

Birds from southern Distrito Federal, Brazil: a look outside protected areas

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O Distrito Federal está localizado no Cerrado, região central do Brasil. Entre 2014 e 2019, realizamos inventários de aves em seis localidades no sul do Distrito Federal, fora das áreas protegidas. As áreas de estudo estão na sub-bacia do Rio São Bartolomeu, bacia do Rio Paranaíba. No total, foram realizados 148 dias de esforço amostral (130 dias de observações e 18 dias de capturas com redes de neblina). Nossos levantamentos resultaram em 260 espécies de aves. Os registros notáveis incluem algumas espécies raras na área de estudo ou incomuns, como o gavião-pega-macaco *Spizaetus tyrannus*, maxalalagá *Micropygia schomburgkii*, limpa-folha-do-brejo *Syndactyla dimidiata*, João-de-cabeça-cinza *Craniouca semicinerea* e canário-do-amazonas *Sicalis columbiana*. Somente uma espécie ameaçada de extinção foi registrada (papa-moscas-do-campo *Culicivora caudacuta*). Através dos resultados, foi possível observar que a maioria das espécies ameaçadas que ocorrem no Distrito Federal não foi encontrada durante o estudo fora de áreas protegidas, o que ressalta a importância dos lugares protegidos na região.

The Cerrado is the second largest biome in Brazil^{12,16}, and embraces different phytogeographies²³ that provide habitat for a diverse avifauna³⁰. Although more than half of its area has been converted to pasture and annual crops over the last 50 years¹⁶, some studies suggest that around 45% of the Cerrado's original vegetation remained up to the early 2000s¹⁶. Historically, deforestation rates in the Cerrado have been higher than in the Amazon, but conservation efforts less prominent¹⁶. In recent years, less than 5% of the Cerrado has been legally protected as conservation units, compared to almost 14% in the Brazilian Amazon¹⁶.

Located in the Cerrado, Brazil's Distrito Federal harbours several conservation units, including Parque Nacional de Brasília, Floresta Nacional de Brasília, Estação Ecológica de Águas Emendadas, Estação Ecológica do Jardim Botânico and Monumento Natural do Conjunto Espeleológico do Morro da Pedreira. Other protected areas are Reserva Ecológica do Instituto Brasileiro de Geografia e Estatística (IBGE), Área Alfa da Marinha and Fazenda Água Limpa.

Currently, up to 21 threatened species at national²¹ and/or global level⁶ are known to occur in Distrito Federal^{5,38}, most within protected areas^{2,4,7,15,22,34}. Given that protected areas often receive more research effort than unprotected areas, the aim of our study was to undertake bird inventories at six localities outside protected areas in southern Distrito Federal.

Material and methods

Study area

Distrito Federal is located in the Cerrado²⁴ of central Brazil (Fig. 1). The national capital, Brasília, is in

the centre of Distrito Federal. In southern Distrito Federal the Important Bird and Biodiversity Area 'Cerrados ao Sul de Brasília' (Cerrados to the south of Brasília)⁹ covers 18,952 ha and embraces several protected areas, including the Estação Ecológica do Jardim Botânico de Brasília (conservation unit established in 1992 by Distrito Federal), Reserva Ecológica do IBGE (private reserve created by Instituto Brasileiro de Geografia e Estatística in 1975), Fazenda Água Limpa (farm owned by the University of Brasília) and Área Alfa da Marinha (owned by the Forças Armadas do Brasil)⁹.

We selected six study localities in the southern part of Distrito Federal, outside protected areas. All study sites are located in the Rio São Bartolomeu sub-basin (Fig. 1), a river that flows into the Rio Corumbá, in the Rio Paranaíba basin. The Rio São Bartolomeu is 200 km long, and its sub-basin occupies 157,900 ha. Climate in the region is tropical Aw with dry winters³, marked by two seasons (dry from May–September; rainy from October–April). Phytogeographies mentioned below follow Oliveira-Filho & Ratter²²: gallery forest, mesophytic semi-deciduous forest, *cerradão*, *cerrado sensu stricto*, *campo cerrado*, *campo sujo*, *campo de murundus* and *vereda*. The six study sites characterised below have no large forest remnants. Most are located in the urban area of Distrito Federal, but Locality 1 is partially, and Locality 4 entirely, located in a rural area¹⁰.

Locality 1 (15°59.2'S, 47°45.8'W; 980 m altitude) Located in the São Sebastião administrative region, it covers 500 ha. Phytogeographies include gallery forest, *cerrado sensu stricto*, *campo cerrado* and *campo sujo*.

