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Research Article

# Presence of migratory and resident birds in an urban canal: a potential refuge for birds in an anthropogenic environment

## Presencia de aves migratorias y residentes en un canal urbano: un potencial refugio para aves en un entorno antropogénico

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**ABSTRACT**

Urban expansion has led to the fragmentation and degradation of natural habitats, significantly impacting bird communities. Despite their artificial origin, urban canals may serve as important refuges for avifauna, offering food and water resources in highly anthropized landscapes. However, little is known about the avian diversity present in these environments, particularly in Chile. This study aims to determine the composition and diversity of migratory and resident birds in the urban Canal Ifarle (Talcahuano, Chile). Bird surveys were conducted over a one-year period during seasonal transitions, complemented by data from the citizen science platform *eBird* (2016–2023). A total of 79 species belonging to 13 taxonomic orders were recorded, including 12 long-distance migratory species from the Northern Hemisphere. These findings highlight the role of urban canals as alternative habitats for avifauna, particularly in urbanized regions where natural wetlands are scarce. The presence of migratory species suggests that Canal Ifarle may contribute to ecological connectivity by serving as a stopover site along migration routes. While this study provides baseline data on bird diversity in an urban canal, further research is needed to assess habitat quality, species breeding activity, and the potential impact of pollution and human disturbance. Understanding the ecological role of artificial water bodies is essential for developing conservation strategies in urban environments.

**Keywords:** artificial channel, avian diversity, ecology of bodies urban water, migratory birds.

**RESUMEN**

La expansión urbana ha provocado la fragmentación y degradación de los hábitats naturales, impactando significativamente a las comunidades de aves. A pesar de su origen artificial, los canales urbanos pueden servir como refugios importantes para la avifauna, ofreciendo recursos de alimento y agua en paisajes altamente antropizados. Sin embargo, se sabe poco sobre la diversidad de aves presente en estos ambientes, particularmente en Chile. Este estudio tiene como objetivo determinar la composición y diversidad de aves migratorias y residentes en el canal urbano Ifarle (Talcahuano, Chile). Se realizaron censos de aves durante un período de un año durante las transiciones estacionales, complementados con datos de la plataforma de ciencia ciudadana eBird (2016-2023). Se registraron un total de 79 especies pertenecientes a 13 órdenes taxonómicos, incluidas 12 especies migratorias de larga distancia del hemisferio norte. Estos hallazgos resaltan el papel de los

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canales urbanos como hábitats alternativos para la avifauna, particularmente en regiones urbanizadas donde los humedales naturales son escasos. La presencia de especies migratorias sugiere que el canal Ifarle puede contribuir a la conectividad ecológica al servir como sitio de parada a lo largo de las rutas migratorias. Si bien este estudio proporciona datos de referencia sobre la diversidad de aves en un canal urbano, se necesitan más investigaciones para evaluar la calidad del hábitat, la actividad reproductiva de las especies y el posible impacto de la contaminación y las perturbaciones humanas. Comprender el papel ecológico de los cuerpos de agua artificiales es esencial para desarrollar estrategias de conservación en entornos urbanos.

**Palabras clave:** aves migratorias, canal artificial, diversidad aviar, ecología de cuerpos de agua urbanos.

## INTRODUCTION

Urban development has led to the fragmentation and loss of natural habitats, affecting biodiversity, including bird communities (Farías-Rivero *et al.* 2022). Urbanization also alters ecological conditions through the reduction of vegetation cover (Bojorges 2009), the modification of water bodies, and the increase of pollutants (Gaston *et al.* 2006), which influences the distribution and composition of bird species (Xie *et al.* 2022; Li *et al.* 2013). Artificial channels have been developed to serve multiple functions, such as providing water for domestic and industrial consumption, mitigating flood risks, and facilitating navigation (Bo-Kyung *et al.* 2025). These channels exhibit a consistent structure, low flow velocity, controlled water levels, and consequently lack the dynamic characteristics typically associated with rivers (Willby *et al.* 2001). However, artificial canals and other urbanized water bodies, can provide critical refuges for migratory and resident birds, offering food resources and rest areas in highly anthropized landscapes (Giosa *et al.* 2018).

