



ARTÍCULO DE INVESTIGACIÓN / RESEARCH ARTICLE

CHECKLIST OF THE BIRDS OF THE MUNICIPALITY OF SALAMINA (CALDAS), CENTRAL ANDES OF COLOMBIA: NEW RECORDS AND TAXONOMIC UPDATES**Lista de aves del municipio de Salamina (Caldas), Andes Centrales de Colombia: nuevos registros y actualizaciones taxonómicas**

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ABSTRACT

Bird assemblages are increasingly threatened by anthropogenic factors, leading to growing concern about their key role in natural ecosystems. This has led to the creation of conservation programs, however, one of the greatest obstacles to this end is the lack of updated information on the species distribution and taxonomic status. In Colombia, which is recognized as the country with the greatest diversity of birds in the world, conservation efforts are often constrained by the lack of baseline information or outdated data in different regions. To contribute to the knowledge of the regional avifauna, we present an updated checklist for birds of the municipality of Salamina (Caldas), based on published information and field records. We also listed resident, threatened, and endemic species. The checklist includes 279 bird species, 23 of which are migratory, three endemics to Colombia, six are categorized as Near Threatened, and two as Vulnerable (following the IUCN criteria). We propose this updated checklist as baseline information, which can be used in future ecological and management studies of species under conservation priority.

Keywords: Avifauna. Bird vulnerability. Conservation. Knowledge shortfalls.

RESUMEN

Los ensamblajes de aves se encuentran cada vez más amenazadas por factores antrópicos, derivando en una preocupación cada vez mayor por su papel clave en los ecosistemas naturales. Lo anterior ha influenciado en la creación de programas de conservación; sin embargo, uno de los mayores obstáculos para ello es la ausencia de información actualizada sobre la distribución de las especies y su estado taxonómico. En Colombia, que es reconocida como el país con la mayor diversidad de aves a nivel mundial, los esfuerzos de conservación suelen estar limitados por la falta de información de referencia o de datos obsoletos en diversas regiones del país. Para contribuir al conocimiento de la avifauna regional, presentamos una lista actualizada de aves del municipio de Salamina (Caldas),

a partir de información publicada y registros realizados en campo. También enumeramos las especies residentes, amenazas y endémicas. La lista incluye 279 especies de aves, de las cuales 23 son migratorias, tres endémicas de Colombia, seis están clasificadas como Casi amenazada y dos como Vulnerable (siguiendo criterios de la IUCN). Proponemos esta lista actualizada como información de línea base, que puede ser utilizada en futuros estudios ecológicos y de manejo de especies bajo prioridad de conservación.

Palabras clave: Avifauna. Conservación. Vacíos de conocimiento. Vulnerabilidad de las aves.

INTRODUCTION

Worldwide, bird assemblages are one of the most vulnerable groups for their sensitivity to natural ecosystem loss (Bohada-Murillo et al., 2020). Birds provide diverse ecosystem services such as pollination or seed dispersal (Wenny et al., 2011), deriving in efforts to promote conservation programs (Şekercioglu et al., 2004). One of the major obstacles to the generation of conservation programs that incorporate diverse groups such as birds is the lack of updated information on species distributions and updated taxonomic knowledge (Hortal et al., 2015; Bax and Francesconi, 2019). In this context, consolidating updated information of bird communities becomes a fundamental step to propose strategies for their conservation (Kattan et al., 2006; Rodríguez et al., 2013a; Cordoba-Cordoba and Sierra, 2018).

Colombia is one of the countries with the highest number of bird species, with more than 1950 (Echeverry-Galvis et al., 2022; Remsen et al., 2022). Within Colombia, the Andean region hosts the largest number of species, with ~ 1100 species (Avendaño et al., 2017; Ayerbe-Quiñones, 2022), and the higher values of the natural ecosystem conversion (Armenteras et al., 2013) for agricultural development (Rodríguez et al., 2013b), or urbanization (Kattan et al., 1994; Palacio et al., 2020). In the Andean region of Colombia, the department of Caldas holds a high diversity of bird species with ~ 923 (Corpocaldas and Asociación Calidris, 2010). Most of the information on birds of Caldas has been concentrated in large, protected areas such as the Nevados National Park, Rio Blanco Forest Reserve, and Bosques de la CHEC Forest Reserve (e.g., Pfeifer et al., 2001; Ocampo, 2002; Castaño-Villa et al., 2014). Besides that, there are several scarcely studied areas, and field efforts are needed to help fill information gaps.

In this context, to contribute to local and regional knowledge of the avifauna, we present an updated checklist of the birds of the municipality of Salamina (Caldas), located in the Central Andean region. Although this municipality has a list of bird species (see Corpocaldas and Asociación Calidris, 2010), currently, the list is outdated and is based on limited information (e.g., Vélez-Estrada, 1995) and includes reduced sampling in specific habitats of the municipality (*i.e.*, hydrographic micro-basins; Ruiz-Guerra and Cifuentes-Sarmiento, 2007).

MATERIALS AND METHODS

Study area description

The municipality of Salamina (Fig. 1), department of Caldas, is located on the western slope of the Central Andes,

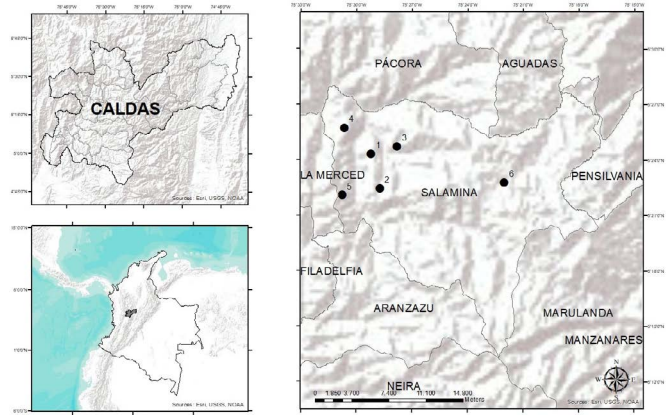


Fig. 1 Field localities for bird observations in Salamina (Caldas) municipality.

with an area of 40060 ha. It has a seasonal rainfall regime with two rainy periods (March-June and October-December) and two dry periods (January-February and July-September), a rainfall average of 1700 mm/year, and a temperature of 19.5 °C (Plan de Ordenamiento Territorial de Salamina Caldas, 2001). The landscape of the municipality is composed of a mosaic of relicts of secondary and conserved forests, in addition to coffee, avocado, sugar cane and forestry plantations, cattle pastures, and human settlements (Plan de Ordenamiento Territorial de Salamina Caldas, 2001; Plan de Desarrollo Municipal de Salamina, 2012-2015; accessible at: <http://www.salamina-caldas.gov.co>).

Literature records search and sampling design

We used the bird species checklist published by Corpocaldas and Asociación Calidris (2010) for Salamina as the primary resource of information. We consider that the published checklist represents the best available information on birds for Salamina. Complementary, we included records of two information sources: (i) vouchers at the “Colección de Aves del Museo de Historia Natural de la Universidad de Caldas (MHN-UCa-A)”, and (ii) fieldwork records. The MHN-UCa-A holds one of the largest collections of birds in the department of Caldas.

We surveyed the avifauna in six locations (*see* Table 1) between January 2014 and December 2021. We selected the locations according to the farmers' entrance to their farms, and the road access to the area. We surveyed birds using point-counts (Ralph et al., 1996). The point-counts method is frequently used to survey birds in the tropical Andean region (e.g., Mills et al., 2023). For each location, we used a total of six point-counts (one point x

two days x three sampling events). One person performed the observations in each point count between 05:00 h and 10:00 h; and between 18:00 and 22:00 h using Bushnell binoculars (vision 10x42 mm) (Ralph et al., 1996). The overall sampling effort for each location was 54 h. For the identification of the different bird species, we used the field guides of Hilty and Brown (1986), McMullan et al. (2011), and Ayerbe-Quiñones (2018). Some additional bird species (mostly owls) were identified using vocalizations (Fuller and Mosher, 1981).

Table 1. Description of monitored field localities detailing coordinates, elevation, and matrix.

