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Does the Brazilian Disjunct Population of *Embernagra platensis* (Aves, Thraupidae) Merit Taxonomic Status?

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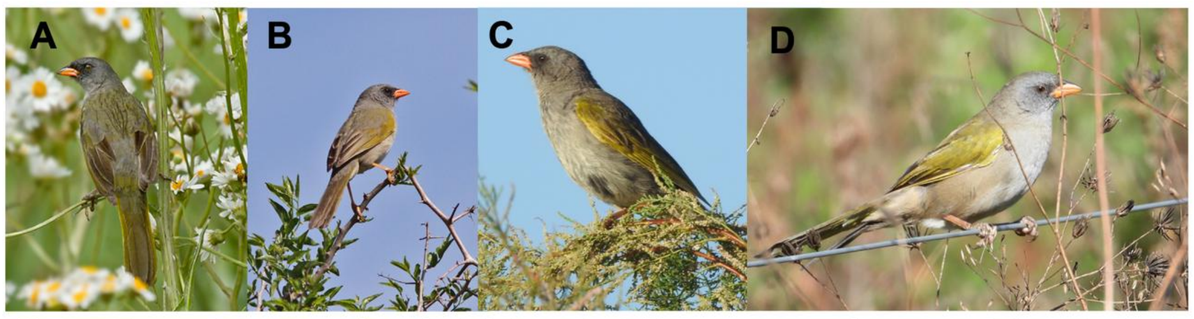
INTRODUCTION & AIM

The Great Pampa-Finch (*Embernagra platensis*) is a common Thraupidae species found in open grasslands in South America, related to the genus *Emberizoides*. The species is a complex comprising four allopatric taxa traditionally treated as subspecies: *E. p. platensis*, *E. p. olivascens*, *E. p. gossei*, and *E. p. catamarcanus*. Eastern populations (*platensis*) differ from western populations (*olivascens, gossei, catamarcanus*) in morphological characteristics (size, color, bill curvature, and dorsal streaking).



(A) *E. p. platensis* – Bom Jardim da Serra, Santa Catarina, Brazil; (B) *E. p. olivascens* – Sierras de las Peñas Norte, Río Cuarto, Córdoba, Argentina; (C) *E. p. gossei* – Gral Pedernera, San Luis, Argentina; (D) *E. p. catamarcanus* – Zucuma grasslands, El Alto, Catamarca, Argentina. Sources: argentinat.org; macaulaylibrary.org; wikiaves.com.br.

The subspecies *E. p. platensis* in Brazil has an allopatric distribution with a conspicuous distribution gap in the central region of São Paulo state.

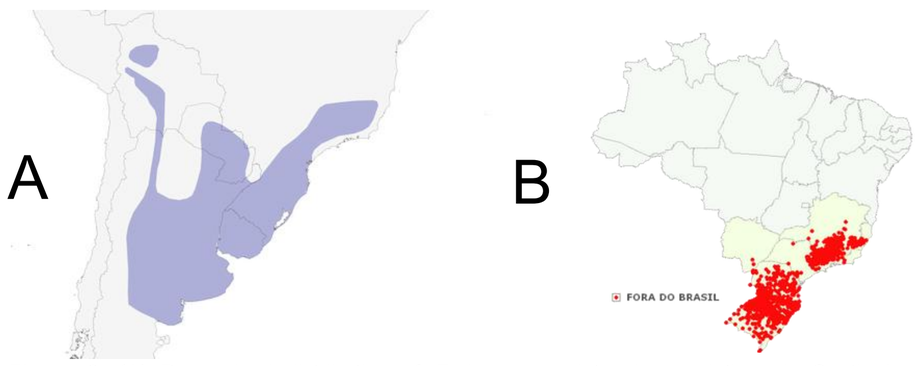


Figure 2: (A) Recognized distribution of *Embernagra platensis* populations in South America, and (B) allopatric occurrence in Brazil showing a gap in its distribution in the central region of São Paulo state. **Source:** wikiaves.com.br; www.birdsoftheworld.org.

This study aimed to evaluate the diagnostic potential of acoustic and morphological traits for distinguishing *E. platensis* populations and contribute to the determination of evolutionary lineages.

METHOD

Vocal Analysis

- Sample: 392 analyzed song recordings.
- Sources: Xeno-Canto and Macaulay Library online platforms.
- Software: Raven Pro 1.6.5 and R environment (package warbleR) for processing and analyses.
- Multivariate Analysis of Variance (MANOVA).

