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LICE (INSECTA: PHTHIRAPTERA) FROM SPECIES OF THE FAMILIES FURNARIIDAE, TYRANNIDAE, TURDIDAE AND ICTERIDAE (AVES: PASSERIFORMES) FROM CHILE

PIOJOS (INSECTA: PHTHIRAPTERA) DE ESPECIES DE LAS FAMILIAS FURNARIIDAE, TYRANNIDAE, TURDIDAE E ICTERIDAE (AVES: PASSERIFORMES) DE CHILE

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ABSTRACT

A total of 185 birds (nine captured alive and 176 preserved in a museum), belonging to the families Furnariidae (n=14), Tyrannidae (n=4), Turdidae (n=24) and Icteridae (n=143) (Aves: Passeriformes) were searched for lice (Phthiraptera: Philopteridae, Menoponidae). The species collected and identified were: *Furnaricola titicacae* Carriker 1949 from *Phleocryptes melanops* (Vieillot 1817), and *Picicola cunicullariae* Cicchino 1981 from *Geositta rufipennis fasciata* (Burmeister 1860) (Furnariidae); *Picicola foedus* (Kellogg & Chapman 1899) from *Xolmis pyrope* (Kittlitz 1830) (Tyrannidae); *Brueelia magellanica* Cicchino 1986, *B. persimilis* Cicchino 1987 and *Menacanthus eurysternus* (Burmeister 1838) from *Turdus falcklandii* Quoy & Gaimard 1824 (Turdidae); *Brueelia bonariensis* Cicchino and Castro 1996 from *Molothrus bonariensis* (Gmelin 1789), *Brueelia marcoi* Cicchino & Castro 1996 from *Curaeus curaeus* (Molina 1782), *Myrsidea psittaci* Carriker 1955 from *Agelaius thilus thilus* (Molina 1782), *Brueelia boae* Cicchino & Castro, 1996 and *Menacanthus leistidis* Cicchino 1984 from *Sturnella loyca* (Molina 1782) (Icteridae).
The species *B. persimilis* Cicchino 1987, *M. eurysternus* (Burmeister 1838), *M. leistidis* Cicchino 1984, *Myrsidea psittaci* Carriker 1955, *Furnaricola titicacae* Carriker 1949, *Picicola foedus* (Kellogg & Chapman 1899), *P. cunicullariae* Cicchino 1981 are new records for Chile. New host-louse records are *G. r. fasciata* (Burmeister 1860) for *P. cunicullariae* Cicchino 1981, *A. thilus thilus* (Molina 1782), for *M. psittaci and S. loyca for M. leistidis* Carriker 1955 and *S. loyca* (Molina 1782) for *M. leistidis* Cicchino 1984. Within Chile, the distribution of *Brueelia boae* Cicchino & Castro 1996 was extended from the 4th to the 10th Regions, and for *B. marcoi* Cicchino & Castro 1996 from the 4th to the 12th Regions.

KEYWORDS: lice, Phthiraptera, birds, Passeriformes, Chile.

RESUMEN

Se analizaron un total de 185 aves (nueve capturadas vivas y 176 preservadas en un museo) correspondientes a las familias Furnariidae (n= 14), Tyrannidae (n= 4), Turdidae (n=24) e Icteridae (n=143). Las especies de piojos aislados e identificados fueron: *Furnaricola titicacae* Carriker 1949 en *Phleocryptes melanops* (Vieillot 1817) y *Picicola cunicullariae* Cicchino 1981 en *Geositta rufipennis fasciata* (Burmeister 1860) (Furnariidae); *Picicola foedus* (Kellogg & Chapman 1899) en *Xolmis pyrope* (Kittlitz 1830) (Tyrannidae); *Brueelia magellanica* Cicchino 1986, *B. persimilis* Cicchino 1987 y *Menacanthus eurysternus* (Burmeister 1838), en *Turdus falcklandii* Quoy & Gaimard 1824 (Turdidae); *Brueelia bonariensis* Cicchino & Castro 1996 en *Molothrus bonariensis* (Gmelin 1789), *Brueelia marcoi* Cicchino & Castro 1996 en *Curaeus curaeus* (Molina 1782), *Myrsidea psittaci* Carriker