Several studies have shown that urbanization generates negative effects on birds' biodiversity (Guimarães *et al.* 2024; McDonald *et al.* 2020; Marzluff *et al.* 2012) and the conversion of natural habitats into urban landscapes has led to the decline of specialist species and the homogenization of bird communities, favoring generalist species that are tolerant to human disturbance (Isaksson 2018). However, urban water bodies have been identified as key elements in the conservation of avian biodiversity, as they offer a microhabitat with greater food availability and less competition than other urban spaces (Giosa *et al.* 2018). However, although these habitats may support diverse biological communities, their ecological quality can be altered by anthropogenic pressures, potentially reducing individual fitness and limiting their suitability for more sensitive species (Sievers *et al.* 2018). Research in urban aquatic habitats has documented patterns of space use by avifauna and has highlighted the importance of these environments in ecological connectivity (Morgan *et al.* 2026; Hamer *et al.* 2012). For example, studies in urban waterways have found that waterbird diversity can be comparable to that of natural wetlands, especially in those with well-preserved riparian vegetation and low human disturbance (Morgan *et al.* 2026 Huang *et al.* 2022; Li *et al.* 2013).

In Latin America, high levels of migratory bird activity have been recorded in urban enviroments, underlining their relevance as ecological corridors and temporary feeding sites (Pacheco-Muñoz *et al.* 2025). In addition, ecological corridors play a crucial role in facilitating species dispersal and providing suitable habitats, which may contribute to high species richness and abundance (Li *et al.* 2024). These structures offer suitable environments for organisms to inhabit, enhance the interconnectedness of different areas within a given landscape, and hence have the potential to function as pathways for migration (Casas *et al.* 2011). Channels have been also identified as secondary habitats for a variety of fish species (Waltham & Connolly 2007; Wolter 2001); invertebrates (Grumiaux & Dhainaut-Courtois 1996), and aquatic macrophytes (Weber *et al.* 2012; Willby *et al.* 2001) and birds (Wise *et al.* 2024; Xie *et al.* 2022; Li *et al.* 2013), however, in Chile there are no descriptions of richness of birds in artificial channels

Specifically, urban canals can play a crucial role in the ecology of migratory birds by providing water and food resources along their migration route (Berlanga *et al.* 2010). The presence of resident birds in these

environments also suggests their potential as an alternative habitat, especially in regions where natural ecosystems have been degraded (SEO/BirdLife 2017; Trama *et al.* 2008; Blanco *et al.* 2006).

Studies have indicated that the availability of aquatic and riparian vegetation can influence species richness and the number of individuals using these habitats (Arcos *et al.* 2008). However, the lack of adequate management strategies could limit the ecological functionality of these environments and compromise their role in the conservation of avian biodiversity (MMA 2021).

Given the potential role of urban canals in bird conservation, this study aims to assess the diversity of migratory and resident birds in an urban canal. To this end, I seek to answer the question: What is the composition of the bird community in the urban Canal "Ifarle"? This study will contribute to knowledge about urban ecology and aquatic habitat management, providing relevant information for the conservation of biodiversity in urbanized environments.

## MATERIALS AND METHODS

The study was conducted at the Canal Ifarle (36°45'17" S, 73°05'04" W; Fig. 1), located in the commune of Talcahuano, in the Biobío Region, Chile.

To assess avian diversity, surveys were conducted along the entire length of the canal during each seasonal transition over one year (2023). In each season, sampling was carried out over seven consecutive days, with one complete survey conducted per day. All surveys began at 07:00 h. Observations were performed by one observer, maintaining a consistent sampling effort across seasons; the birds seen within a radius of 25 meters from the observation point were counted. Furthermore, the E-bird tool was employed to include avian species that were not included in our records. Some species recorded in E-bird that do not coincide with their distribution ranges or habitats or do not present photographs of the sighting were excluded.

