We are so glad our previous revision did a good job of addressing the comments.

- Lines 61-64. Is there any empirical evidence of this? If so, please add a reference, it is not clear to me if this is something which is known of something you expect.

The original intent of this sentence was to state a prediction that follows the literature we cited earlier in that paragraph, but we added additional references to clarify this point (L63-L65):

“these behaviors should be expressed more on the edge of the expansion range where there have not been many generations to accumulate relevant knowledge about the environment (Sol et al., 2005b; Wright et al., 2010; Cohen et al., 2020; Nicolaus et al., 2022).”

- Lines 80-99. You specify in the abstract that the great-tailed grackle is more behaviorally flexible than the boat-tailed grackle, but this information is not included in the introduction, and I think it is important to fully understand your story. Maybe you can add a brief sentence about it in this paragraph.

Thank you for bringing this point to our attention. The purpose of our statement in the abstract was to mention that the great-tailed grackle is behaviorally flexible. We are currently working to assess the behavioral flexibility of boat-tailed grackles, so we cannot say that great-tailed grackles are more behaviorally flexible than boat-tailed grackles. We have removed the mention of the behavioral flexibility of the great-tailed grackle from the abstract to prevent any confusion, as that statement without the context that the boat-tailed grackle has not been tested for behavioral flexibility is misleading. We have also added a sentence to this paragraph that specifies that the great-tailed grackle is highly behaviorally flexible, but that the behavioral flexibility of the boat-tailed grackle is currently untested (L89-L91):

“The great-tailed grackle is highly behaviorally flexible (Logan, 2016a; Logan 2016b), similar to other species that successfully use human-altered environments (Wong & Candolin, 2015), but the behavioral flexibility of the boat-tailed grackle has not yet been assessed.”

- Lines 153-154. You briefly explain how you tested hypotheses 1-4, why didn't you include hypothesis 4 here? Maybe you can add a brief explanation also.

Thank you for pointing this out. We have added a statement on how our hypothesis 4 is addressed by each of our analyses (L156-L164):

“Finally, the overall power of our analyses to predict the range dynamics of the great-tailed grackle addresses Hypothesis 4. If inherent species traits are a main component of the observed range dynamics, our species distribution and

connectivity models should not be able to fully differentiate the realized niche and geographic areas occupied by the great-tailed grackle over time, as these models do not account for those traits. A range increase even though changes in the environment, realized niche of the great-tailed grackle, and landscape connectivity have not increased the geographic areas of suitable and accessible habitat over time would indicate that great-tailed grackles already had the inherent ability to occupy the newly inhabited areas.”

- Line 225: There is a missing space in “usedata”

Thank you, fixed.

Looking forward to a revised version.

Esther

Reviews

Reviewed by anonymous reviewer, 01 Dec 2022 05:40

The authors have improved the manuscript in important ways, and I am satisfied with the revision. Most important, the authors are much more consistent in acknowledging the limitations associated with their correlative data set.

Thank you for your thoughtful comments that have helped us improve our manuscript to its current state!

I include some specific suggestions below. Most of these are minor.

16 – it seems that you should mention interior Florida here also

We agree and made the suggested change.

“the boat-tailed grackle (**Quiscalus major**), has remained tied to the coasts of the Atlantic Ocean and the Gulf of Mexico as well as the interior of Florida.”

57 – is the word “certain” needed here? It seems misleading to me. How about just “some number of generations”?

We agree; done.

“This idea predicts that flexibility, exploration, and innovation facilitate the expansion of individuals into completely new areas and that the role of these characteristics diminishes after some number of a certain number of generations (Wright et al., 2010).”

63 – “thus therefore” – it seems one of these should be deleted

Thank you for pointing this out. We have deleted “therefore.”

“Instead, the actual act of continuing a range expansion likely relies on flexibility, exploration, innovation, and persistence, and thus these behaviors should be expressed more on the edge of the expansion range”

125 – This wording is a bit confusing / awkward: “This hypothesis would support the hypothesis”. Maybe change to something like “Support for this hypothesis would be consistent with the broader hypothesis...” or “Support for this hypothesis would, by extension, also support the hypothesis that...”

Thank you, we changed the line to:

“This outcome would be consistent with the hypothesis that the original behavior of the great-tailed grackle, determined by inherent species traits, was already well

adapted to facilitate a range expansion while the behavior of the boat-tailed grackle restricts it to its current range.”

225 – “usedata” to “use data”

Thank you, fixed.

354-355 – you state here that this time period precedes the rapid range expansion, but earlier, you state that rapid range expansion happened within this range (1967-1977 – line 193)

Thank you for pointing this out, we have changed “precedes the most rapid period” to “captures the most rapid period” as our temporal range contains the majority of the period of the most rapid range expansion.

421 – change “are significant when compared to a null space” to “differ significantly compared to a null space”

Thank you, done.

562 – This wording: “would indicate that the species has novel habitat associations” implies a comparison between species, but I think you are comparing between time periods within species. Therefore, shouldn’t this sentence read something like “would indicate that the species has novel habitat associations in one time period relative to the other time period”

We have changed the sentence to:

“would indicate that the species has novel habitat associations in the current time period relative to the historic time period.”

671 – “into previously occupied” should, I believe, be “into previously unoccupied”

Thank you, fixed.

713 – I suggest inserting “realized” before “niche”

Thank you, done.

723-733 – in this paragraph you could integrate some of the growing evidence that a relatively large subset of bird species do not seem to be changing their geographic ranges in response to climate change (at least in simple, predictable ways). For instance:

Currie and Venne DOI: 10.1111/geb.12538

Neate-Clegg et al. DOI: 10.1111/csp2.291

Thank you for pointing out this opportunity to connect our results to broader trends in the literature. We have added a statement (L745-L749) on unexpected range shifts in birds in response to climate change. We cited the Currie and Venne (2016) paper that you provided, as well as a recent paper by Viana and Chase (2022) which found greater decoupling of bird species from previous climatic niches as environmental conditions have changed. Interestingly, Viana and Chase also found that species that have decoupled from previous climate conditions tended to experience declines in abundance, which we did not estimate for either grackle species.

“Evidence of bird species not following predicted range shifts in response to climate change is building, with many species becoming decoupled from previously identified climatic niches (Viana & Chase, 2022). Species appear to shift their ranges in ways that do not directly track the rapid changes in climate (Currie & Venne, 2016), potentially because the local climate shapes niches indirectly by leading to habitat changes that often can take many years to fully manifest (Neate-Clegg et al., 2020).”

782 – insert comma after “boat-tailed grackle”

Thank you, fixed.