1955 en *Agelaius thilus thilus* (Molina 1782), *Brueelia boae* Cicchino & Castro 1996 y *Menacanthus leistidis* Cicchino 1984 en *Sturnella loyca* (Molina 1782) (Icteridae).
Las especies *Brueelia persimilis* Cicchino 1987, *Menacanthus eurysternus* (Burmeister 1838), *M. leistidis* Cicchino 1984, *Myrsidea psittaci* Carriker 1955, *Furnaricola titicacae* Carriker, 1949, *Picicola foedus* (Kellogg & Chapman 1899), *P. cunicullariae* Cicchino 1981 corresponden a nuevas citas para Chile. Nuevos registros de hospedadores son *G. r. fasciata* (Burmeister 1860) para *P. cunicullariae* Cicchino, 1981, *A. thilus thilus* (Molina 1782), para *M. psittaci* Carriker 1955 y *S. loyca* (Molina 1782) para *M. leistidis* Cicchino 1984. Se amplia la distribución de *Brueelia boae* Cicchino & Castro 1996 desde la IV hasta la X Región de Chile y la de *B. marcoi* Cicchino & Castro 1996 desde la IV a la XII Región de Chile.

Palabras claves: Piojos, Phthiraptera, aves, Passeriformes, Chile.

INTRODUCTION

There are very few studies of lice (Insecta: Phthiraptera) from passerines collected in Chile. Cicchino (1986) described *Brueelia magellanica* as a new species from *Turdus falcklandii magellanicus* Quoy & Gaimard 1824 (Turdidae) collected in Coquimbo. Further, Cicchino & Castro (1996) described two new species, *Brueelia marcoi* from *Curaeus curaeus* (Molina 1782) (Icteridae) and *Brueelia boae* from *Sturnella loyca* (Molina 1782) (Icteridae), both collected in Pumitaqui, Coquimbo (4th Region). Besides those three species records, studies of ectoparasites from members of the families Turdidae and Icteridae as well as from the Furnariidae and Tyrannidae in Chile are non-existent. This paper provides new records as well as new hosts from Chile for louse species previously described from Argentina mainly.

MATERIALS AND METHODS

Mist nets were used to capture: *Phleocryptes melanops* Vieillot 1817 (n=2) from Lake Santa Elena (8th Region, 36º48'S 72º22'O); *Xolmis pyrope* (Kittlitz 1830) (n=2) from El Tambo (6th Region, 34º36'S 71º21'O) and Ñuble (8th Region, 36º51'S 72º52'O); *Turdus falcklandii* (n=3) from San Carlos (8th Region, 36º25'S 71º57'O), Chillán (8th Region, 36º36'S 72º26'O) and Cauquenes (7th Region, 35º57'S 72º19'O); and *Molothrus bonariensis* (Gmelin 1789) (n=2) from Chillán. Additionally, preserved ornithological specimens kept at the Museo Nacional de Historia Natural (MNHN) in Santiago, Chile, were searched for lice. A total of 176 preserved specimens were examined, of which 12 belong to the Furnariidae, 2 to the Tyrannidae, 21 to the Turdidae, and 141 to the Icteridae. The following bird species, and number of specimens for each species, were examined: 12 *Geosita ruffipenis fasciata* (Burmeister 1860) (Furnariidae) distributed from the 1st Region to the Metropolitan Region; two *X. pyrope* (Tyrannidae) from the 6th to the 8th Regions; 21 *T. falcklandii* (Turdidae) from the 5th to the 11th Regions; 24 *M. bonariensis* (Icteridae) from the 5th to the 8th Regions; 28 *Agelaius thilus thilus* (Molina 1782) (Icteridae) from the 5th to the 9th Regions; 36 *S. loyca* from the 1st to the 12th Regions; and 27 *C. curaeus* from the 5th to the 11th Regions. Anexo I shows preserved ornithological specimens from the Museo Nacional de Historia Natural, Chile, including date of collection, record number of birds and place of collection.
The lice collected were preserved in alcohol 70%, and subsequently slide-mounted following the methodology described by Palma (1978): they were cleaned in KOH 20%, neutralised with acetic acid, then treated with increasing concentrations of alcohol (40%, 80% and 100%), clarified during 24 hours in clove oil, and finally were mounted in Canada Balsam on glass slides. Specimen identifications were made by comparison with the identified material deposited in the collection of the Museo de Mar del Plata, Argentina. The material studied was deposited in the Collection of the Departamento de Ciencias Pecuarias, Laboratorio de Zoología, Universidad de Concepción, Chile. Figure 1 shows the administrative divisions of Chile.