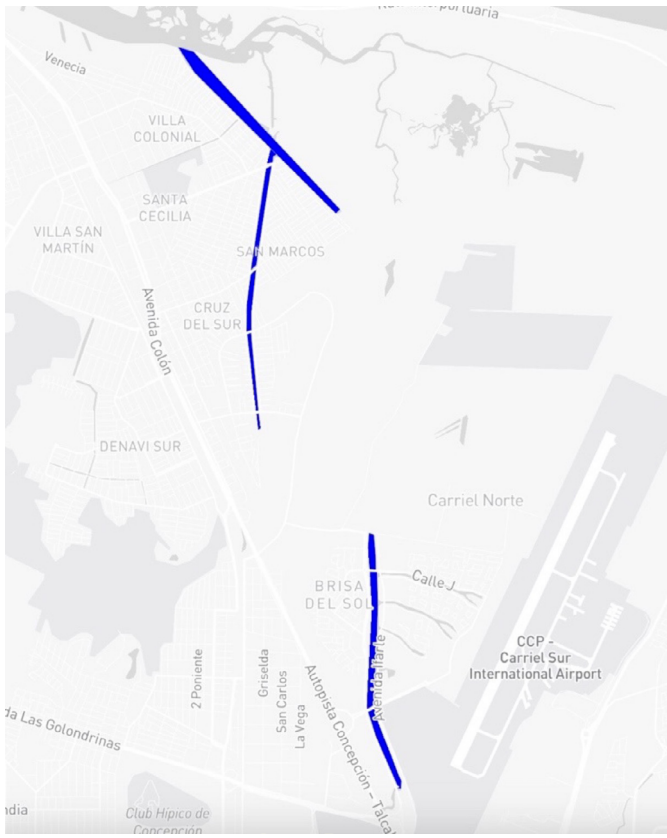


**FIGURE 1.** Map of the Canal Ifarle. The blue area indicates the route followed during each survey. / Mapa del Canal Ifarle. La zona azul indica la ruta seguida durante cada estudio.

## RESULTS

A total of 79 bird species were recorded in the Canal Ifarle (see Appendix 1), representing 13 taxonomic orders (Fig. 2). Of these, the majority of records corresponded to direct field observations, while a smaller subset of species (n = 7) were detected exclusively through eBird records, highlighting the complementary role of citizen science in increasing species detectability.

Species richness was not evenly distributed among taxonomic orders. The most species-rich orders were Charadriiformes (22; 27.8%) and Passeriformes (22; 27.8%), followed by Anseriformes (8; 10.1%) and Pelecaniformes (7; 8.9%). In contrast, several orders such as Apodiformes and Suliformes were represented by a single species (Fig. 2).

In terms of abundance (based on number of individuals observed), the assemblage was strongly dominated by species associated with aquatic and coastal environments. Within Charadriiformes, the most frequently recorded species included *Himantopus mexicanus* Müller, 1776 (135 individuals), *Vanellus chilensis* Molina, 1782 (128), *Rynchops niger* Linnaeus, 1758 (131), *Tringa flavipes* Gmelin, 1789 (616), and *T. melanoleuca* Gmelin, 1789 (521). Similarly, within Anseriformes, high abundances were observed for *Anas georgica* Gmelin, 1789 (142), *Coscoroba coscoroba* Molina, 1782 (60), and *A. flavirostris* Vieillot, 1816 (77). Among Passeriformes, relatively high counts were recorded for *Sicalis luteola* Meyen, 1834 (43) and *Molothrus bonariensis* Gmelin, 1789 (42), although overall abundances in this order were more evenly distributed among species.

A total of 12 long-distance migratory species most of them from the Northern Hemisphere were identified, all belonging primarily to the order Charadriiformes. These included: *T. flavipes*, *T. melanoleuca*, *Calidris bairdii* Coues, 1861, *C. fuscicollis* Vieillot, 1819, *C. himantopus* Bonaparte, 1826, *C. minutilla* Vieillot, 1819, *C. melanotos* Vieillot, 1819, *Phalaropus tricolor* Vieillot, 1819, *Limosa haemastica* Linnaeus, 1758, *Numenius phaeopus* Linnaeus, 1758, *Leucophaeus pipixcan* Lichtenstein, 1823. Several of these species were among the most abundant in the study, particularly *T. flavipes* and *T. melanoleuca*, indicating intensive use of the canal during migratory periods.