Field point	Locality	Latitude	Longitude	Altitude	Matrix components
1	Salamina urban centre	5.40494	-75.48676	1850 m	Urban constructions, natural forest relicts and green parks
2	La Palma - La Quiebra	5.37369	-75.47882	2050 m	Pastures for livestock, coffee plantations and avocado plantations
3	La Divisa - Portachuelo	5.41163	-75.46329	1700 m	Coffee, sugar cane plantations, pastures for livestock and natural forest relicts
4	La Chocola	5.42837	-75.51092	1600 m	Pastures for livestock, sugar cane plantations and fruits orchards
5	El Perro	5.36796	-75.51264	1950 m	Coffee, forestry and avocado plantations, and natural forest relicts
6	San Felix	5.37924	-75.36690	2500 m	Pastures for livestock, potato monocultures, and natural forest relicts

Updated checklist construction

Records were updated following a classification of the bird species of South America proposed by Remsen et al. (2022). We excluded bird species with dubious records (species whose distribution does not include Salamina). For this, we revisited the distribution maps of 289 bird species, and validated the presence in Colombia according to Remsen et al. (2022), and the specific distribution in Colombia according to Ayerbe-Quiñones (2022). Finally, for each bird species we listed the resident, and threatened category

status (*see* International Union for the Conservation of Nature [IUCN], 2022) the electronic database is accessible at: <https://www.iucnredlist.org/>, and the endemic status from Chaparro-Herrera et al. (2013).

RESULTS

We reported a total of 279 bird species of 48 families (Table 2). Thraupidae was the best represented family with 45 species, followed by Tyrannidae and Trochilidae with 33 and 22 species, respectively. During the field work we observed 199 species, recognizing 22 as new records for the municipality, whereas the birds of prey of the Accipitridae (*Campsonyx swainsonii*, *Geranoaetus albicaudatus*, *Buteo platypterus*, *Buteo albigula*, *Buteo swainsoni*), Strigidae (*Pulsatrix perspicillata*), and Falconidae (*Falco ruficularis*, *Falco peregrinus*) families were the best represented (Table 2; Fig. 2).

In addition, from available records in the literature, we excluded 31 species for Salamina due to the lack of records for Colombia and geographical distribution within the country. For example, *Cinnycerthia peruana* has no distribution in Colombia, showing a range in the Peruvian Andes (Table S1). Other species such as *Coccyzus minor*, found as a vagrant species on the San Andres and Providencia islands, and *Ortalis motmot* whose record for the country is not confirmed (*i.e.*, hypothetical record) were also excluded (Table S1). The remaining 28 species, although distributed in Colombia (Pacific, Caribbean, Orinoco, or Amazon regions), the natural regions that they inhabit are not part of Salamina; and in some cases (seven species), the distribution only reaches the southern part of the Central Andes of Colombia (Table S1).

For the 279 bird species included in the updated checklist, we found 23 migratory species with Parulidae being the best-represented family with seven species: *Vermivora chrysoptera*, *Mniotilta varia*, *Leiothlypis peregrina*, *Setophaga ruticilla*, *S. cerulea*, *S. fusca*, and *Cardellina canadensis*. We also listed six species included in Near Threatened (*Anrostomus carolinensis*, *Gallinago nobilis*, *Atlapetes flaviceps*, *Sturnella magna*, *Vermivora chrysoptera*, *Setophaga cerulea*), and two species in the Vulnerable category (*Ognorhynchus icterotis*, *Sericossypha albocristata*). Finally, we found three species of endemics in Colombia (*Scytalopus stilesi*, *Atlapetes flaviceps*, *Habia cristata*; *see* Table 2).

DISCUSSION

The updated checklist of birds for the municipality of Salamina includes 279 species, 22 of those are new records based on fieldwork. Although we introduce new species records, the updated bird species checklist is reduced to 11 species compared to the list published by Corpocaldas and Asociación Calidris (2010). This was expected since 31 species of birds from the literature records were excluded, whereas the excluded records were based on outdated



Fig. 2 Records of some bird species found in this study. (a) **Gamponyx swainsonii*, (b) **Geranoaetus albicaudatus*, (c) **Buteo platypterus*, (d) **Pulsatrix perspicillata*, (e) *Trogon personatus*, (f) *Malacoptila mystacalis*, (g) *Aulacorhynchus haematopygus*, (h) *Andigena nigrirostris*, (i) *Dryocopus lineatus*, (j) *Colaptes rubiginosus*, (k) **Falco ruficularis*, (l) *Forpus conspicillatus*, (m) *Leptosittaca branickii*, (n) *Dendrocincla tyrannina*, (o) *Ochthoeca cinnamomeiventris*, (p) **Cyanocorax yncas*, (q) *Euphonia laniirostris*, (r) *Atlapetes schistaceus*, (s) **Sturnella magna*, (t) *Myioborus ornatus*, (u) *Anisognathus somptuosus*, (v) *Piranga rubra*, (w) *Ramphocelus flammigerus*, (x) *Stilpnia heinei*, (y) *Tangara vassorii*, (z) *Tangara gyrola*. (*) New record for the municipality of Salamina. Photographs: Deivy Gómez, Eliana Rincón, and Mauricio Bohada-Murillo.

information (e.g., Vélez-Estrada, 1995). We consider that validating and updating species lists is important to provide more accurate information about the avifauna distribution, and as a result, avoid overestimation of the species bird richness. In addition, there is a need to include photographic or museum vouchers that support the presence of several species in the study areas. For example, in the “Colección de Aves of the Museo de Historia Natural of the Universidad de Caldas”, which holds one of the largest collections of birds of the department of Caldas, there is only a single specimen (MHN-UCa-A 820) of *Colaptes punctigula* collected in 1986 in Salamina.

Despite the list of bird species for Salamina was reduced, the richness is high compared to neighboring municipalities in the north of the department of Caldas (i.e., Aguadas, Pácora, and Aranzazu) (Corpocaldas and Asociación Calidris, 2010; Martínez-Sánchez et al., 2018). For example, in the municipality of Aguadas 170 bird species have been documented, and for Pácora and Aranzazu 74 and 188

species, respectively (Corpocaldas and Asociación Calidris, 2010). This update demonstrates that Salamina might be relevant for future studies in the avifauna in the northern region of the department of Caldas. Additionally, although other municipalities of the Cordillera Central such as Manizales, present higher species richness (up to 540 bird species) compared to Salamina, the differences are based on larger sampling efforts in protected areas such as the Los Nevados National Park and the Rio Blanco Reserve (Pfeifer et al., 2001; Ocampo, 2002; Cardona-Salazar et al., 2020). Therefore, we expect that the number of bird species for Salamina will increase with additional fieldwork. For example, highland localities such as Valle La Samaria or Bosque El Gigante may be of special interest to perform new studies to characterize the avifauna, due to the presence of natural forests used for conservation purposes.

Finally, we found 29 bird species listed in threatened categories, endemic, or migratory status. These bird species require special attention based on their vulnerability (Kattan,

Table 2. Updated species checklist from Salamina (Caldas) municipality, detailing resident, threatened and endemic status. LC = Least Concern, NT = Near threatened, VU = Vulnerable.