RESULTS

A total of 10 species of chewing lice (Phthiraptera: Philopteridae, Menoponidae) from

TABLE I. Birds of the families Furnariidae, Tyrannidae, Turdidae and Icteridae examined for lice, including number and percentage of louse positive birds, species of lice recorded, geographic distribution, numbers of specimens for each louse species, and sex or developmental stage of the lice.

TABLA I. Phthiraptera aislados de aves de las familias Furnariidae, Tyrannidae, Turdidae e Icteridae, se incluye número y porcentaje de aves positivas, especies de Phthiraptera aislados, distribución geográfica, número de ejemplares por especie, estado de desarrollo y sexo.

Bird family and species	**Number of birds examined**		**Number & percentage of louse positive birds**	**Species of Phthiraptera recorded**	**Geographic distribution**	**Sex /developmental stage**		
	MNHN	Cap				Female	Male	Nymph
Furnariidae								
Phleocryptes melanops		2	2 (100%)	*Furnaricola titicacae*	VIII Region	2		
Geositta rufipennis fasciata	12		2 (16.6%)	*Picicola cunicullariae*	Metropolitan Region	2	2	1
Tyrannidae								
Xolmis pyrope	2	2	3 (75%)	*Picicola foedus*	VI, VIII, IX Region	5		
Turdidae								
Turdus falcklandii	21	3	13 (54.2%)	*Brueelia magellanica*	V-IX Region	11	5	2
				Menacanthus eurysternus	Metrop. and X Region	2	1	
Icteridae								
Molothrus bonariensis	26	2	5 (19,2%)	*Brueelia bonariensis*	VIII Region	3	4	
Curaeus curaeus	27		4 (14,8%)	*Brueelia marcoi*	V-XII Region	2	2	
Agelaius thilus	52		1 (1,9%)	*Myrsidea psittaci*	VII Region	1		
Sturnella loyca	36		7(17,4%)	*Brueelia boae*	VI-X Region	5	2	2
			1(2,7%)	*Menacanthus leistidis*	VI Region	1		

MNHN = Preserved ornithological specimens from the Museo Nacional de Historia Natural, Santiago, Chile.
Cap. = birds captured alive