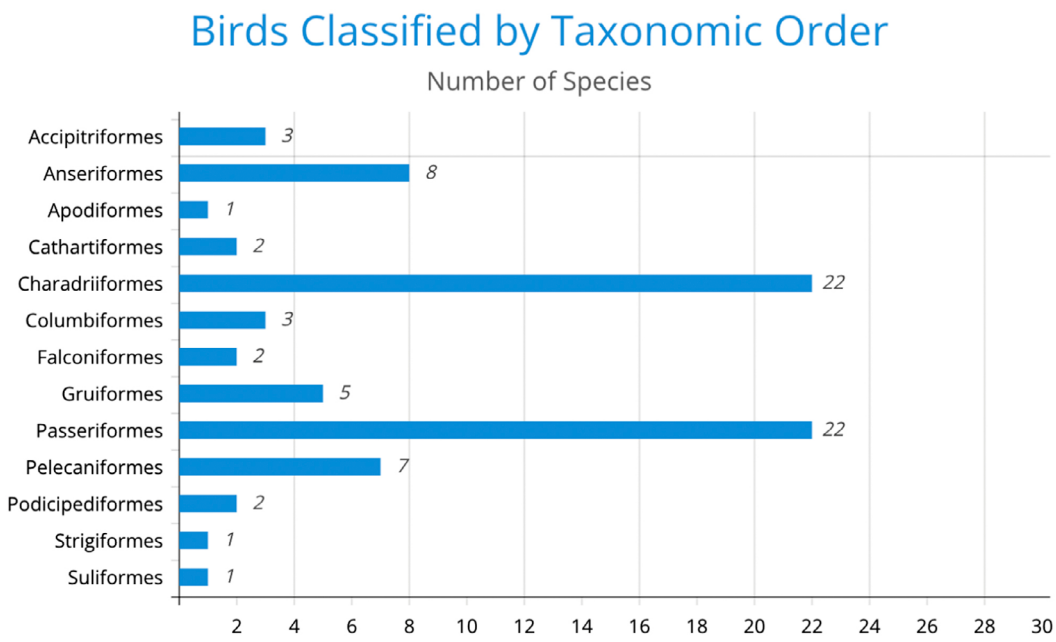


**FIGURE 2.** Classification of the 79 bird species of the Canal Ifarle within their taxonomic orders. / Clasificación de las 79 especies de aves del Canal Ifarle dentro de sus órdenes taxonómicos.

Regarding conservation status, 72 species (91.1%) were classified as Least Concern (LC) according to the IUCN (2026). However, three species were categorized as Vulnerable (VU): *T. flavipes*, *Calidris fuscicollis*, and *L. haemastica*, and three species as Near Threatened (NT): *T. melanoleuca*, *C. himantopus*, and *C. minutilla* and one species without informtion. Thus, 7.6% of the recorded species present some degree of global conservation concern.

Importantly, species of conservation concern exhibited contrasting patterns of occurrence. While some, such as *Tringa flavipes* (616 individuals) and *T. melanoleuca* (521), were frequently observed and relatively abundant, others (e.g., *C. fuscicollis*, *C. himantopus*, *C. minutilla*) were recorded only sporadically or exclusively through secondary data sources. The Vulnerable species *L. haemastica* was recorded in low numbers (6 individuals), suggesting a more limited or transient use of the site.

On the other hand, according to the classification of the Chilean Ministry of the Environment (MMA), most species recorded in the Canal Ifarle are categorized as Least Concern (LC), indicating an avian assemblage largely composed of species with low national extinction risk. However, a relevant subset of species with conservation concern was identified, including three species classified as Endangered (EN) (*C. coscoroba*, *Cygnus melancoryphus* Molina, 1782, and *Plegadis chihi* Vieillot, 1817). In addition, one species was classified as Vulnerable (VU) (*Falco peregrinus* Tunstall, 1771) and one as Near Threatened (NT) (*Ch. collaris* Vieillot, 1818). Notably, *Spatula platalea* was categorized as "Insuficientemente Conocido" (IC), highlighting existing knowledge gaps that may hinder accurate conservation assessments.