Specie	Common name	Published	This study	Resident status	UICN	Endemic
Tinamidae						
<i>Nothocercus julius</i>	Tawny-breasted Tinamou	x	x	Resident	LC	Not endemic
<i>Crypturellus soui</i>	Little Tinamou	x		Resident	LC	Not endemic
Cracidae						
<i>Chamaepetes goudotii</i>	Sickle-winged Guan	x	x	Resident	LC	Not endemic
<i>Penelope montagnii</i>	Andean Guan	x	x	Resident	LC	Not endemic
Odontophoridae						
<i>Colinus cristatus</i>	Crested Bobwhite	x		Resident	LC	Not endemic
Podicipedidae						
<i>Podilymbus podiceps</i>	Pied-billed Grebe	x		Resident	LC	Not endemic
Columbidae						
<i>Patagioenas fasciata</i>	Band-tailed Pigeon	x	x	Resident	LC	Not endemic
<i>Patagioenas cayennensis</i>	Pale-vented Pigeon	x	x	Resident	LC	Not endemic
<i>Patagioenas subvinacea</i>	Ruddy Pigeon	x		Resident	LC	Not endemic
<i>Geotrygon montana</i>	Ruddy Quail-Dove	x	x	Resident	LC	Not endemic
<i>Leptotila verreauxi</i>	White-tipped Dove	x	x	Resident	LC	Not endemic
<i>Zentrygon frenata</i>	White-throated Quail-Dove	x		Resident	LC	Not endemic
<i>Zenaida auriculata</i>	Eared Dove	x	x	Resident	LC	Not endemic
<i>Columbina talpacoti</i>	Ruddy Ground Dove	x	x	Resident	LC	Not endemic
Cuculidae						
<i>Crotophaga ani</i>	Smooth-billed Ani	x	x	Resident	LC	Not endemic
<i>Tapera naevia</i>	Striped Cuckoo	x	x	Resident	LC	Not endemic
<i>Piaya cayana</i>	Squirrel Cuckoo	x	x	Resident	LC	Not endemic
<i>Coccyzus melacoryphus</i>	Dark-billed Cuckoo		x	Resident	LC	Not endemic
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	x		Migratory	LC	Not endemic
Nyctibiidae						
<i>Nyctibius griseus</i>	Common Potoo	x	x	Resident	LC	Not endemic
Caprimulgidae						
<i>Chordeiles minor</i>	Common Nighthawk	x		Migratory	LC	Not endemic
<i>Lurocalis rufiventris</i>	Rufous-bellied Nighthawk		x	Resident	LC	Not endemic
<i>Systellura longirostris</i>	Band-winged Nightjar	x	x	Resident	LC	Not endemic
<i>Uropsalis segmentata</i>	Swallow-tailed Nightjar	x	x	Resident	LC	Not endemic
<i>Antrostomus carolinensis</i>	Chuck-will's-widow	x		Migratory	NT	Not endemic
Apodidae						
<i>Streptoprocne rutila</i>	Chestnut-collared Swift		x	Resident	LC	Not endemic
<i>Streptoprocne zonaris</i>	White-collared Swift	x	x	Resident	LC	Not endemic
<i>Chaetura cinereiventris</i>	Gray-rumped Swift	x	x	Resident	LC	Not endemic
Trochilidae						
<i>Phaethornis guy</i>	Green Hermit	x	x	Resident	LC	Not endemic
<i>Phaethornis symrhatophorus</i>	Tawny-bellied Hermit	x	x	Resident	LC	Not endemic
<i>Doryfera ludovicae</i>	Green-fronted Lancebill	x	x	Resident	LC	Not endemic
<i>Colibri cyanotus</i>	Lesser Violetear	x	x	Resident	LC	Not endemic
<i>Colibri coruscans</i>	Sparkling Violetear	x	x	Resident	LC	Not endemic

Specie	Common name	Published	This study	Resident status	UICN	Endemic
<i>Anthracothorax nigricollis</i>	Black-throated Mango	x	x	Resident	LC	Not endemic
<i>Helianthus exortis</i>	Tourmaline Sunangel	x	x	Resident	LC	Not endemic
<i>Adelomyia melanogenys</i>	Speckled Hummingbird	x	x	Resident	LC	Not endemic
<i>Agelaiocercus kingi</i>	Long-tailed Sylph	x	x	Resident	LC	Not endemic
<i>Ramphomicron microrhynchum</i>	Purple-backed Thornbill	x	x	Resident	LC	Not endemic
<i>Metallura tyrianthina</i>	Tyrian Metaltail	x	x	Resident	LC	Not endemic
<i>Haplophaedia aureliae</i>	Greenish Puffleg	x		Resident	LC	Not endemic
<i>Coeligena coeligena</i>	Bronzy Inca	x	x	Resident	LC	Not endemic
<i>Coeligena torquata</i>	Collared Inca	x	x	Resident	LC	Not endemic
<i>Coeligena lutetiae</i>	Buff-winged Starfrontlet	x		Resident	LC	Not endemic
<i>Lafresnaya lafresnayi</i>	Mountain Velvetbreast	x		Resident	LC	Not endemic
<i>Ensifera ensifera</i>	Sword-billed Hummingbird	x	x	Resident	LC	Not endemic
<i>Boissonneaua flavescens</i>	Buff-tailed Coronet	x	x	Resident	LC	Not endemic
<i>Ocreatus underwoodii</i>	Booted Racket-tail	x	x	Resident	LC	Not endemic
<i>Heliodoxa rubinoides</i>	Fawn-breasted Brilliant	x	x	Resident	LC	Not endemic
<i>Chaetocercus mulsant</i>	White-bellied Woodstar	x		Resident	LC	Not endemic
<i>Chlorostilbon melanorhynchus</i>	Western Emerald	x	x	Resident	LC	Not endemic
<i>Chlorostilbon mellisugus</i>	Blue-tailed Emerald	x		Resident	LC	Not endemic
<i>Saucerottia saucerottei</i>	Steely-vented Hummingbird	x	x	Resident	LC	Not endemic
<i>Amazilia tzacatl</i>	Rufous-tailed Hummingbird	x	x	Resident	LC	Not endemic
<i>Uranomitra franciae</i>	Andean Emerald	x	x	Resident	LC	Not endemic
Rallidae						
<i>Porphyrio martinica</i>	Purple Gallinule	x	x	Resident	LC	Not endemic
<i>Gallinula galeata</i>	Common Gallinule	x		Resident	LC	Not endemic
Charadriidae						
<i>Vanellus chilensis</i>	Southern Lapwing	x	x	Resident	LC	Not endemic
Scolopacidae						
<i>Gallinago nobilis</i>	Noble Snipe	x		Resident	NT	Not endemic
Ardeidae						
<i>Butorides virescens</i>	Green Heron	x		Migratory	LC	Not endemic
<i>Bubulcus ibis</i>	Cattle Egret	x	x	Resident	LC	Not endemic
Cathartidae						
<i>Coragyps atratus</i>	Black Vulture	x	x	Resident	LC	Not endemic
<i>Cathartes aura</i>	Turkey Vulture	x	x	Resident	LC	Not endemic
Accipitridae						
<i>Gampsonyx swainsonii</i>	Pearl Kite		x	Resident	LC	Not endemic
<i>Elanus leucurus</i>	White-tailed Kite	x		Resident	LC	Not endemic
<i>Accipiter striatus</i>	Sharp-shinned Hawk	x	x	Resident	LC	Not endemic
<i>Accipiter bicolor</i>	Bicolored Hawk	x	x	Resident	LC	Not endemic
<i>Rupornis magnirostris</i>	Roadside Hawk	x	x	Resident	LC	Not endemic
<i>Geranoaetus albicaudatus</i>	White-tailed Hawk		x	Resident	LC	Not endemic
<i>Buteo platypterus</i>	Broad-winged Hawk		x	Migratory	LC	Not endemic
<i>Buteo albigula</i>	White-throated Hawk		x	Migratory	LC	Not endemic
<i>Buteo swainsoni</i>	Swainson's Hawk		x	Migratory	LC	Not endemic
Tytonidae						