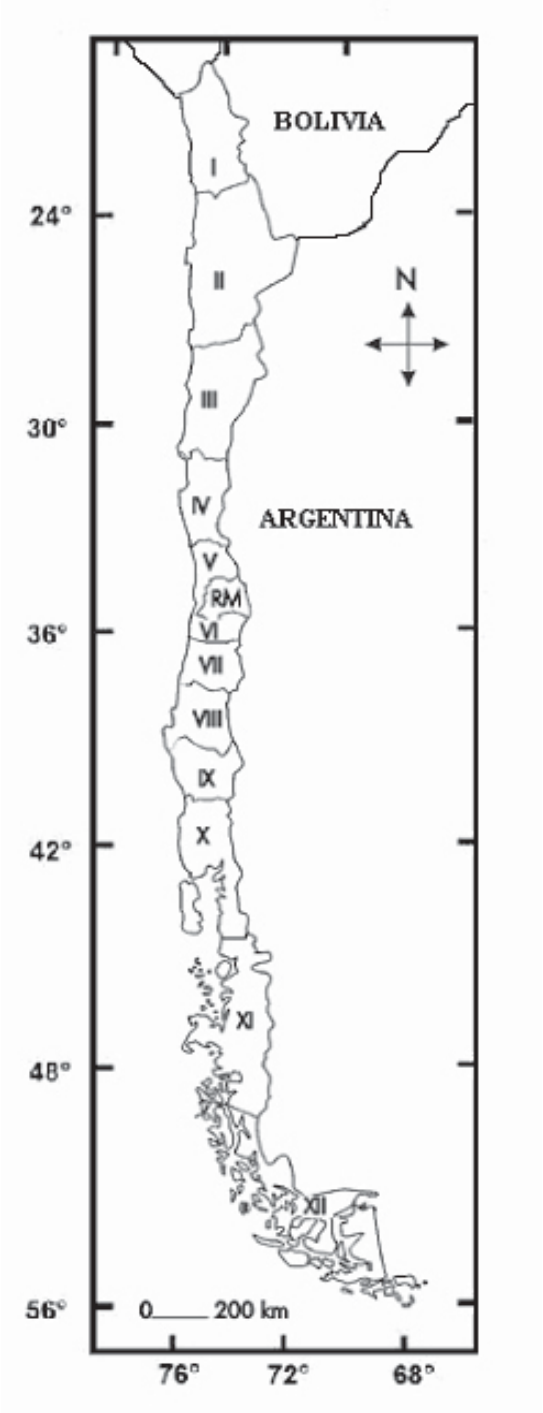

FIGURE 1. Political division of Chile showing administrative regions.

FIGURA 1.División política de Chile y regiones administrativas.

eight hosts belonging to the families Furnariidae, Tyrannidae, Turdidae and Icteridae were recorded. The louse species belong to the genera: *Furnaricola* Carriker 1944; *Picicola* Clay & Meinertzhagen 1938; *Brueelia* Kéler 1936; *Menacanthus* Neumann 1912; and *Myrsidea* Waterston 1915. Table I shows the number of each bird species examined for lice, including number and percentage of louse positive birds, species of lice recorded, geographic distribution, numbers of specimens for each louse species, and sex or developmental stage of the lice.

DISCUSSION

The genus *Furnaricola* is exclusively Neotropical, and includes some 30 species and subspecies that are parasites on suboscine Passeriformes (Thamnophilidae, Furnariidae, Dendrocolaptidae, Rhinocryptidae and Pipridae). It has been studied by Cicchino & Castro (1998b) and Price & Clayton (1993, 1994), but the latter authors consider it to be a synonym of *Rallicola* Johnston & Harrison 1911. *Furnaricola titicacae* Carriker 1949, originally described from *Phleocryptes melanops schoenobaenus* Cabanis & Heine 1859 in Lake Titicaca, Perú, was found in this study parasitizing *Phleocryptes melanops melanops* in Lake Santa Elena (8th Region, Chile); this report widens its geographic distribution, and represents a first record for Chile.

Picicola contains some 29 known species, which parasitize species of the Piciformes and Passeriformes (Tyrannidae, Furnariidae, Rhynocryptidae and probably Vireonidae). *Picicola cunicularie,* originally described from *Geositta cunicularia* (Vieillot 1816) in Argentina (Cicchino 1981), has enlarged its geographic distribution to include Chile in the present study, and has added *Geosita rufipennis fasciata* (Philippi & Landbeck 1864) as a new host record. *Picicola foedus* (Kellogg & Chapman 1899) is a species limited to hosts in the family Tyrannidae (Cicchino & Emerson 1982). The geographic distribution of this louse species, according to its hosts, includes a large part of the North and South American continents, from the United States to Argentina (Cicchino & Emerson 1982). The present record widens its distribution to include Chile and adds *Xolmis pyrope* (Kittlitz 1830) as a new host for *P. foedus* (Kellogg & Chapman 1899). Another species

of this genus is *P. fuscus;* Cicchino & Emerson 1982; although not yet recorded in Chile, it is expected to be found on at least 5 species of *Cinclodes* (*C. oustaleti, C. fuscus, C. nigrofumosus, C. patagonicus, C. antarcticus*). In addition, four other species collected from *Upucerthia dumetaria, Aphrastura spinicauda, Pygarrhichas albogularis* (Furnariidae) and *Pteroptochos megapodius* (Rhinocryptidae) respectively, are under study by one of us (ACC) and probably represent new taxa.