Overall, although low-risk species predominate, the presence of species under conservation concern underscores the importance of the canal as a locally relevant habitat for biodiversity conservation.

## DISCUSION

The record of 79 species across 13 taxonomic orders in the Canal Ifarle highlights a notably high avian diversity for an urban aquatic system, supporting previous findings that artificial water bodies can function as important refuges for bird communities (Blasio & Pineda 2020). Although natural wetlands typically sustain higher richness and a greater proportion of specialist species, urban environments often host a mixture of generalist and adaptable taxa alongside ecologically flexible specialists (Linares *et al.* 2018).

The dominance of Charadriiformes and Anseriformes, both in richness and abundance, reflects the ecological characteristics of the canal, particularly the availability of shallow water, exposed substrates, and trophic resources suitable for waders and waterfowl. The high abundances observed for species such as *T. flavipes*, *T. melanoleuca*, *V. chilensis*, and *A. georgica* suggest that the canal is not only used opportunistically but may represent a key foraging habitat, especially during migratory and non-breeding periods.

A particularly relevant finding is that all species categorized under conservation concern (VU and NT) correspond to long-distance migratory shorebirds, including *T. flavipes*, *C. fuscicollis*, *L. haemastica*, *T. melanoleuca*, *C. himantopus*, and *C. minutilla*. This pattern underscores the critical role of the Canal Ifarle as a stopover site within the Pacific migratory flyway, providing resources necessary for refueling and resting during transcontinental movements.

Notably, the presence of both abundant (e.g., *T. flavipes*, *T. melanoleuca*) and rare or sporadic (e.g., *Calidris spp*.) migratory species suggests heterogeneity in habitat use and possibly differential dependence on the site. Species recorded in high numbers likely rely more consistently on the canal, whereas those detected only occasionally may use it as part of a broader network of stopover habitats.

Despite its urban context, the canal appears to maintain functional ecological attributes that support both resident and migratory avifauna, reinforcing the concept that urban water bodies can contribute significantly to regional biodiversity conservation. However, unlike natural systems, these environments are subject to intense anthropogenic pressures, including pollution, habitat modification, noise, and artificial light, which may affect species composition, behavior, and long-term viability (Linares *et al.* 2018).

The relatively high proportion of migratory species, combined with the presence of taxa of conservation concern, highlights the importance of the canal at both local and hemispheric scales, as it contributes to the connectivity of migratory routes (Muñoz-Pacheco *et al.* 2025). In this sense, the Canal Ifarle may function as a stepping-stone habitat, facilitating movement across fragmented landscapes.

Future research should focus on evaluating the functional use of the habitat, particularly whether the canal supports breeding populations or primarily serves as a feeding and resting site. Additionally, studies addressing water quality, contaminant loads (e.g., heavy metals), and disturbance gradients would be essential to understand the ecological limitations of the system and to inform conservation and management strategies.

Overall, these findings emphasize that urban canals, despite their artificial origin, can play a meaningful role in avian conservation, particularly for migratory shorebirds, and should therefore be considered in urban planning and biodiversity management frameworks.

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**APPENDIX 1.** List of all bird species recorded in the artificial canal Canal Ifarle during the period of 2016 – 2023. / Lista de todas las especies de aves registradas en el canal artificial Canal Ifarle durante el periodo de 2016 – 2023.