Specie	Common name	Published	This study	Resident status	UICN	Endemic
<i>Tyto alba</i>	Barn Owl	x	x	Resident	LC	Not endemic
Strigidae						
<i>Megascops choliba</i>	Tropical Screech-Owl	x	x	Resident	LC	Not endemic
<i>Pulsatrix perspicillata</i>	Spectacled Owl		x	Resident	LC	Not endemic
<i>Bubo virginianus</i>	Great Horned Owl	x	x	Resident	LC	Not endemic
<i>Ciccaba virgata</i>	Mottled Owl	x	x	Resident	LC	Not endemic
<i>Ciccaba albitarsis</i>	Rufous-banded Owl	x	x	Resident	LC	Not endemic
<i>Asio clamator</i>	Striped Owl	x	x	Resident	LC	Not endemic
Trogonidae						
<i>Pharomachrus auriceps</i>	Golden-headed Quetzal	x	x	Resident	LC	Not endemic
<i>Trogon collaris</i>	Collared Trogon	x	x	Resident	LC	Not endemic
<i>Trogon personatus</i>	Masked Trogon	x	x	Resident	LC	Not endemic
Momotidae						
<i>Momotus aequatorialis</i>	Andean Motmot	x	x	Resident	LC	Not endemic
Alcedinidae						
<i>Chloroceryle americana</i>	Green Kingfisher	x		Resident	LC	Not endemic
Bucconidae						
<i>Malacoptila mystacalis</i>	Moustached Puffbird	x	x	Resident	LC	Not endemic
Capitonidae						
<i>Eubucco bourcierii</i>	Red-headed Barbet	x	x	Resident	LC	Not endemic
Ramphastidae						
<i>Aulacorhynchus prasinus</i>	Emerald Toucanet	x	x	Resident	LC	Not endemic
<i>Aulacorhynchus haematopygus</i>	Crimson-rumped Toucanet	x	x	Resident	LC	Not endemic
<i>Andigena nigrirostris</i>	Black-billed Mountain-Toucan	x	x	Resident	LC	Not endemic
Picidae						
<i>Melanerpes formicivorus</i>	Acorn Woodpecker	x	x	Resident	LC	Not endemic
<i>Dryobates fumigatus</i>	Smoky-brown Woodpecker	x		Resident	LC	Not endemic
<i>Dryobates dignus</i>	Yellow-vented Woodpecker		x	Resident	LC	Not endemic
<i>Dryobates nigriceps</i>	Bar-bellied Woodpecker	x	x	Resident	LC	Not endemic
<i>Campephilus pollens</i>	Powerful Woodpecker	x	x	Resident	LC	Not endemic
<i>Dryocopus lineatus</i>	Lineated Woodpecker	x	x	Resident	LC	Not endemic
<i>Colaptes rubiginosus</i>	Golden-olive Woodpecker	x	x	Resident	LC	Not endemic
<i>Colaptes rivolii</i>	Crimson-mantled Woodpecker	x	x	Resident	LC	Not endemic
<i>Colaptes punctigula</i>	Spot-breasted Woodpecker	x	x	Resident	LC	Not endemic
Falconidae						
<i>Caracara plancus</i>	Crested Caracara	x	x	Resident	LC	Not endemic
<i>Milvago chimachima</i>	Yellow-headed Caracara	x	x	Resident	LC	Not endemic
<i>Falco sparverius</i>	American Kestrel	x	x	Resident	LC	Not endemic
<i>Falco rufifigularis</i>	Bat Falcon		x	Resident	LC	Not endemic
<i>Falco peregrinus</i>	Peregrine Falcon		x	Migratory	LC	Not endemic
Psittacidae						
<i>Bolborhynchus lineola</i>	Barred Parakeet	x		Resident	LC	Not endemic
<i>Pionus menstruus</i>	Blue-headed Parrot	x	x	Resident	LC	Not endemic
<i>Pionus chalcopterus</i>	Bronze-winged Parrot	x	x	Resident	LC	Not endemic
<i>Amazona mercenarius</i>	Scaly-naped Parrot	x	x	Resident	LC	Not endemic

Specie	Common name	Published	This study	Resident status	UICN	Endemic
<i>Forpus conspicillatus</i>	Spectacled Parrotlet	x	x	Resident	LC	Not endemic
<i>Leptosittaca branickii</i>	Golden-plumed Parakeet	x	x	Resident	LC	Not endemic
<i>Ognorhynchus icterotis</i>	Yellow-eared Parrot	x		Resident	VU	Not endemic
Thamnophilidae						
<i>Taraba major</i>	Great Antshrike	x	x	Resident	LC	Not endemic
<i>Thamnophilus multistriatus</i>	Bar-crested Antshrike	x	x	Resident	LC	Not endemic
<i>Thamnophilus unicolor</i>	Uniform Antshrike		x	Resident	LC	Not endemic
<i>Dysithamnus mentalis</i>	Plain Antwireo	x		Resident	LC	Not endemic
Grallariidae						
<i>Grallaria squamigera</i>	Undulated Antpitta	x	x	Resident	LC	Not endemic
<i>Grallaria ruficapilla</i>	Chestnut-crowned Antpitta	x	x	Resident	LC	Not endemic
Rhinocryptidae						
<i>Scytalopus latrans</i>	Unicolored Tapaculo	x		Resident	LC	Not endemic
<i>Scytalopus stilesi</i>	Stiles's Tapaculo	x		Resident	LC	Endemic
Furnariidae						
<i>Dendrocincla tyrannina</i>	Tyrannine Woodcreeper	x	x	Resident	LC	Not endemic
<i>Dendrocolaptes picumnus</i>	Black-banded Woodcreeper	x	x	Resident	LC	Not endemic
<i>Xiphocolaptes promeropirhynchus</i>	Strong-billed Woodcreeper	x		Resident	LC	Not endemic
<i>Xiphorhynchus triangularis</i>	Olive-backed Woodcreeper	x		Resident	LC	Not endemic
<i>Lepidocolaptes lacrymiger</i>	Montane Woodcreeper	x	x	Resident	LC	Not endemic
<i>Xenops rutilans</i>	Streaked Xenops	x	x	Resident	LC	Not endemic
<i>Pseudocolaptes boissonneautii</i>	Streaked Tuftedcheek	x		Resident	LC	Not endemic
<i>Thripadectes flammulatus</i>	Flammulated Treehunter	x		Resident	LC	Not endemic
<i>Premnoplex brunnescens</i>	Spotted Barbtail	x		Resident	LC	Not endemic
<i>Margarornis squamiger</i>	Pearled Treerunner	x	x	Resident	LC	Not endemic
<i>Cranioleuca erythropis</i>	Red-faced Spinetail	x	x	Resident	LC	Not endemic
<i>Synallaxis azarae</i>	Azara's Spinetail	x	x	Resident	LC	Not endemic
Cotingidae						
<i>Pipreola riefferii</i>	Green-and-black Fruiteater	x		Resident	LC	Not endemic
<i>Ampelion rubrocristatus</i>	Red-crested Cotinga	x	x	Resident	LC	Not endemic
<i>Lipaugus fuscocinereus</i>	Dusky Piha	x		Resident	LC	Not endemic
Tityridae						
<i>Pachyramphus versicolor</i>	Barred Becard	x	x	Resident	LC	Not endemic
Tyrannidae						
<i>Phylloscartes poecilotis</i>	Variiegated Bristle-Tyrant	x		Resident	LC	Not endemic
<i>Mionectes striaticollis</i>	Streak-necked Flycatcher	x	x	Resident	LC	Not endemic
<i>Mionectes olivaceus</i>	Olive-striped Flycatcher	x		Resident	LC	Not endemic
<i>Leptopogon rufipectus</i>	Rufous-breasted Flycatcher	x		Resident	LC	Not endemic
<i>Lophotriccus pileatus</i>	Scale-crested Pygmy-Tyrant	x		Resident	LC	Not endemic
<i>Poecilatriccus ruficeps</i>	Rufous-crowned Tody-Flycatcher	x		Resident	LC	Not endemic
<i>Todirostrum cinereum</i>	Common Tody-Flycatcher	x		Resident	LC	Not endemic
<i>Pyrrhomyias cinnamomeus</i>	Cinnamon Flycatcher	x	x	Resident	LC	Not endemic
<i>Zimmerius chrysops</i>	Golden-faced Tyrannulet	x	x	Resident	LC	Not endemic
<i>Camptostoma obsoletum</i>	Southern Beardless-Tyrannulet	x	x	Resident	LC	Not endemic