The genus *Brueelia* includes approximately 276 described species, with some of them polytypical, parasitizing numerous species of Passeriformes, Piciformes, Coraciiformes and Trogoniformes (Cicchino & Castro 1998b). This study includes four species of *Brueelia* from four different hosts belonging to the families Turdidae and Icteridae. The species *Brueelia magellanica*, recorded from *Turdus falcklandii magellanicus* Quoy & Gaimard 1824 (Pumitaqui, Coquimbo, 4th Region) by Cicchino (1986) in its original description, has also been cited by Cicchino & Castro (1998b) for Argentina. The present record enlarges its distribution to Coyhaique (10th Region, 45º35'S 72º03'O). Considering the entire distribution of its host, it is possible that the geographic distribution of *B. magellanica* is even greater than known at present. Considering the presence of other members of the Turdidae in Chile, the following *Brueelia* species might also be present: *Brueelia chiguanca* Cicchino 1986 on *Turdus chiguanco* and *Brueelia persimilis* Cicchino 1987 on *Turdus amaurochalinus*.

Brueelia marcoi was described by Cicchino & Castro (1996) from *Curaeus curaeus* (Molina 1782), in Huilmo, Coquimbo (4th Region), Chile and recorded from *C. curaeus reynoldsi* (Sclater 1939) in Argentina by Cicchino & Castro (1998b). In this study, *B. marcoi* was found on the type host in Tierra del Fuego (12th Region, 53º48'S 69º19'O); consequently its distribution has been enlarged to an area covering from Coquimbo to Tierra del Fuego. *Brueelia boae* was described by Cicchino & Castro (1996) from *Sturnella loyca* (Molina 1782), in Santa Rosa, Province La Pampa, Argentina, and in Huilmo, Pumitaqui, Coquimbo (4th Region), Chile. Later, the same authors (1998b) listed *Sturnella defilippi* (Bonaparte 1850) as another host for *B. boae*. In this study, *B. boae* was found on *S. loyca* (Molina 1782). This record widens its distribution to Llanquihue, Chile (10th Region, 41º15'S 73º00'O). *Brueelia bonariensis* Cicchino & Castro (1996) was described parasitizing *M. bonariensis bonariensis* (Gmelin 1789), in Argentina and Paraguay. Here, we report *B. bonariensis* from the same host in Chile for the first time. Other, still unrecorded species of *Brueelia* expected to be found on Chilean members of the Icteridae are: *Brueelia badia* Cicchino & Castro 1996 on *Agelaiodes badius*, *B. ruficapilla* Cicchino 1990 on *Chrysomus ruficapillus* and *B. oxypyga* (Giebel 1874) on *Amblyramphus holosericeus*. In addition, two other species, each from *Sturnella supercilliaris* and *Chrysomus thilius*, are under study by ACC and represent undescribed taxa.

The genus *Menacanthus* includes approximately 50 species, some polytypical and others of uncertain status (Cicchino & Castro 1998a). They have been recorded as parasitizing species of Passeriformes, Piciformes, Apodiformes, Coraciiformes, Tinamiformes and Galliformes (Cicchino & Castro 1998a). The species of *Menacanthus* that parasitize Passeriformes have been reviewed by Price (1975, 1977), and those from Piciformes by Price and Emerson (1975). This study reports *Menacanthus eurysternus* Burmeister 1838 and *Menacanthus leistidis* Cicchino 1984 on *T. falcklandii* Quoy & Gaimard 1824 and *S. loyca* (Molina 1782), respectively. Worldwide, *M. eurysternus* parasitizes a great number of host species belonging to several families in the Passeriformes, as well as to some species of Piciformes. Within the Passeriformes, *M. eurysternus* has been recorded from more than 120 host species in at least 70 genera in 22 families from many countries, including Argentina and Bolivia (Castro & Cicchino 1978, 1996; Cicchino & Castro 1998a). The present study widens its distribution to Chile. *M. leistidis* was originally described from *Sturnella militaris superciliaris* (Bonaparte 1850) by Cicchino (1984) in Argentina, being recorded later on *S. defilippi* for the same country by Cicchino & Castro (1998a). This report widens its distribution to Chile and also records *S. loyca* as (Molina 1782) as a new host for *M. leistidis*.