| Order | Familiy | Scientific name | Spanish name | Migratory estrategy | Observed in field | eBird records only | IUCN conservation status | National conservation status (MMA) |
|---|---|---|---|---|---|---|---|---|
| Accipitriformes | Accipitridae | *Geranoaetus polyosoma* Quoy & Gaimard, 1824 | Aguilucho | Resident | 2 | | LC | |
| Accipitriformes | Accipitridae | *Elanus leucurus* Vieillot, 1818 | Bailarín | Resident | 1 | | LC | |
| Accipitriformes | Accipitridae | *Parabuteo unicinctus* Temminck, 1824 | Peuco | Resident | 1 | | LC | |
| Anseriformes | Anatidae | *Coscoroba coscoroba* Molina, 1782 | Cisne Coscoroba | Resident | 60 | | LC | EN |
| Anseriformes | Anatidae | *Cygnus melancoryphus* Molina, 1782 | Cisne de Cuello Negro | Resident | 30 | | LC | EN |
| Anseriformes | Anatidae | *Spatula versicolor* Vieillot, 1816 | Pato Capuchino | Resident | 4 | | LC | |
| Anseriformes | Anatidae | *Spatula cyanoptera* Vieillot, 1816 | Pato Colorado | Resident | 23 | | LC | |
| Anseriformes | Anatidae | *Spatula platalea* Vielliot, 1816 | Pato cuchara | Resident | 3 | | LC | I. CON. |
| Anseriformes | Anatidae | *Anas bahamensis* Linnaeus, 1758 | Pato Gargantillo | Resident | 34 | | LC | LC |
| Anseriformes | Anatidae | *Anas flavirostris* Vieillot, 1816 | Pato Jergón Chico | Resident | 77 | | LC | |
| Anseriformes | Anatidae | *Anas georgica* Gmelin, 1789 | Pato Jergón Grande | Resident | 142 | | LC | |
| Anseriformes | Anatidae | *Mareca sibilatrix* Poeppig, 1829 | Pato Real | Resident | 19 | | LC | |
| Apodiformes | Trochilidae | *Sephanoides sephaniodes* Lesson & Garnot,1827 | Picaflor Chico | Resident | 5 | | LC | |
| Cathartiformes | Cathartidae | *Cathartes aura* Linnaeus, 1758 | Jote de Cabeza Colorada | Resident | 33 | | LC | |
| Cathartiformes | Cathartidae | *Coragyps atratus* Bechstein, 1793 | Jote de Cabeza Negra | Resident | 26 | | LC | |

**Continuation Appendix 1**

| Order | Familiy | Scientific name | Spanish name | Migratory estrategy | Observed in field | eBird records only | IUCN conservation status | National conservation status (MMA) |
|---|---|---|---|---|---|---|---|---|
| Charadriiformes | Scolopacidae | *Gallinago magellanica* Vieillot, 1816 | Becanina | Resident | 2 | | LC | LC |
| Charadriiformes | Charadriidae | *Zonibyx modestus* Lichtenstein, 1823 | Chorlo Chileno | Resident | 6 | | LC | |
| Charadriiformes | Charadriidae | *Charadrius collaris* Vieillot, 1818 | Chorlo de Collar | Resident | 9 | | LC | NT |
| Charadriiformes | Charadriidae | *Pluvialis dominica* Müller, 1776 | Chorlo Dorado | Resident | | 1 | LC | |
| Charadriiformes | Laridae | *Chroicocephalus maculipennis* Lichtenstein, 1823 | Gaviota Cáhuil | Resident | 41 | | - | |
| Charadriiformes | Laridae | *Leucophaeus pipixcan* Wagler, 1831 | Gaviota de Franklin | Migratory | 27 | | LC | |
| Charadriiformes | Laridae | *Larus dominicanus* Lichtenstein, 1823 | Gaviota Dominicana | Resident | 64 | | LC | |
| Charadriiformes | Laridae | *Sterna hirundinacea* Lesson, 1831 | Gaviotín Sudamericano | Resident | | 3 | LC | |
| Charadriiformes | Recurvirostridae | *Himantopus mexicanus* Müller, 1776 | Perrito | Resident | 135 | | LC | |
| Charadriiformes | Haematopodidae | *Haematopus palliatus* Temminck, 1820 | Pilpilén | Resident | 17 | | LC | |
| Charadriiformes | Scolopacidae | *Tringa flavipes* Gmelin, 1789 | Pitotoy Chico | Migratory | 616 | | VU | LC |
| Charadriiformes | Scolopacidae | *Tringa melanoleuca* Gmelin, 1789 | Pitotoy Grande | Migratory | 521 | | NT | |
| Charadriiformes | Scolopacidae | *Calidris bairdii* Coues, 1861 | Playero de Baird | Migratory | 24 | | LC | |
| Charadriiformes | Scolopacidae | *Calidris fuscicollis* Vieillot, 1819 | Playero de Lomo Blanco | Migratory | | 1 | VU | |
| Charadriiformes | Scolopacidae | *Calidris himantopus* Bonaparte, 1826 | Playero de Patas Largas | Migratory | | 1 | NT | |
| Charadriiformes | Scolopacidae | *Calidris minutilla* Vieillot, 1819 | Playero Enano | Migratory | | 1 | NT | |