Specie	Common name	Published	This study	Resident status	UICN	Endemic
<i>Elaenia flavogaster</i>	Yellow-bellied Elaenia	x	x	Resident	LC	Not endemic
<i>Elaenia frantzii</i>	Mountain Elaenia	x	x	Resident	LC	Not endemic
<i>Phyllomyias nigrocapillus</i>	Black-capped Tyrannulet	x	x	Resident	LC	Not endemic
<i>Mecocerculus leucophrys</i>	White-throated Tyrannulet	x	x	Resident	LC	Not endemic
<i>Serpophaga cinerea</i>	Torrent Tyrannulet		x	Resident	LC	Not endemic
<i>Pitangus sulphuratus</i>	Great Kiskadee	x	x	Resident	LC	Not endemic
<i>Myiodynastes chrysocephalus</i>	Golden-crowned Flycatcher	x		Resident	LC	Not endemic
<i>Myiodynastes maculatus</i>	Streaked Flycatcher	x		Resident	LC	Not endemic
<i>Myiozetetes cayanensis</i>	Rusty-margined Flycatcher	x	x	Resident	LC	Not endemic
<i>Tyrannus melancholicus</i>	Tropical Kingbird	x	x	Resident	LC	Not endemic
<i>Tyrannus savana</i>	Fork-tailed Flycatcher	x	x	Resident	LC	Not endemic
<i>Tyrannus tyrannus</i>	Eastern Kingbird	x	x	Migratory	LC	Not endemic
<i>Myiarchus tuberculifer</i>	Dusky-capped Flycatcher	x		Resident	LC	Not endemic
<i>Myiarchus cephalotes</i>	Pale-edged Flycatcher	x		Resident	LC	Not endemic
<i>Myiophobus flavicans</i>	Flavescent Flycatcher	x		Resident	LC	Not endemic
<i>Ochthoeca cinnamomeiventris</i>	Slaty-backed Chat-Tyrant	x	x	Resident	LC	Not endemic
<i>Ochthoeca rufipectoralis</i>	Rufous-breasted Chat-Tyrant	x		Resident	LC	Not endemic
<i>Myiotheretes striaticollis</i>	Streak-throated Bush-Tyrant	x	x	Resident	LC	Not endemic
<i>Myiotheretes fumigatus</i>	Smoky Bush-Tyrant	x	x	Resident	LC	Not endemic
<i>Sayornis nigricans</i>	Black Phoebe	x	x	Resident	LC	Not endemic
<i>Empidonax virescens</i>	Acadian Flycatcher	x		Migratory	LC	Not endemic
<i>Contopus fumigatus</i>	Smoke-colored Pewee	x	x	Resident	LC	Not endemic
<i>Contopus virens</i>	Eastern Wood-Pewee	x	x	Migratory	LC	Not endemic
Vireonidae						
<i>Cyclarhis nigrirostris</i>	Black-billed Peppershrike	x		Resident	LC	Not endemic
<i>Vireo flavifrons</i>	Yellow-throated Vireo	x		Migratory	LC	Not endemic
<i>Vireo leucophrys</i>	Brown-capped Vireo	x	x	Resident	LC	Not endemic
<i>Vireo olivaceus</i>	Red-eyed Vireo		x	Resident	LC	Not endemic
Corvidae						
<i>Cyanolyca armillata</i>	Black-collared Jay	x		Resident	LC	Not endemic
<i>Cyanocorax yncas</i>	Green Jay		x	Resident	LC	Not endemic
Hirundinidae						
<i>Pygochelidon cyanoleuca</i>	Blue-and-white Swallow	x	x	Resident	LC	Not endemic
<i>Orochelidon murina</i>	Brown-bellied Swallow	x	x	Resident	LC	Not endemic
<i>Stelgidopteryx ruficollis</i>	Southern Rough-winged Swallow	x		Resident	LC	Not endemic
<i>Progne tapera</i>	Brown-chested Martin		x	Resident	LC	Not endemic
Troglodytidae						
<i>Troglodytes aedon</i>	House Wren	x	x	Resident	LC	Not endemic
<i>Troglodytes solstitialis</i>	Mountain Wren	x		Resident	LC	Not endemic
<i>Pheugopedius mystacalis</i>	Whiskered Wren	x		Resident	LC	Not endemic
<i>Cinnycerthia unirufa</i>	Rufous Wren	x	x	Resident	LC	Not endemic
<i>Henicorhina leucophrys</i>	Gray-breasted Wood-Wren	x	x	Resident	LC	Not endemic
Poliopitilidae						
<i>Ramphocaenus melanurus</i>	Trilling Gnatwren	x		Resident	LC	Not endemic

Specie	Common name	Published	This study	Resident status	UICN	Endemic
Cinclidae						
<i>Cinclus leucocephalus</i>	White-capped Dipper	x		Resident	LC	Not endemic
Turdidae						
<i>Myadestes ralloides</i>	Andean Solitaire	x	x	Resident	LC	Not endemic
<i>Catharus fuscater</i>	Slaty-backed Nightingale-Thrush	x		Resident	LC	Not endemic
<i>Catharus ustulatus</i>	Swainson's Thrush	x	x	Migratory	LC	Not endemic
<i>Turdus ignobilis</i>	Black-billed Thrush	x	x	Resident	LC	Not endemic
<i>Turdus fuscater</i>	Great Thrush	x	x	Resident	LC	Not endemic
<i>Turdus serranus</i>	Glossy-black Thrush	x		Resident	LC	Not endemic
Mimidae						
<i>Mimus gilvus</i>	Tropical Mockingbird	x	x	Resident	LC	Not endemic
Fringillidae						
<i>Spinus xanthogastrus</i>	Yellow-bellied Siskin	x	x	Resident	LC	Not endemic
<i>Spinus psaltria</i>	Lesser Goldfinch	x	x	Resident	LC	Not endemic
<i>Chlorophonia cyanocephala</i>	Golden-rumped Euphonia	x	x	Resident	LC	Not endemic
<i>Chlorophonia cyanea</i>	Blue-naped Chlorophonia	x		Resident	LC	Not endemic
<i>Euphonia laniirostris</i>	Thick-billed Euphonia	x	x	Resident	LC	Not endemic
<i>Euphonia xanthogaster</i>	Orange-bellied Euphonia	x	x	Resident	LC	Not endemic
Passerellidae						
<i>Chlorospingus flavopectus</i>	Common Chlorospingus		x	Resident	LC	Not endemic
<i>Arremon assimilis</i>	Gray-browed Brushfinch	x		Resident	LC	Not endemic
<i>Arremon brunneinucha</i>	Chestnut-capped Brushfinch	x	x	Resident	LC	Not endemic
<i>Zonotrichia capensis</i>	Rufous-collared Sparrow	x	x	Resident	LC	Not endemic
<i>Atlapetes albinucha</i>	White-naped Brushfinch	x		Resident	LC	Not endemic
<i>Atlapetes flaviceps</i>	Yellow-headed Brushfinch	x	x	Resident	NT	Endemic
<i>Atlapetes schistaceus</i>	Slaty Brushfinch	x	x	Resident	LC	Not endemic
<i>Atlapetes pallidinucha</i>	Pale-naped Brushfinch	x	x	Resident	LC	Not endemic
Icteridae						
<i>Sturnella magna</i>	Eastern Meadowlark		x	Resident	NT	Not endemic
<i>Leistes militaris</i>	Red-breasted Meadowlark	x		Resident	LC	Not endemic
<i>Cacicus leucorampus</i>	Northern Mountain Cacique	x	x	Resident	LC	Not endemic
<i>Icterus spurius</i>	Orchard Oriole	x		Migratory	LC	Not endemic
<i>Icterus chrysater</i>	Yellow-backed Oriole	x	x	Resident	LC	Not endemic
<i>Molothrus oryzivorus</i>	Giant Cowbird	x	x	Resident	LC	Not endemic
<i>Molothrus bonariensis</i>	Shiny Cowbird	x	x	Resident	LC	Not endemic
Parulidae						
<i>Vermivora chrysoptera</i>	Golden-winged Warbler	x	x	Migratory	NT	Not endemic
<i>Mniotilta varia</i>	Black-and-white Warbler	x		Migratory	LC	Not endemic
<i>Leiostyris peregrina</i>	Tennessee Warbler	x		Migratory	LC	Not endemic
<i>Setophaga ruticilla</i>	American Redstart	x	x	Migratory	LC	Not endemic
<i>Setophaga cerulea</i>	Cerulean Warbler	x	x	Migratory	NT	Not endemic
<i>Setophaga pitiayumi</i>	Tropical Parula	x	x	Resident	LC	Not endemic
<i>Setophaga fusca</i>	Blackburnian Warbler	x	x	Migratory	LC	Not endemic
<i>Myiothlypis luteoviridis</i>	Citrine Warbler	x		Resident	LC	Not endemic