The genus *Myrsidea* includes over 270 species, with some of them polytypical, that parasitize birds belonging to species of Passeriformes, Piciformes (Ramphastidae), and Trogoniformes (Cicchino & Castro 1998a). *Myrsidea psittaci* Carriker 1955 was recorded by Cicchino & Castro (1998a) on *Agelaius thilus petersi* (Laubmann 1934), *Agelaius ruficapillus* Vieillot 1819, *Pseudoleistes virescens* (Vieillot 1819), *Psuedoleistes guirahuro* (Vieillot

1819), *Gnorimopsar chopi chopi* (Vieillot 1819), *Scaphidura oryzivora oryzivora* (Gmelin 1788), and *Amblyramphus holosericeus* (Scopoli 1786) in Argentina; it has also been found by ACC on *Molothrus bonariensis bonariensis* (Gmelin 1789) in Paraguay. The present report of *M. psittaci* from *A. thilus thilus* (Molina 1782) represents both a new record for Chile and a new host for the louse species. Some species of Icteridae are hosts to two species of *Myrsidea*, as in the case of *Chrysomus thilius* from Argentina, where *M. psittaci* and *Myrsidea serini* (Séguy 1942) have been found coexisting on the same individual host in several occasions (ACC, unpublished). Therefore, we can expect to find more species of *Myrsidea* on members of the Icteridae in Chile.

With the seven new reports described in this study, the diversity of Phthiraptera in Chile exceeds 135 species and future studies probably will show new findings.

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ANEXO I. Preserved ornithological specimens from the Museo Nacional de Historia Natural, Chile, of the families Furnariidae, Tyrannidae and Turdidae, including date of collection, record number of birds and place of collection.

ANEXO I. Colección de reserva del Museo Nacional de Historia Natural, Chile, pertenecientes a las familias Furnariidae, Tyrannidae y Turdidae, se incluye fecha de colección, número de identificación y lugar de colección del ave.

Birds family and species	Date of collection	Record number of birds	Place of collection
Furnariidae			
Geositta rufipennis fasciata	09/03/1941	2784	Lo Valdés (Metropolitan Region)
Geositta rufipennis fasciata	18/05/1947	3573	San Ramón (Metropolitan Region)
Geositta rufipennis fasciata	17/12/1966	3589	La Disputada (Metropolitan Region)
Geositta rufipennis fasciata	17/12/1966	3590	La Disputada
Geositta rufipennis fasciata	05/10/1967	3944	El Yeso (Metropolitan Region)
Geositta rufipennis fasciata	10/11/1965	3956	El Volcán (Metropolitan Region)
Geositta rufipennis fasciata	10/11/1965	3957	El Volcán
Geositta rufipennis fasciata	10/11/1965	3958	El Volcán
Geositta rufipennis fasciata	09/05/1972	4406	Llolleo (5th Region)
Geositta rufipennis fasciata	09/05/1972	4407	Llolleo
Geositta rufipennis fasciata	09/05/1972	4408	Llolleo
Geositta rufipennis fasciata	09/05/1972	4409	Llolleo
Geositta rufipennis fasciata	09/05/1972	4410	Llolleo
Tyrannidae			
Xolmis pyrope	1940		Angol (9th Region)
Xolmis pyrope	1941		Angol
Turdidae			
Turdus falcklandii	01/01/1934	2036	Coyhaique (11th Region)
Turdus falcklandii	30/07/1924	2068	Llanquihue (10th Region)
Turdus falcklandii	28/08/1924	2077	Valdivia (10th Region)
Turdus falcklandii	01/01/1934	2077	Coyhaique
Turdus falcklandii	01/01/1934	2099	Coyhaique
Turdus falcklandii	25/12/1931	2702	Macul (Metropolitan Region)
Turdus falcklandii	02/01/1932	2703	Santiago (Metropolitan Region)
Turdus falcklandii	01/06/1939	3105	Petorca (5th Region)
Turdus falcklandii	01/06/1939	3109	Petorca
Turdus falcklandii	01/08/1942	3190	Llanquihue
Turdus falcklandii	31/05/1939	3191	Teno (7th Region)
Turdus falcklandii	01/05/1947	3633	Curicó (7th Region)
Turdus falcklandii	21/09/1965	4028	Santiago
Turdus falcklandii	07/08/1972	4433	El Tabo (5th Region)
Turdus falcklandii	09/09/1972	4438	Santiago
Turdus falcklandii	30/03/1980	4499	Santiago
Turdus falcklandii	26/07/1981	4503	Til Til
Turdus falcklandii	26/07/1981	4521	Til Til
Turdus falcklandii	26/07/1981	4522	Til Til

Continuation Anex I.

