Review of: "Social and Environmental Drivers of Black-Necked Crane (BNC) Habitat Suitability in Bhutan: Insights From Maxent Modelling and Conservation Implications"

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Potential competing interests: No potential competing interests to declare.

Thank you for the opportunity to review this paper.

I would like to inform you that the paper entitled**Social and Environmental Drivers of Black-Necked Crane (BNC) Habitat Suitability in Bhutan: Insights from Maxent Modelling and Conservation Implications is in need of a major revision.**

My comments have been attached.

Key words

- Please avoid sentences in the keywords section; it is "Keywords," not key sentences.
- Avoid title words as keywords; your keywords are replicas of the title.

Abstract

- Black-necked crane (Grus nigricollis) - scientific name in italic letters; it must be*Grus nigricollis*
- **The paragraph started with**: - this study employs the Maxent-LQH model to conduct a comprehensive estimation of habitat appropriateness for the endangered black-necked crane (Grus nigricollis) within Bhutan - the target species is near threatened, not endangered (BirdLife International, 2020).

Introduction

- Page 2/25 - scientifically classified as Grus nigricollis, named as Grus nigricollis
- Page 2/25 - Grus nigricollis - scientific names must be written in italic letters.
- Grus nigricollis - represents a distinguished avian species endemic to the high-altitude regions of Central Asia - more details.
- Page 2/25 - Renowned for its resplendent aesthetics. Please add a reference.
- Page 2/25 - the BNC epitomizes a species of remarkable ornithological significance - explain?
- Page 3/25 - as elucidated by - delete it all over the text.
- Page 3/25 - M. Li et al., 2022. - written by mistake; the right form is Li et al., 2022.
- Page 3/25 - In terms of conservation status, BNCs have been classified as vulnerable by the IUCN according to Liu et al., (2013). BNCs have been classified as near threatened BirdLife International. 2020. *Grus nigricollis*. *The IUCN Red*

List of Threatened Species 2020: e.T22692162A180030167. https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22692162A180030167.en

- The introduction lacked (1) global distribution, (2) previous studies, and (3) threats.

Historical background

- The BNC is listed as vulnerable in the IUCN Red List of Threatened Species (M. Li et al., 2022). Is that true?? Please review the source; the last global assessment was during 2020.

Material and methods

- Notes on the topography of the study area are required.
- - Brief information on the flora of the study area (wild and cultivated) is required.

Data collection

- How important is this section? Historical inventory: There is no listed inventory or specific data.
- There is no identified method for data collection, especially occurrence points, i.e., occurrence points depending on field survey or collection from other studies and reports.

Data Processing and Parameter Optimization

- This process retained all 23 occurrence localities as training data. What is the source of the 23 occurrences? Is that all occurrences?

Results

- The jackknife method was applied to systematically eliminate environmental variables with a zero-contribution rate. Insert a table to clarify what these factors are.
- Figure 4 not included within the text, refer to it, explain in detail each parameter?
- In figures 4, 7, 9 black lines refer to what?
- **Figure 4 (a-d). delete** (e) distance from settlement, (f) road proximity, (g) river distance, (h) NDVI, (i) aspect, and (j) landuse landcover.
- **Figure 4 (i-j).** Factor maps representing (i) aspect and (j) landuse landcover. More distinguished colors: shrub, forest, alpine scrub. No data within the text.
- **Figure 8.** Light green represents the BC, and the darker green zone represents the PAN across Bhutan. Change the color to distinguish between BC and very low sustainable habitat.
- **Figure 9.** Habitat suitability map within foraging sites overlaid by the occurrence of BNCSs. The foraging sites were maintained by the RSPN and RGoB across Bhutan overlaid on the suitability zone demarcated on each foraging roosting habitat dark green colour refers to what?
- **Figure 7, 8, 9.** Habitat suitability map overlayed on the location of occurrences of BNCSs across Bhutan. The major colour seems to me to be pale brown, while in the legend, white is unsuitable habitat.

- **All results must be revised.**

Discussion

- The spatial distribution of black-necked crane (BNC) habitat prominently indicates high suitability in the vicinity of the Paro district, as evidenced by the Maxent modelling approach, which may be limited in the data repository of the Royal Society for Protection of Nature (RSPN). However, according to the information provided by the RSPN, it looks like a repeat of the results without explaining reasons.
- One major determinant of black-necked crane habitat suitability in Bhutan may be the availability of diverse food sources. As indicated in Figure 10, the majority (60%) of the observed black-necked crane roosting locations were in agricultural fields, followed by meadows (there is no reference in the results section; explain as a result and move Figure 10 to the results?).

The conclusion is too long; summarize it.