Specie	Common name	Published	This study	Resident status	UICN	Endemic
<i>Myiothlypis nigrocristata</i>	Black-crested Warbler	x		Resident	LC	Not endemic
<i>Myiothlypis coronata</i>	Russet-crowned Warbler	x	x	Resident	LC	Not endemic
<i>Basileuterus culicivorus</i>	Golden-crowned Warbler	x	x	Resident	LC	Not endemic
<i>Basileuterus tristriatus</i>	Three-striped Warbler	x		Resident	LC	Not endemic
<i>Cardellina canadensis</i>	Canada Warbler	x	x	Migratory	LC	Not endemic
<i>Myioborus miniatus</i>	Slate-throated Redstart	x	x	Resident	LC	Not endemic
<i>Myioborus ornatus</i>	Golden-fronted Redstart	x	x	Resident	LC	Not endemic
Cardinalidae						
<i>Piranga flava</i>	Hepatic Tanager	x	x	Resident	LC	Not endemic
<i>Piranga rubra</i>	Summer Tanager	x	x	Migratory	LC	Not endemic
<i>Piranga rubriceps</i>	Red-hooded Tanager	x	x	Resident	LC	Not endemic
<i>Habia cristata</i>	Crested Ant-Tanager	x		Resident	LC	Endemic
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	x		Migratory	LC	Not endemic
Thraupidae						
<i>Sericossypha albocristata</i>	White-capped Tanager	x		Resident	VU	Not endemic
<i>Hemithraupis guira</i>	Guira Tanager	x	x	Resident	LC	Not endemic
<i>Conirostrum sitticolor</i>	Blue-backed Conebill	x	x	Resident	LC	Not endemic
<i>Conirostrum albifrons</i>	Capped Conebill	x	x	Resident	LC	Not endemic
<i>Sicalis flaveola</i>	Saffron Finch	x	x	Resident	LC	Not endemic
<i>Catamenia inornata</i>	Plain-colored Seedeater		x	Resident	LC	Not endemic
<i>Diglossa humeralis</i>	Black Flowerpiercer	x	x	Resident	LC	Not endemic
<i>Diglossa albilatera</i>	White-sided Flowerpiercer	x	x	Resident	LC	Not endemic
<i>Diglossa sittoides</i>	Rusty Flowerpiercer	x		Resident	LC	Not endemic
<i>Diglossa cyanea</i>	Masked Flowerpiercer	x	x	Resident	LC	Not endemic
<i>Volatinia jacarina</i>	Blue-black Grassquit	x	x	Resident	LC	Not endemic
<i>Tachyphonus rufus</i>	White-lined Tanager	x		Resident	LC	Not endemic
<i>Ramphocelus dimidiatus</i>	Crimson-backed Tanager	x		Resident	LC	Not endemic
<i>Ramphocelus flammigerus</i>	Flame-rumped Tanager	x	x	Resident	LC	Not endemic
<i>Sporophila intermedia</i>	Gray Seedeater	x	x	Resident	LC	Not endemic
<i>Sporophila nigricollis</i>	Yellow-bellied Seedeater	x	x	Resident	LC	Not endemic
<i>Saltator atripennis</i>	Black-winged Saltator	x	x	Resident	LC	Not endemic
<i>Saltator striatipectus</i>	Streaked Saltator	x	x	Resident	LC	Not endemic
<i>Emberizoides herbicola</i>	Wedge-tailed Grass-Finch	x		Resident	LC	Not endemic
<i>Cnemoscopus rubrirostris</i>	Gray-hooded Bush Tanager	x		Resident	LC	Not endemic
<i>Kleinothraupis atropileus</i>	Black-capped Hemispingus	x	x	Resident	LC	Not endemic
<i>Sphenopsis frontalis</i>	Oleaginous Hemispingus	x		Resident	LC	Not endemic
<i>Sphenopsis melanotis</i>	Black-eared Hemispingus	x		Resident	LC	Not endemic
<i>Thlypopsis superciliaris</i>	Superciliaried Hemispingus	x	x	Resident	LC	Not endemic
<i>Coereba flaveola</i>	Bananaquit	x	x	Resident	LC	Not endemic
<i>Tiaris olivaceus</i>	Yellow-faced Grassquit	x	x	Resident	LC	Not endemic
<i>Pipraeidea melanonota</i>	Fawn-breasted Tanager	x		Resident	LC	Not endemic
<i>Dubusia taeniata</i>	Buff-breasted Mountain-Tanager	x		Resident	LC	Not endemic
<i>Anisognathus lacrymosus</i>	Lacrimose Mountain-Tanager	x	x	Resident	LC	Not endemic

Specie	Common name	Published	This study	Resident status	UICN	Endemic
<i>Anisognathus igniventris</i>	Scarlet-bellied Mountain-Tanager	x	x	Resident	LC	Not endemic
<i>Anisognathus somptuosus</i>	Blue-winged Mountain-Tanager	x	x	Resident	LC	Not endemic
<i>Buthraupis montana</i>	Hooded Mountain-Tanager		x	Resident	LC	Not endemic
<i>Sporathraupis cyanocephala</i>	Blue-capped Tanager	x	x	Resident	LC	Not endemic
<i>Chlorornis riefferii</i>	Grass-green Tanager	x		Resident	LC	Not endemic
<i>Stilpnia heinei</i>	Black-capped Tanager	x	x	Resident	LC	Not endemic
<i>Stilpnia vitriolina</i>	Scrub Tanager	x	x	Resident	LC	Not endemic
<i>Stilpnia cyanicollis</i>	Blue-necked Tanager	x	x	Resident	LC	Not endemic
<i>Tangara vassorii</i>	Blue-and-black Tanager	x	x	Resident	LC	Not endemic
<i>Tangara nigroviridis</i>	Beryl-spangled Tanager	x	x	Resident	LC	Not endemic
<i>Tangara labradorides</i>	Metallic-green Tanager	x		Resident	LC	Not endemic
<i>Tangara gyrola</i>	Bay-headed Tanager	x	x	Resident	LC	Not endemic
<i>Tangara xanthocephala</i>	Saffron-crowned Tanager	x	x	Resident	LC	Not endemic
<i>Tangara arthus</i>	Golden Tanager	x	x	Resident	LC	Not endemic
<i>Thraupis episcopus</i>	Blue-gray Tanager	x	x	Resident	LC	Not endemic
<i>Thraupis palmarum</i>	Palm Tanager	x	x	Resident	LC	Not endemic

1992; Gunnarsson et al., 2005; Castaño-Villa et al., 2014). In our study, we did not perform an assessment of ecological aspects, or habitat use by the bird species listed in the above-mentioned categories. However, the published literature demonstrates the need of migratory birds for conserved habitats that provide adequate resources used during the annual migration stage (Bailey and King, 2019; Molina-Marín et al., 2022). Also, endemic or threatened bird species are characterized by their limited geographical distribution area, and agricultural expansion can contribute to local extinctions (García-R and Di Marco, 2020; Palacio et al., 2020). In this context, future studies should emphasize the habitat use of focal species such as migratory, threatened, or endemic birds. The information might be useful to contribute with data for management plans on the local or regional level (e.g., Valderrama and Kattan, 2006; Restrepo-Cardona et al., 2018).

CONCLUSIONS

Here, we updated the checklist of bird species for the municipality of Salamina (Caldas). The results show the need to adopt taxonomic changes over the years and have a clear delimitation of the geographical distribution of bird species to avoid errors in species identification and distribution limits. Our results demonstrate the importance of updating the regional checklists associated with biodiversity, especially when they are based on outdated records and small sampled localities. This actualized checklist for bird species can be an input for the development of management plans that include local communities. In addition, this list shows the

presence of migratory, threatened, or endemic bird species, which should be a focus of studies, especially in habitat use, land use change, or landscape configuration effects.

AUTHORS PARTICIPATION

Pablo A. López-Bedoya designed research; Pablo A. López-Bedoya, Johana Porras-Forero, Eliana Rincón-Cifuentes, and Deivy Gómez-Rodríguez collected, clean, and filter the data; Pablo A. López-Bedoya analysed the data; Pablo A. López-Bedoya, Bedoya, Johana Porras-Forero, Eliana Rincón-Cifuentes, Deivy Gómez-Rodríguez and Héctor E. Ramírez-Chaves led the writing of the manuscript. All authors contributed critically to the drafts and gave final approval for publication.

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CONFLICT OF INTEREST

All the authors declare that there is no conflict of interest.