Birds family and species	Date of collection	Record number of birds	Place of collection
Turdus falcklandii	01/07/1939	6842	Chillán (8th Region)
Turdus falcklandii	29/05/1947	9520	Santiago
Icteridae			
Molothrus bonaerensis	01/06/1942	1899	Colchagua (6th Region)
Molothrus bonaerensis	01/06/1942	1903	Talca (7th Region)
Molothrus bonaerensis	01/06/1942	1904	Concepción (8th Region)
Molothrus bonaerensis	16/12/1931	2698	Santiago
Molothrus bonaerensis	24/12/1931	2699	Santiago
Molothrus bonaerensis	30/09/1932	2708	Santiago
Molothrus bonaerensis	10/11/1939	2941	Paine (Metropolitan Region)
Molothrus bonaerensis	01/11/1940	2942	Linares (7th Region)
Molothrus bonaerensis	01/11/1940	2943	Linares
Molothrus bonaerensis	10/11/1939	2944	Paine
Molothrus bonaerensis	01/11/1939	3089	La Campana (5th Region)
Molothrus bonaerensis	10/11/1939	3090	Paine
Molothrus bonaerensis	01/09/1939	3091	Colchagua
Molothrus bonaerensis	01/07/1947	3735	Curicó
Molothrus bonaerensis	01/07/1947	3736	Santiago
Molothrus bonaerensis	01/07/1947	3737	Santiago
Molothrus bonaerensis	01/07/1947	3738	Santiago
Molothrus bonaerensis	01/07/1947	3740	Limache (5th Region)
Molothrus bonaerensis	01/07/1947	3742	Santiago
Molothrus bonaerensis	01/07/1947	3743	Santiago
Molothrus bonaerensis	01/06/1942	4032	Aconcagua (5th Region)
Molothrus bonaerensis	30/10/1965	4035	Fdo. El Tremolin (6th Region)
Molothrus bonaerensis	30/10/1965	4036	Fdo. El Tremolin
Molothrus bonaerensis	30/10/1965	4037	Fdo. El Tremolin
Curaeus curaeus	01/06/1940	1201	Los Andes (5th Region)
Curaeus curaeus	01/07/1940	1202	Bulnes (8th Region)
Curaeus curaeus	09/07/1923	2070	Paine
Curaeus curaeus	26/07/1923	2086	Lontué (7th Region)
Curaeus curaeus	20/07/1923	2089	Molina (7th Region)
Curaeus curaeus	01/08/1925	2098	Santiago
Curaeus curaeus	06/04/1930	2695	O'Higgins (11th Region)
Curaeus curaeus	15/07/2029	2696	Santiago
Curaeus curaeus	01/09/1939	3081	Buin (Metropolitan Region)
Curaeus curaeus	01/07/1939	3082	Paine
Curaeus curaeus	01/07/1939	3083	Valdivia
Curaeus curaeus	01/07/1939	3084	Valdivia
Curaeus curaeus	02/02/1948	3309	Valdivia
Curaeus curaeus	20/11/1952	3392	Tierra del Fuego (12th Region)

Continuation Anex I.

