**Title: The first record of the** **Uniform-Finch (*Haplospiza unicolor* Cabanis, 1851) in the Cerrado and Center-West of Brazil**

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**Abstract**

The Uniform-Finch *(Haplospiza unicolor* Cabanis, 1851) is typically found in the Atlantic Forest of Brazil and has been recorded for the first time in the Brazilian savanna, or Cerrado, at a private property in Alto Paraíso de Goiás, Goiás state. This is a new record for both the biome and state levels. We also accessed all the occurrence information of *H. unicolor* available in databases to explore its overall geographical range. This new sighting indicates this bird moved at least 679,43km from its original distribution range, thus shedding light on its potential for dispersal and adaptation to a different environment. The record presented here adds to the understanding of *H. unicolor* distribution and potential for dispersal, indicating the need for further research to explore its population size, stability, and environmental adaptation in the Cerrado.

**Key-words**: Birds, Dispersal, Savanna, Occurrences

The Uniform-Finch (*Haplospiza unicolor* Cabanis, 1851) is an endemic bird of the Atlantic Forest, found in almost every state of southeastern and northeastern Brazil (da Cunha 2012). Its current conservation status is Least Concern, and it naturally occupies habitats such as subtropical or tropical moist lowland forests and subtropical or tropical moist montane forests (BirdLife International 2016). The Uniform-Finch is commonly seen in areas with bamboo, particularly in forests where the *Chusquea sp.* genus, abundant in the Neotropics, grows in the understory (Young 1991; Fisher et al. 2014). They are considered “bamboo specialists” as bamboo seeds comprise an important part of their diet (Sánchez 2005; da Cunha 2012).

On July 1st, 2024, we spotted the Uniform-Finch (*Haplospiza unicolor* Cabanis, 1851) for the first time in the Brazilian savanna, also known as Cerrado, in the Center-West of the country. The bird was sighted at a private waterfall called “Cachoeira da Fazenda Loquinhas” (latitude: -14.1440633, longitude: -47.48816), situated in the city of Alto Paraíso de Goiás in the Goiás state, Brazil. This area covers a 2.2 km loop and consists mainly of gallery forests and rupestrian woody fields, with elevations ranging from 1200 meters to 1300 meters.

The register happened at approximately 7:30 am. The *H. unicolor* individuals were initially identified by their vocalization. We estimated that there were around four to five individuals vocalizing in a gallery forest situated in a valley with a narrow stream. The area is characterized by tall trees and a few bamboos on the slope (latitude: -14.144166, longitude: -47.483497). After identifying the vocalization, we used playback recordings from eBird and Wikiaves (a Brazilian bird database) to lure the birds, which replied and approached after a few minutes. This species has been recorded only on the coast of the tropical and ombrophile Atlantic Forest, far away from the dry and open forest of Cerrado. The bird was observed using binoculars, audio recordings, and telephoto cameras (all the images and additional details are available on the GitHub repository: <https://github.com/souzayuri/ornithology_research_haplospiza_unicolor>). The bird was identified with the assistance of the bird guide João Salvador (CRBIO: 113624/01-D). Photos were taken for further identification and are displayed in Figure 1. We also recorded the bird's vocalization and made it available on eBird along with the pictures (<https://ebird.org/checklist/S184727948>).

The *H. unicolor* occurrence and records data displayed in Figure 2 comprise the data available on *iNaturalist*, *Integrated Digitized Biocollections* (iDigBio), *VertNet*, and *Global Biodiversity Information Facility* (gbif – which also includes data from eBird prior to our upload to its database). We downloaded the available occurrence data using the package “*spocc*” in R software (Owens et al. 2024; R Core Team 2024). Within the acquired occurrences, three were outside the natural occurrence range, which were manually checked and happened to be stored in museum collections located in the Brazilian states of Mato Grosso and Manaus, and one specimen was located in Bolivia. Although the distribution points seem to be sparse, this species' occurrence was originally restricted to the coast of the Atlantic Forest, and many specimens were placed in museums along the southern and southern regions of Brazil as well as in museum collections located in Paraguay and Argentina countries, where it also originally occurred (Sánchez 2005; da Cunha 2012).

A bird on a branch

Description automatically generated

**Fig. 1** Pictures of an individual of the Uniform-Finch (Haplospiza unicolor Cabanis, 1851) taken from different angles. Picture A was taken using a Nikon D7200, and B to D used a Nikon Z7. Both pictures were taken within the 400-600mm zoom lens range and cropped later using Adobe Photoshop® in order to remove the image noise.

Given this live record is isolated from the others we acquired, we calculated the distance of this record in regard to the current bird occurrences available on databases. Using the function *Near* available on ArcGIS Pro®, we calculated the mean distance among all recorded points and the closest distance of the new record. On average, each available record (9,482 points) is 0.881km apart from each other, while the new record is 679,69km on average apart from the other points (calculated by including the downloaded data from all data sources).

A map of brazil with a map of the country

Description automatically generated

**Fig. 2** All occurrence data of Uniform-Finch (Haplospiza unicolor Cabanis, 1851). Each point is an observation from a museum collection, focal observation, or vocalization record acquired from databases. The reddish star highlights the new location where this bird was recorded, Cachoeira da Fazenda Loquinhas (or “Loquinhas waterfall”), placed in the city of Alto Paraíso de Goiás, Goiás State, Brazil.

Even though many species of birds do not migrate or have restricted niches, it is not rare in the tropics for a species to overcome its dispersal area and geographical distribution (da Silva 1995). Conversely, it could be a case of an isolated *H. unicolor* population, as the Atlantic Forest biome's original range used to cover part of the Center-West of Brazil (Vancine et al. 2024). The Atlantic Forest has lost 77% of its original cover, and the remnants are mostly composed of isolated and small patches of forest spread all across its original biome range (Vancine et al. 2024). The new record region may comprise an ecotone or corridors formed during the evolution of the Cerrado biome in transition with the Atlantic Forest, thus providing the *H. unicolor* requirements to thrive, which could be further verified by analyzing the vegetation structure and species in the area (Vieira et al. 2019).

This observation widened the previously narrowed distribution of *H. unicolor* while adding new information on its ability to disperse outside its original geographical region. Given the remoteness of its record compared to other observations, we suggest further research in the area to gain a better understanding of its population size and stability as well as its potential to adapt and thrive in different environments, such as the Cerrado.

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