REFERENCES

- Armenteras, D., Cabrera, E., Rodríguez, N. and Retana, J. (2013). National and regional determinants of tropical deforestation in Colombia. *Regional Environmental Change*, 13(6), 1181-1193. <https://doi.org/10.1007/s10113-013-0433-7>
- Avendaño, E. J., Bohórquez, C. I., Rosselli, L., Arzuza-Buelvas, D., Estela, F. A., Cuervo, A. M., Stiles, G. and Renjifo, L. M. (2017). Lista de chequeo de las aves de Colombia: una síntesis del estado del conocimiento desde Hilty & Brown (1986). *Ornitología Colombiana*, 16, eA01.
- Ayerbe-Quiñones, F. (2018). Guía Ilustrada de la Avifauna Colombiana. A Field Guide to the Birds of Colombia. Primera Edición. Puntoaparte Bookvertising, Bogota D.C.
- Ayerbe-Quiñones, F. (2022). Guía Ilustrada de la Avifauna Colombiana. A Field Guide to the Birds of Colombia. Tercera Edición. Puntoaparte Bookvertising, Bogota D.C.
- Bailey, B. A. and King, D. I. (2019). Habitat selection and habitat quality for wintering wood thrushes in a coffee growing region in Honduras. *Global Ecology and Conservation*, 20, e00728. <https://doi.org/10.1016/j.gecco.2019.e00728>
- Bax, V. and Francesconi, W. (2019). Conservation gaps and priorities in the Tropical Andes biodiversity hotspot: Implications for the expansion of protected areas. *Journal of Environmental Management*, 232, 387-396. <https://doi.org/10.1016/j.jenvman.2018.11.086>
- Bohada-Murillo, M., Castaño-Villa, G. J. and Fontúrbel, F. E. (2020). The effects of forestry and agroforestry plantations on bird diversity: A global synthesis. *Land Degradation & Development*, 31(5), 646-654. <https://doi.org/10.1002/ldr.3478>
- Cardona-Salazar, L. J., Benavides-Ossa, Y. A., Vargas-Daza, A. M., Betancurt-Grisales, J. F., Bohada-Murillo, M., Martínez-Sánchez, E. T., Cardona-Romero, M., Busi, A., Tobón-Escobar, W. D., Ortíz-Giraldo, M., Gómez Castillo, D., Alvarez-Londoño, J., Molina-Marin, D. A., Rodas-Rua, J. C., Grisales-Muñoz, L. D., Velásquez-Trujillo, V., Salazar-Ramírez, L. F., Pineda-Gómez, D. M., Hoyos-Jaramillo, A., Santisteban-Arenas, R. R., Salazar-Ramírez, J. G., Orozco-Montoya, G. P., Ramos-Valencia, S. A., Gómez-Londoño, G., Ospina-Bautista, F., Estévez-Varón, J. V., Ossa-López, P. A., Rivera-Páez, F. A., Pérez Cárdenas, J. E., Fontúrbel, F. E., Castaño-Villa, G. J. and Castaño-Villa, G. J. (2020). A morphological, reproductive, and molt phenology database for 379 bird species from the Colombian Tropical Andes. *Ecology*, 101(33), e03016. <https://doi.org/10.1002/ecs2.1690>
- Castaño-Villa, G. J., Estevez, J. V. and Fontúrbel, F. E. (2014). The role of native forest plantations in the conservation of Neotropical birds: the case of the Andean alder. *Journal for Nature Conservation*, 22(6), 547-551. <https://doi.org/10.1016/j.jnc.2014.08.010>
- Chaparro-Herrera, S., Echeverry-Galvis, M. A., Córdoba-Córdoba, S. and Sua-Becerra, A. (2013). Listado actualizado de las aves endémicas y casi-endémicas de Colombia. *Biota Colombiana*, 14(2), 113-150.
- Cordoba-Cordoba, S. and Sierra, S. (2018). New Records and Range Extensions for Birds from the Western Slope of the Eastern Andes, Santander, Colombia. *Acta Biológica Colombiana*, 23(3), 274-285.
- Corpocaldas and Asociación Calidris. (2010). Estado de Conocimiento de las aves en el departamento de Caldas: prioridades de conservación y vacíos de Información. Corporación Autónoma Regional de Caldas, Manizales. 105 pp.
- Echeverry-Galvis, M. A., Acevedo-Charry, O., Avendaño, J. E., Gómez, C., Stiles, F. G., Estela, F. A. and Cuervo, A. M. (2022). Lista oficial de las aves de Colombia 2022: Adiciones, cambios taxonómicos y actualizaciones de estado. *Ornitología Colombiana*, 22, 25-51. <https://doi.org/10.59517/oc.e548>
- Fuller, M. R. and Mosher, J. A. (1981). Methods of detecting and counting raptors: A review. In *Estimating Numbers of Terrestrial Birds*; Ralph, C. J., Scott, M., Eds.; Cooper Ornithological Society: Waco, TX, USA. 235-246 pp.
- García-R, J. C. and Di Marco, M. (2020). Drivers and trends in the extinction risk of New Zealand's endemic birds. *Biological Conservation*, 249, 108730. <https://doi.org/10.1016/j.biocon.2020.108730>
- Gunnarsson, T. G., Gill, J. A., Newton, J., Potts, P. M. and Sutherland, W. J. (2005). Seasonal matching of habitat quality and fitness in a migratory bird. *Proceedings of the Royal Society B: Biological Sciences*, 272(1578), 2319-2323. <https://doi.org/10.1098/rspb.2005.3214>
- Hilty, S. L. and Brown, W. L. (1986). *A Guide to the Birds of Colombia*. Princeton University Press. Princeton, New Jersey, USA.
- Hortal, J., de Bello, F., Diniz-Filho, J. A. F., Lewilshon, T. M., Lobo, J. M. and Ladle, R. J. (2015). Seven Shortfalls that Beset Large-Scale Knowledge of Biodiversity. *Annual Review of Ecology, Evolution, and Systematics*, 46, 523-549. <https://doi.org/10.1146/annurev-ecolsys-112414-054400>
- IUCN. (2022). The IUCN Red List of Threatened Species. Version en línea [01/08/2022]. <https://www.iucnredlist.org/>
- Kattan, G. H. (1992). Rarity and Vulnerability: The Birds of the Cordillera Central of Colombia. *Conservation Biology*, 6(1), 64-70. <https://doi.org/10.1046/j.1523-1739.1992.610064.x>
- Kattan, G. H., Alvarez-Lopez, H. and Giraldo, M. (1994). Forest Fragmentation and Bird Extinctions: San Antonio Eighty Years Later. *Conservation Biology*, 8(1), 138-146. <https://doi.org/10.1046/j.1523-1739.1994.08010138.x>
- Kattan, G. H., Franco, P., Saavedra-Rodríguez, C. A., Valderrama, C., Rojas, V., Osorio, D. and Martínez, J. (2006). Spatial components of bird diversity in the Andes