Birds family and species	Date of collection	Record number of birds	Place of collection
Curaeus curaeus	05/08/1940	3430	Angol
Curaeus curaeus	05/08/1940	3431	Angol
Curaeus curaeus	01/06/1947	3666	Colchagua
Curaeus curaeus	01/07/1947	3727	Cautín (9th Region)
Curaeus curaeus	01/06/1947	3728	Colchagua
Curaeus curaeus	01/07/1947	3729	Malleco (9th Region)
Curaeus curaeus	01/07/1947	3730	Malleco
Curaeus curaeus	01/06/1947	3731	Curacaví (Metropolitan Region)
Curaeus curaeus	01/06/1947	3732	Putaendo (5th Region)
Curaeus curaeus	13/10/1945	3734	Linares
Curaeus curaeus	26/06/1965	4030	Malvilla (5th Region)
Curaeus curaeus	01/09/1938	4107	Freire (9th Region)
Curaeus curaeus	08/10/1968	4323	Santiago
Agelaius thilius	18/07/1924	1973	Cautín
Agelaius thilius	01/08/1942	1974	Peralillo (6th Region)
Agelaius thilius	01/08/1942	1975	Cautín
Agelaius thilius	01/07/1947	1976	Cautín
Agelaius thilius	01/07/1947	1978	Santiago
Agelaius thilius	01/08/1942	1979	Colchagua
Agelaius thilius	21/08/1924	2096	Concepción
Agelaius thilius	01/08/1942	2110	Rucapequén (8th Region)
Agelaius thilius	18/08/1924	2117	Talca
Agelaius thilius	21/08/1924	2118	Quilaoiya
Agelaius thilius	21/08/1924	2119	Quilaoiya
Agelaius thilius	18/07/1939	2120	Talca
Agelaius thilius	01/08/1924	2142	Rucapequén
Agelaius thilius	02/10/1942	2731	Batuco (Metropolitan Region)
Agelaius thilius	01/06/1939	2930	Yumbel (8th Region)
Agelaius thilius	01/07/1939	2931	Cautín
Agelaius thilius	01/07/1939	2932	Cautín
Agelaius thilius	01/03/1939	2935	Con Cón (5th Region)
Agelaius thilius	01/07/1939	2939	Yumbel
Agelaius thilius	01/07/1939	3086	Hospital (Metropolitan Region)
Agelaius thilius	24/04/1939	3087	Curicó
Agelaius thilius	01/09/1939	3088	Colchagua
Agelaius thilius	06/06/1940	3432	Angol
Agelaius thilius	01/01/1947	3624	Tobalaba (Metropolitan Region)
Agelaius thilius	01/06/1947	3711	Santiago
Agelaius thilius	01/08/1946	3712	Santiago
Agelaius thilius	01/06/1947	3714	Santiago
Agelaius thilius	01/06/1947	3715	Santiago

Continuation Anex I.

Birds family and species	Date of collection	Record number of birds	Place of collection
Sturnella loyca	01/08/1942	1194	Petorca
Sturnella loyca	16/08/1942	1195	Petorca
Sturnella loyca	01/07/1942	1196	Cautín
Sturnella loyca	01/08/1942	1197	Curicó
Sturnella loyca	01/08/1942	1198	Curicó
Sturnella loyca	01/07/1942	1199	Petorca
Sturnella loyca	12/08/1942	1200	Putaendo
Sturnella loyca	01/08/1939	1203	Las Cabras (6th Region)
Sturnella loyca	01/11/1943	1843	Tarapacá (1st Region)
Sturnella loyca	12/06/1924	2124	Talcahuano (8th Region)
Sturnella loyca	01/05/1923	2125	Lampa (Metropolitan Region)
Sturnella loyca	19/02/1934	2126	Ñirehuao
Sturnella loyca	19/06/1924	2127	Lampa
Sturnella loyca	06/06/1923	2128	Quillota (5th Región)
Sturnella loyca	01/05/1923	2133	Bulnes
Sturnella loyca	01/05/1923	2134	Bulnes
Sturnella loyca	01/08/1924	2140	Santiago
Sturnella loyca	31/07/1924	2141	Valdivia
Sturnella loyca	11/02/1934	2144	Ñirehuao (8th Region)
Sturnella loyca	01/05/1934	2145	Ñirehuao
Sturnella loyca	01/05/1923	2146	Lampa
Sturnella loyca	13/08/1924	2147	Peuco (8th Region)
Sturnella loyca	24/06/1923	2150	San Luis
Sturnella loyca	01/05/1923	2153	Bulnes
Sturnella loyca	19/03/1939	2529	Con Cón (5th Region)
Sturnella loyca	15/07/1929	2697	Paine
Sturnella loyca	01/08/1939	3092	Rancagua (6th Region)
Sturnella loyca	01/08/1939	3096	Rancagua
Sturnella loyca	22/11/1952	3391	Tierra del Fuego (12th Region)
Sturnella loyca	13/08/1940	3431	Angol
Sturnella loyca	01/07/1942	3719	Concepción
Sturnella loyca	01/07/1942	3720	Llanquihue
Sturnella loyca	01/01/1947	3721	Curacaví
Sturnella loyca	01/08/1947	3722	Curacaví
Sturnella loyca	N/P.	4401	Coquimbo (4th Region)
Sturnella loyca	05/03/1969	4421	Pta. Arenas (12th Region)