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 cuniculariae* 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. cuniculariae* Cicchino 1981 are new records for Chile. New host-lice records are *G. r. fasciata* (Burmeister 1860) for *P. cuniculariae* 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 cuniculariae* 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. cuniculariae* Cicchino 1981 corresponden a nuevas citas para Chile. Nuevos registros de hospedadores son *G. r. fasciata* (Burmeister 1860) para *P. cuniculariae* Cicchino, 1981, *A. thilus thilus* (Molina 1782), para *M. psittaci* Carriker 1955 y *S. loyca* (Molina 1782) para *M. leistidis* Cicchino 1984. Se amplía 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 Punitaqui, 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, 36°48'S 72°22'O); *Xolmis pyrope* (Kittlitz 1830) (n=2) from El Tambo (6th Region, 34°36'S 71°21'O) and Ñuble (8th Region, 36°51'S 72°52'O); *Turdus falcklandii* (n=3) from San Carlos (8th Region, 36°25'S 71°57'O), Chillán (8th Region, 36°36'S 72°26'O) and Cauquenes (7th Region, 35°57'S 72°19'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								
<i>Phleocryptes melanops</i>		2	2 (100%)	<i>Furnaricola titicacae</i>	VIII Region	2		
<i>Geositta rufipennis fasciata</i>	12		2 (16.6%)	<i>Picicola cuniculariae</i>	Metropolitan Region	2	2	1
Tyrannidae								
<i>Xolmis pyrope</i>	2	2	3 (75%)	<i>Picicola foedus</i>	VI, VIII, IX Region	5		
Turdidae								
<i>Turdus falcklandii</i>	21	3	13 (54.2%)	<i>Brueelia magellanica</i>	V-IX Region	11	5	2
				<i>Menacanthus eurysternus</i>	Metrop. and X Region	2	1	
Icteridae								
<i>Molothrus bonariensis</i>	26	2	5 (19,2%)	<i>Brueelia bonariensis</i>	VIII Region	3	4	
<i>Curaeus curaeus</i>	27		4 (14,8%)	<i>Brueelia marcoi</i>	V-XII Region	2	2	
<i>Agelaius thilus</i>	52		1 (1,9%)	<i>Myrsidea psittaci</i>	VII Region	1		
<i>Sturnella loyca</i>	36		7(17,4%)	<i>Brueelia boae</i>	VI-X Region	5	2	2
			1(2,7%)	<i>Menacanthus leistidis</i>	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, Rhinocryptidae and probably Vireonidae). *Picicola cuniculariae*, 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 *Geositta 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, 45°35'S 72°03'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 curaesus* (Molina 1782), in Huilmo, Coquimbo (4th Region), Chile and recorded from *C. curaesus 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, 53°48'S 69°19'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, 41°15'S 73°00'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 superciliaris* 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 thilius 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			
<i>Geositta rufipennis fasciata</i>	09/03/1941	2784	Lo Valdés (Metropolitan Region)
<i>Geositta rufipennis fasciata</i>	18/05/1947	3573	San Ramón (Metropolitan Region)
<i>Geositta rufipennis fasciata</i>	17/12/1966	3589	La Disputada (Metropolitan Region)
<i>Geositta rufipennis fasciata</i>	17/12/1966	3590	La Disputada
<i>Geositta rufipennis fasciata</i>	05/10/1967	3944	El Yeso (Metropolitan Region)
<i>Geositta rufipennis fasciata</i>	10/11/1965	3956	El Volcán (Metropolitan Region)
<i>Geositta rufipennis fasciata</i>	10/11/1965	3957	El Volcán
<i>Geositta rufipennis fasciata</i>	10/11/1965	3958	El Volcán
<i>Geositta rufipennis fasciata</i>	09/05/1972	4406	Llolleo (5 th Region)
<i>Geositta rufipennis fasciata</i>	09/05/1972	4407	Llolleo
<i>Geositta rufipennis fasciata</i>	09/05/1972	4408	Llolleo
<i>Geositta rufipennis fasciata</i>	09/05/1972	4409	Llolleo
<i>Geositta rufipennis fasciata</i>	09/05/1972	4410	Llolleo
Tyrannidae			
<i>Xolmis pyrope</i>	1940		Angol (9 th Region)
<i>Xolmis pyrope</i>	1941		Angol
Turdidae			
<i>Turdus falcklandii</i>	01/01/1934	2036	Coyhaique (11 th Region)
<i>Turdus falcklandii</i>	30/07/1924	2068	Llanquihue (10 th Region)
<i>Turdus falcklandii</i>	28/08/1924	2077	Valdivia (10 th Region)
<i>Turdus falcklandii</i>	01/01/1934	2077	Coyhaique
<i>Turdus falcklandii</i>	01/01/1934	2099	Coyhaique
<i>Turdus falcklandii</i>	25/12/1931	2702	Macul (Metropolitan Region)
<i>Turdus falcklandii</i>	02/01/1932	2703	Santiago (Metropolitan Region)
<i>Turdus falcklandii</i>	01/06/1939	3105	Petorca (5 th Region)
<i>Turdus falcklandii</i>	01/06/1939	3109	Petorca
<i>Turdus falcklandii</i>	01/08/1942	3190	Llanquihue
<i>Turdus falcklandii</i>	31/05/1939	3191	Teno (7 th Region)
<i>Turdus falcklandii</i>	01/05/1947	3633	Curicó (7 th Region)
<i>Turdus falcklandii</i>	21/09/1965	4028	Santiago
<i>Turdus falcklandii</i>	07/08/1972	4433	El Tabo (5 th Region)
<i>Turdus falcklandii</i>	09/09/1972	4438	Santiago
<i>Turdus falcklandii</i>	30/03/1980	4499	Santiago
<i>Turdus falcklandii</i>	26/07/1981	4503	Til Til
<i>Turdus falcklandii</i>	26/07/1981	4521	Til Til
<i>Turdus falcklandii</i>	26/07/1981	4522	Til Til

Continuation Anex I.

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

Continuation Anex I.

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

Continuation Anex I.

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