- of Colombia: implications for designing a regional reserve system. *Conservation Biology*, 20(4), 1203-1211. <https://doi.org/10.1111/j.1523-1739.2006.00402.x>
- Martínez-Sánchez, E. T., Cardona-Romero, M., Rivera-Páez, F. A., Pérez-Cárdenas, J. E. and Castaño-Villa, G. J. (2018). Contribution of agroecosystems to the conservation of bird diversity in the department of Caldas. *Revista Facultad Nacional de Agronomía Medellín*, 71(2), 8445-8457. <https://doi.org/10.15446/rfna.v71n2.66113>
- McMullan, M., Quevedo, A. and Donegan, T. M. (2011). "Guía de Campo de las Aves de Colombia". ProAves.
- Mills, S. C., Socolar, J. B., Edwards, F. A., Parra, E., Martínez-Revelo, D. E., Ochoa Quintero, J. M., Haugaasen, T., Freckleton, R. P., Barlow, J. and Edwards, D. P. (2023). High sensitivity of tropical forest birds to deforestation at lower altitudes. *Ecology*, 104(1), e3867. <https://doi.org/10.1002/ecy.3867>
- Molina-Marín, D. A., Rodas-Rua, J. C., Lara, C. E., Rivera-Páez, F. A., Fontúrbel, F. E. and Castaño-Villa, G. J. (2022). Effects of Landscape Configuration on the Body Condition of Migratory and Resident Tropical Birds. *Diversity*, 14, 432. <https://doi.org/10.3390/d14060432>
- Ocampo, T. S. (2002). Rio Blanco-Reserva hidrográfica, forestal y parque ecológico-Paraíso de las aves. *Boletín SAO*, 13(24-25), 48-61.
- Palacio, R. D., Kattan, G. H. and Pimm, S. L. (2020). Bird extirpations and community dynamics in an Andean cloud forest over 100 years of land-use change. *Conservation Biology*, 34(3), 677-687. <https://doi.org/10.1111/cobi.13423>
- Pfeifer, A. M., Verhelst, J. C. and Botero, J. E. (2001). Estado de conservación de las aves del parque Nacional Natural Los Nevados y su zona de amortiguación. *Boletín SAO*, 12(22-23), 21-41.
- Plan de Ordenamiento Territorial de Salamina. (2001). POT. Informe final. Alcaldía de Salamina Caldas.
- Ralph, C. J., Geupel, G. R., Pyle, P., Martin, T. E., Desante, D. F. and Mila, B. (1996). Manual de métodos de campo para el monitoreo de aves terrestres. Gen. Tech. Rep. PSW-GTR-159. Albany, CA: Pacific Southwest Section, Forest Service, U.S. Department of Agriculture. 44 pp. <https://doi.org/10.2737/PSW-GTR-159>
- Remsen, J. V., Cadena, C. D., Jaramillo, A., Nores, M., Pacheco, J. F., Robbins, M. B., Schulenberg, T. S., Stiles, F. G., Stotz, D. F. and Zimmer, K. J. (2022). A Classification of the Bird Species of South America. Version online 05-February-2022. American Ornithologists' Union. Database accessible at: <http://www.museum.lsu.edu/~Remsen/SACCCountryLists.htm>
- Restrepo-Cardona, J. S., Sáenz-Jiménez, F., Echeverry-Galvis, M. A., Betancur, A., Quintero, A. F. and López, P. A. (2018). Breeding behavior of a reintroduced pair of Andean Condor (*Vultur gryphus*) in the central Andes of Colombia. *Ornitología Neotropical*, 29, 129-133. <https://doi.org/10.58843/ornneo.v29i1.233>
- Rodríguez, N., Armenteras, D. and Retana, J. (2013a). Effectiveness of protected areas in the Colombian Andes: deforestation, fire and land-use changes. *Regional Environmental Change*, 13, 423-435. <https://doi.org/10.1007/s10113-012-0356-8>
- Rodríguez, N., Armenteras-Pascual, D. and Retana, J. (2013b). Land use and land cover change in the Colombian Andes: dynamics and future scenarios. *Journal of Land Use Science*, 8(2), 154-174. <https://doi.org/10.1080/1747423x.2011.650228>
- Ruiz-Guerra, C. J. and Cifuentes-Sarmiento, Y. (2007). Seguimiento de la comunidad de aves y evaluación de la eficacia biológica de las herramientas para el manejo del paisaje implementadas en la cuenca media del río Chambéry-Caldas. Informe Asociación para el Estudio y Conservación de las Aves Acuáticas de Colombia (CALIDRIS) e Instituto de Investigación de Recursos Biológicos "Alexander von Humboldt".
- Şekercioglu, Ç. H., Daily, G. C. and Ehrlich, P. R. (2004). Ecosystem consequences of bird declines. *PNAS*, 101(52), 18042-18047. <https://doi.org/10.1073/pnas.0408049101>
- Valderrama, C. and Kattán, G. (2006). Plan de conservación de la pava caucana (*Penelope perspicax*). Instituto de Investigación de Recursos Biológicos Alexander von Humboldt.
- Vélez-Estrada, J. H. (1995). Aves del municipio de Salamina en: Corpocaldas & Asociación Calidris. (2010). Estado de Conocimiento de las aves en el departamento de Caldas: prioridades de conservación y vacíos de Información. Corporación Autónoma Regional de Caldas, Manizales. 105 pp.
- Wenny, D. G., Devault, T. L., Johnson, M. D., Kelly, D., Sekercioglu, C. H., Tomback, D. F. and Whelan, C. J. (2011). The need to quantify ecosystem services provided by birds. *The auk*, 128(1), 1-14. <https://doi.org/10.1525/auk.2011.10248>

SUPPLEMENTARY MATERIAL

Table S1. Bird species excluded from the updated checklist.

Specie	Common name	Colombia	Distribution
Tinamidae			
<i>Tinamus tao</i>	Gray Tinamou	x	Caribbean and Amazonian regions
Cracidae			
<i>Ortalis ruficauda</i>	Rufous-vented Chachalaca	x	Guajira, Catatumbo and Orinoquia regions
<i>Ortalis guttata</i>	Speckled Chachalaca	x	Orinoquia and Amazonian regions
<i>Ortalis motmot</i>	Variable Chachalaca	Hypothetical record	Amazonian region limits with Venezuela country
Odontophoridae			
<i>Odontophorus erythrops</i>	Rufous-fronted Wood-Quail	x	Pacific and Caribbean regions
Columbidae			
<i>Leptotila plumbeiceps</i>	Gray-headed Dove	x	Cauca river basin between Cauca and Risaralda departments
Cuculidae			
<i>Coccyzus minor</i>	Mangrove Cuckoo	Vagrant	San Andres and Providencia islands
Apodidae			
<i>Panyptila cayennensis</i>	Lesser Swallow-tailed Swift	x	Pacific and Caribbean regions
Trochilidae			
<i>Schistes geoffroyi</i>	Geoffroy's Daggerbill	x	Eastern Colombian Andes
<i>Aglaeactis cupripennis</i>	Shining Sunbeam	x	Southern Colombian Andes
<i>Chalybura buffonii</i>	White-vented Plumeleteer	x	Magdalena river basin, Pacific and Caribbean regions
Accipitridae			
<i>Chondrohierax uncinatus</i>	Hook-billed Kite	x	Pacific and Caribbean regions
<i>Pseudastur albicollis</i>	White Hawk	x	Pacific and Caribbean regions
Alcedinidae			
<i>Megaceryle torquata</i>	Ringed Kingfisher	x	Magdalena and Cauca river basin until 1000 m elevation
Picidae			
<i>Picumnus granadensis</i>	Grayish Piculet	x	Cauca river basin generally until 1000 m elevation
Thamnophilidae			
<i>Herpsilochmus axillaris</i>	Yellow-breasted Antwren	x	Southern Colombian Andes and Pacific region
Furnariidae			
<i>Thripadectes virgaticeps</i>	Streak-capped Treehunter	x	Magdalena river basin, northern Andes and Pacific region
<i>Synallaxis brachyura</i>	Slaty Spinetail	x	Magdalena river basin and Pacific region
<i>Synallaxis albescens</i>	Pale-breasted Spinetail	x	Magdalena river basin, Caribbean and Orinoquia regions
Tityridae			
<i>Pachyrhamphus polychopterus</i>	White-winged Becard	x	Magdalena and Cauca river basins, Caribbean region
Tyrannidae			
<i>Phylloscartes ophthalmicus</i>	Marble-faced Bristle-Tyrant	x	Central Colombian Andes until southern Caldas department
<i>Ornithion brunneicapillus</i>	Brown-capped Tyrannulet	x	Pacific and Caribbean regions
<i>Myiozetetes granadensis</i>	Gray-capped Flycatcher	x	Pacific and Amazonian regions

Specie	Common name	Colombia	Distribution
<i>Ochthoeca diadema</i>	Yellow-bellied Chat-Tyrant	x	Western and southern Colombian Andes
<i>Fluvicola pica</i>	Pied Water-Tyrant	x	Magdalena and Cauca rivers basins, Pacific region
Vireonidae			
<i>Pachysylvia semibrunnea</i>	Rufous-naped Greenlet	x	Western Colombian Andes and Magdalena river basin
Hirundinidae			
<i>Orochelidon flavipes</i>	Pale-footed Swallow	x	Central Colombian Andes until southern Department of Caldas
Troglodytidae			
<i>Cinnycerthia peruana</i>	Peruvian Wren		Andes mountains until Perú country
Turdidae			
<i>Catharus aurantiirostris</i>	Orange-billed Nightingale-Thrush	x	Central Colombian Andes until southern Caldas department
Cardinalidae			
<i>Habia gutturalis</i>	Sooty Ant-Tanager	x	Magdalena river basin and Caribbean region
Thraupidae			
<i>Saltator grossus</i>	Slate-colored Grosbeak	x	Pacific region