**Continuation Appendix 1**

| Order | Familiy | Scientific name | Spanish name | Migratory estrategy | Observed in field | eBird records only | IUCN conservation status | National conservation status (MMA) |
|---|---|---|---|---|---|---|---|---|
| Charadriiformes | Scolopacidae | *Calidris melanotos* Vieillot, 1819 | Playero Pectoral | Migratory | | 1 | LC | |
| Charadriiformes | Scolopacidae | *Phalaropus tricolor* Vieillot, 1819 | Pollito de Mar Tricolor | Migratory | 52 | | LC | |
| Charadriiformes | Charadriidae | *Vanellus chilensis* Molina, 1782 | Queltehue | Resident | 128 | | LC | |
| Charadriiformes | Laridae | *Rynchops niger* Linnaeus, 1758 | Rayador | Migratory | 131 | | LC | |
| Charadriiformes | Scolopacidae | *Limosa haemastica* Linnaeus, 1758 | Zaparito de Pico Recto | Migratory | 6 | | VU | |
| Charadriiformes | Scolopacidae | *Numenius phaeopus* Linnaeus, 1758 | Zarapito común | Migratory | 77 | | LC | LC |
| Columbiformes | Columbidae | *Columba livia* Gmelin, 1789 | Paloma doméstica | Resident | 32 | | LC | |
| Columbiformes | Columbidae | *Zenaida auriculata* Des Murs, 1847 | Tórtola | Resident | 5 | | LC | |
| Columbiformes | Columbidae | *Columbina picui* Temminck, 1813 | Tortolita Cuyana | Resident | 2 | | LC | |
| Falconiformes | Falconidae | *Falco peregrinus* Tunstall, 1771 | Halcon Peregrino | Resident | | 1 | LC | VU |
| Falconiformes | Falconidae | *Phalcoboenus chimango* Vieillot, 1816 | Tiuque | Resident | 22 | | LC | |
| Gruiformes | Rallidae | *Pardirallus sanguinolentus* Swainson, 1838 | Pidén | Resident | 5 | | LC | |
| Gruiformes | Rallidae | *Fulica armillata* Vieillot, 1817 | Tagua común | Resident | 10 | | LC | |
| Gruiformes | Rallidae | *Fulica leucoptera* Vieillot, 1817 | Tagua Chica | Resident | 9 | | LC | |
| Gruiformes | Rallidae | *Fulica rufifrons* Philippi & Landbeck, 1861 | Tagua de Frente Roja | Resident | 7 | | LC | |
| Gruiformes | Rallidae | *Porphyriops melanops* Vieillot, 1819 | Tagüita | Resident | 4 | | LC | |