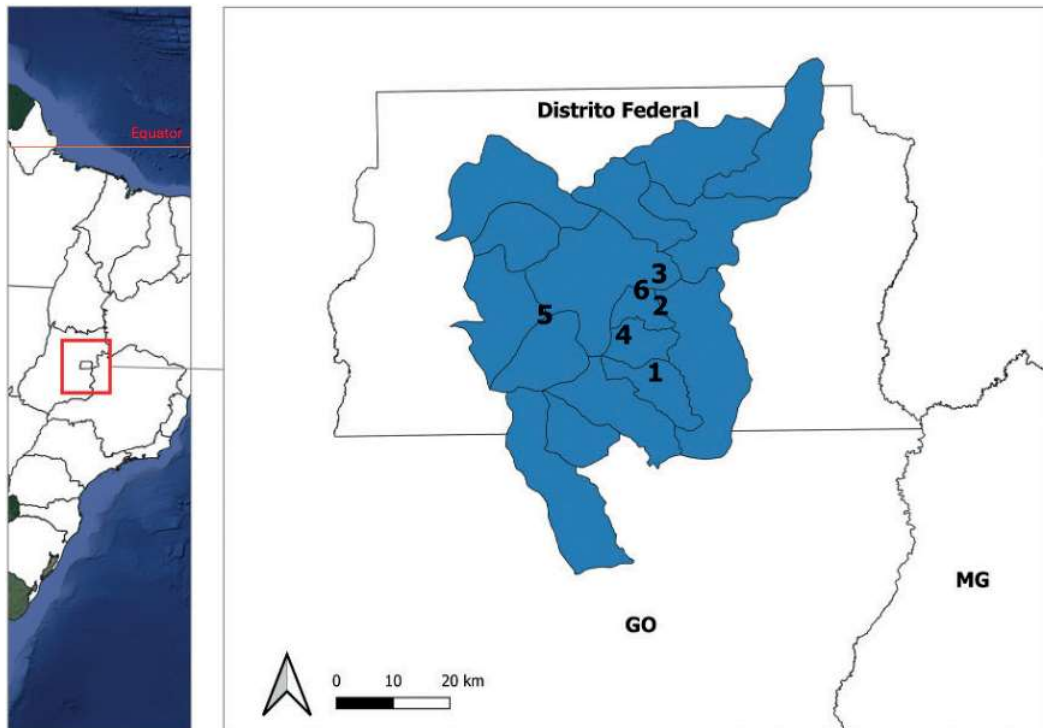


Figure 1. Study localities in the southern part of Distrito Federal, Brazil, represented by numbers 1–6. Blue shading marks the Rio São Bartolomeu sub-basin (divided into micro-basins) within Distrito Federal. Other Brazilian states: GO = Goiás; MG = Minas Gerais.

Locality 2 (15°52.4'S, 47°45.1'W; 900 m)

Located in the Jardim Botânico administrative region, it covers 700 ha. Phytophysiognomies include gallery forest, *cerradão*, *cerrado sensu stricto*, *campo cerrado* and *campo sujo*.

Locality 3 (15°49.3'S, 47°45.2'W; 1,050 m)

Paranoá administrative region; 600 ha; gallery forest, mesophytic semi-deciduous forest, *cerrado sensu stricto*, *campo cerrado* and *campo sujo*.

Locality 4 (15°55.1'S, 47°48.7'W; 1,135 m)

Jardim Botânico administrative region; 650 ha; gallery forest with associated *vereda*, *cerrado sensu stricto*, *campo cerrado*, *campo sujo* and *campo de murundus*.

Locality 5 (15°53.1'S, 47°56.8'W; 1,075 m)

Lago Sul administrative region; 500 ha; gallery forest with associated *vereda*, *cerrado sensu stricto*, *campo cerrado*, *campo sujo* and *campo de murundus*.

Locality 6 (15°50.9'S, 47°46.1'W; 1,020 m)

Paranoá administrative region; 600 ha; gallery forest, mesophytic semi-deciduous forest, *cerrado sensu stricto*, *campo cerrado* and *campo sujo*.

Fieldwork

Surveys were conducted from 2014–2019 using distinct methods (point counts, transects and Mackinnon lists, at different levels of survey effort)³⁷. Therefore, only qualitative results are presented. We completed 30 survey days at Locality 1 (2014–2019), 30 at Locality 2 (2014–2015), 24 at Locality 3 (2018–2019), 24 at Locality 4 (2019), 12 days at Locality 5 (2019) and 14 at Locality 6 (2017). Field observations totalled 780 hours across 130 field days. Photographic cameras, digital recorders and microphones were used to document species. Mist-nets were used only at Locality 5 (2014–2015), totalling 16,200 square-metre-hours (ten mist-nets of 6 x 3 m, run for 5 hours on 18 days).

Results

Our field surveys resulted in records of 260 species of birds (Appendix; taxonomy and nomenclature follow Pacheco *et al.* 2021²⁵): 191 species at Locality 1, 184 at Locality 2, 166 at Locality 3, 145 at Locality 4, 158 at Locality 5 and 142 at Locality 6. Coal-crested Finch *Charitospiza eucosma* was found only in the surrounding area, in a *campo sujo* close to the Área Alfa da Marinha. At Locality 5, a total of 44 species were captured