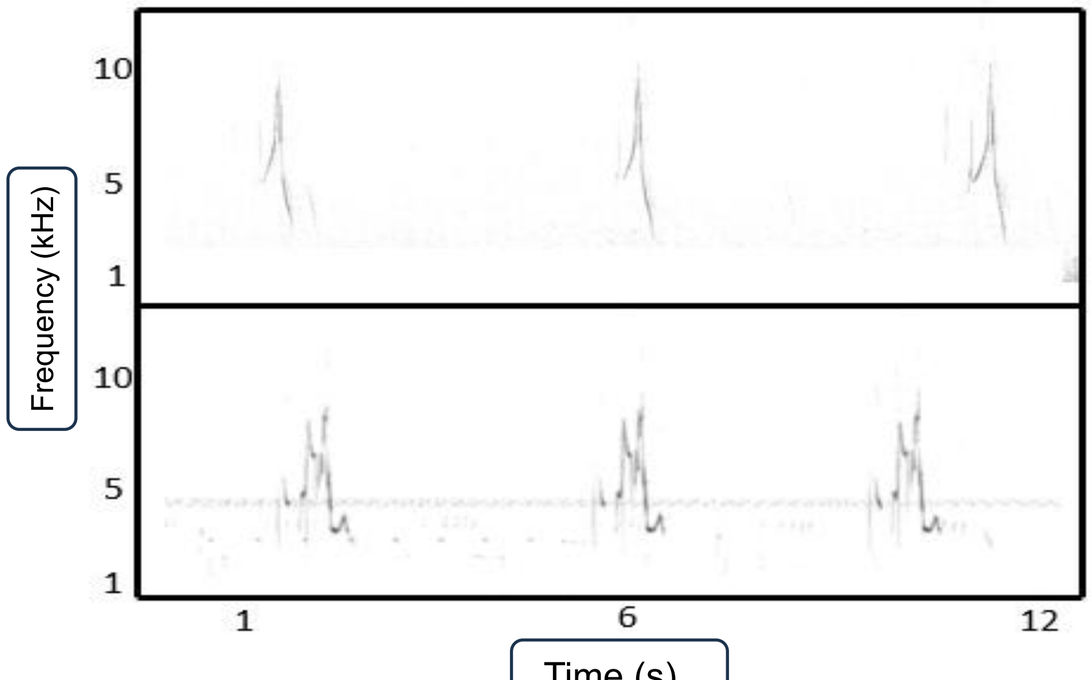


Figure 3: Spectrograms of the song of (A) *Embernagra platensis olivascens* (Córdoba – Argentina XC108050); (B) *Embernagra p. platensis* (Minas Gerais – Brazil XC84502).

Morphological Analysis

- Sample: 17 specimens from Museu de Zoologia da Universidade de São Paulo.
- Measurements: Measured with a caliper (0.01 mm): wing, tail, and tarsus length, and bill measurements (length, width, and height).
- Plumage: Colorimetric analyses conducted.
- Statistics: MANOVA and Student's *t*-tests.

Figure 4: Examples of *Embernagra platensis* specimens examined for morphometric and colorimetric comparisons in this study.

RESULTS & DISCUSSION

No significant acoustic differentiation was detected among the examined *Embernagra platensis* populations. Analyses based on seven acoustic variables revealed no differences between the Brazilian disjunct populations (MANOVA: $F_{1,2} = 0.8$,$p = 0.568$). When the western taxa (*gossei* and *catamarcanus*) were synonymized under *E. p. olivascens*, subsequent analyses comparing *olivascens* (*sensu lato*) and *platensis* likewise detected no divergence (MANOVA: $F_{1,1} = 0.8$,$p = 0.507$). Overall, the geographic vocal variation observed across the species' range did not support acoustic differentiation among populations.

Morphological and colorimetric analyses likewise indicated a general lack of divergence. All specimens shared similar plumage patterns, although a slight dorsal color shift was observed between southern and northern Brazilian populations, with northern birds tending toward marginally lighter olive tones. However, this variation was subtle, showed broad overlap, and was not considered taxonomically significant. Underparts remained consistent across individuals, corresponding to pale olive 2.5Y 6/3. Morphometric analyses revealed only marginal differences ($F = 5.4$, $p = 0.011$), driven mainly by tarsus length, which was slightly greater in the northern population ($p = 0.006$), though with substantial overlap in measurements.

CONCLUSION

Integrated acoustic, morphological, and colorimetric evidence indicates that the Brazilian disjunct populations of *Embernagra platensis* are not differentiated from continuous populations within the species. No diagnosable traits were identified that support taxonomic elevation or recognition of an independent lineage. Although the observed distribution gap in São Paulo is biogeographically intriguing, current phenotypic data do not justify taxonomic revision. Genomic analyses and expanded geographic sampling will be essential to further evaluate potential cryptic structure.

REFERENCES