**Continuation Appendix 1**

| Order | Familiy | Scientific name | Spanish name | Migratory estrategy | Observed in field | eBird records only | IUCN conservation status | National conservation status (MMA) |
|---|---|---|---|---|---|---|---|---|
| Passeriformes | Motacillidae | *Anthus correndera* Vieillot, 1818 | Bailarin Chico | Resident | 1 | | LC | |
| Passeriformes | Troglodytidae | *Troglodytes aedon* Vieillot, 1809 | Chercan de las Vegas | Resident | 2 | | LC | |
| Passeriformes | Emberezidae | *Zonotrichia capensis* Müller, 1776 | Chincol | Resident | 8 | | LC | |
| Passeriformes | Thraupidae | *Sicalis luteola* Meyen, 1834 | Chirihue | Resident | 43 | | LC | |
| Passeriformes | Thraupidae | *Sicalis flaveola* Sclater, 1872 | Chirihue Azafrán | Resident | | 1 | LC | |
| Passeriformes | Furnariinae | *Cinclodes fuscus* Vieillot, 1818 | Churrete Acanelado | Resident | 3 | | LC | |
| Passeriformes | Furnariinae | *Cinclodes patagonicus* Gmelin, 1789 | Churrete Patagónico | Resident | 2 | | LC | |
| Passeriformes | Tyrannidae | *Lessonia rufa* Gmelin, 1789 | Colegial | Resident | 6 | | LC | |
| Passeriformes | Tyrannidae | *Muscisaxicola macloviana* Garnot, 1826 | Dormilona Tontito | Resident | 3 | | LC | |
| Passeriformes | Hirundinidae | *Tachycineta leucopyga* Meyen, 1834 | Golondrina Chilena | Resident | 22 | | LC | |
| Passeriformes | Hirundinidae | *Pygochelidon cyanoleuca* Vieillot, 1817 | Golondrina Dorso Negro | Resident | 9 | | LC | |
| Passeriformes | Passeridae | *Passer domesticus* Linnaeus, 1758 | Gorrión | Resident | 32 | | LC | |
| Passeriformes | Fringillidae | *Spinus barbatus* Molina, 1782 | Jilguero | Resident | 21 | | LC | |
| Passeriformes | Icteridae | *Leistes loyca* Molina, 1782 | Loica | Resident | 5 | | LC | |
| Passeriformes | Icteridae | *Molothrus bonariensis* Gmelin, 1789 | Mirlo | Resident | 42 | | LC | |
| Passeriformes | Tyrannidae | *Hymenops perspicillatus* Gmelin, 1789 | Run-run | Resident | 3 | | LC | |

**Continuation Appendix 1**

| Order | Familiy | Scientific name | Spanish name | Migratory estrategy | Observed in field | eBird records only | IUCN conservation status | National conservation status (MMA) |
|---|---|---|---|---|---|---|---|---|
| Passeriformes | Tyrannidae | *Tachuris rubrisgastra* Vieillot, 1817 | Siete Colores | Resident | 3 | | LC | |
| Passeriformes | Mimidae | *Mimus thenca* Molina, 1782 | Tenca | Resident | 4 | | LC | |
| Passeriformes | Furnariinae | *Phleocryptes melanops* Vieillot, 1817 | Trabajador | Resident | 2 | | LC | |
| Passeriformes | Icteridae | *Agelasticus thilius* Molina, 1782 | Trile | Resident | 11 | | LC | |
| Passeriformes | Turdidae | *Turdus falcklandii* King, 1831 | Zorzal | Resident | 3 | | LC | |
| Pelecaniformes | Threskiornithidae | *Plegadis chihi* Vieillot, 1817 | Cuervo de Pantano | Resident | 6 | | LC | EN |
| Pelecaniformes | Ardeidae | *Bulbulcus ibis* Linnaeus, 1758 | Garza Boyera | Resident | 3 | | LC | |
| Pelecaniformes | Ardeidae | *Egretta thula* Molina, 1782 | Garza Chica | Resident | 11 | | LC | |
| Pelecaniformes | Ardeidae | *Area cocoi* Linnaeus, 1766 | Garza Cuca | Resident | 1 | | LC | |
| Pelecaniformes | Ardeidae | *Ardea alba* Linnaeus, 1758 | Garza Grande | Resident | 8 | | LC | |
| Pelecaniformes | Ardeidae | *Ixobrychus involucris* Vieillot, 1823 | Huairavillo | Resident | 1 | | LC | |
| Pelecaniformes | Ardeidae | *Nycticorax nycticorax* Linnaeus, 1758 | Huairavo | Resident | 3 | | LC | |
| Podicipediformes | Podicipedidae | *Podilymbus podiceps* Linnaeus, 1758 | Picurio | Resident | 1 | | LC | |
| Podicipediformes | Podicipedidae | *Rollandia rolland* Quoy & Gaimard, 1824 | Pimpollo | Resident | 3 | | LC | |
| Strigiformes | Strigidae | *Asio flammeus* Vieillot, 1817 | Nuco | Resident | 1 | | LC | LC |
| Suliformes | Phalacrocoracidae | *Nannopterum brasilianus* Gmelin, 1789 | Yeco | Resident | 5 | | LC | |