

Appendix 1. List of bird species in northern Patagonia record out site of sampling stations

Species	Order	Family
<i>Rhea americana</i>	Rheidae	Struthioniformes
<i>Nothura maculosa</i>	Tinamiformes	Tinamidae
<i>Charadrius collaris</i>	Charadriidae	Charadriiformes
<i>Tringa melanoleuca</i>	Charadriiformes	Scolopacidae
<i>Bubo magellanicus</i>	Strigidae	Strigiformes
<i>Phytotoma rara</i>	Passeriformes	Cotingidae
<i>Phytotoma rutila</i>	Passeriformes	Cotingidae
<i>Anairetes flavirostris</i>	Passeriformes	Tyrannidae
<i>Knipolegus aterrimus</i>	Passeriformes	Tyrannidae
<i>Muscisaxicola albilora</i>	Passeriformes	Tyrannidae
<i>Neoxolmis rufiventris</i>	Passeriformes	Tyrannidae
<i>Xolmis irupero</i>	Passeriformes	Tyrannidae
<i>Agriornis murinus</i>	Passeriformes	Tyrannidae
<i>Anthus hellmayri</i>	Passeriformes	Motacillidae

Appendix 2. Days on which birds' surveys was carried out.

October 24-25, 1998

May 1-3, 1999

January 11-12, 2000

January 2-3, 2001

November 9-10, 2001

February 4-5, 2002

February 18-19, 2003

November 7-8, 2005

March 23-24, 2006

January 26-28, 2008

February 14-15, 2009

February 4-5, 2010

February 25-27, 2011

September 15-16, 2012

Specie	Order	Family	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>Rhea pennata</i> (Lesser Rhea)	Rheiformes	Rheidae	0	0	0	0	0	0	16	4	2	0	28	12	0	0
<i>Eudromia elegans</i> (Elegant Crested Tinamou)	Tinamiformes	Tinamidae	3	1	8	10	7	8	0	0	0	0	0	0	0	0
<i>Callipepla californica</i> (California Quail)	Galliformes	Odontophoridae	0	0	0	0	0	0	0	0	0	0	0	2	0	26
<i>Oxyura ferruginea</i> (Andean Duck)	Anseriformes	Anatidae	0	0	0	0	0	0	0	0	0	53	0	0	0	90
<i>Oxyura vittata</i> (Lake Duck)	Anseriformes	Anatidae	0	0	0	0	0	0	0	0	0	276	0	0	0	27
<i>Coscoroba coscoroba</i> (Coscoroba Swan)	Anseriformes	Anatidae	0	0	0	0	0	0	27	0	0	27	0	0	0	11
<i>Cygnus melancoryphus</i> (Black-necked Swan)	Anseriformes	Anatidae	5	0	0	0	0	0	2	0	5	70	0	0	0	20
<i>Chloephaga picta</i> (Upland Goose)	Anseriformes	Anatidae	0	0	0	0	0	0	22	0	27	373	0	31	113	87
<i>Lophonetta specularioides</i> (Crested Duck)	Anseriformes	Anatidae	41	0	0	1	0	0	1	0	0	45	0	0	0	0
<i>Spatula versicolor</i> (Silver Teal)	Anseriformes	Anatidae	0	0	0	0	0	0	3	0	0	2	0	2	2	0
<i>Spatula cyanoptera</i> (Cinnamon Teal)	Anseriformes	Anatidae	0	0	0	0	0	0	0	0	0	2	0	0	0	0
<i>Spatula platalea</i> (Red Shoveler)	Anseriformes	Anatidae	6	2	0	0	0	0	10	0	0	16	0	0	0	1403
<i>Mareca sibilatrix</i> (Chiloe Wigeon)	Anseriformes	Anatidae	0	0	0	0	0	0	0	0	0	107	0	1	4	340
<i>Anas georgica</i> (Yellow-billed Pintail)	Anseriformes	Anatidae	0	1	0	2	0	0	10	0	2	435	1	11	46	591
<i>Anas flavirostris</i> (Speckled Teal)	Anseriformes	Anatidae	3	0	0	0	0	0	32	0	2	76	0	0	32	407
<i>Podilymbus podiceps</i> (Pied-billed grebe)	Podicipediformes	Podicipedidae	0	0	0	0	0	0	0	0	0	92	0	0	0	0
<i>Rollandia rolland</i> (White-tufted Grebe)	Podicipediformes	Podicipedidae	0	0	0	0	0	0	0	0	0	0	0	0	0	95
<i>Podiceps major</i> (Great Grebe)	Podicipediformes	Podicipedidae	89	0	0	0	0	0	0	0	0	88	0	0	0	0
<i>Podiceps occipitalis</i> (White-tufted Grebe)	Podicipediformes	Podicipedidae	0	0	0	0	0	0	27	0	0	0	0	0	0	64
<i>Phoenicopterus chilensis</i> (Chilean Flamingo)	Phoenicopteriformes	Phoenicopteridae	17	0	0	0	0	0	307	0	0	747	0	0	0	131
<i>Patagioenas maculosa</i> (Spot-winged Pigeon)	Columbiformes	Columbidae	0	12	2	157	0	0	0	0	0	0	0	0	0	0
<i>Zenaida auriculata</i> (Eared Dove)	Columbiformes	Columbidae	45	38	5	124	32	4	12	20	59	7	20	7	5	9
<i>Columbina picui</i> (Picui Ground Dove)	Columbiformes	Columbidae	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Fulica armillata</i> (Red-gartered Coot)	Gruiformes	Rallidae	0	0	0	0	0	0	207	0	0	413	0	0	0	811
<i>Fulica leucoptera</i> (White-winged Coot)	Gruiformes	Rallidae	0	0	0	0	0	0	0	0	0	0	0	0	0	48
<i>Spheniscus magellanicus</i> (Magellanic Penguin)	Sphenisciformes	Spheniscidae	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Macronectes giganteus</i> (Southern Giant Petrel)	Procellariiformes	Procellariidae	3	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Theristicus melanopis</i> (Black-faced Ibis)	Pelecaniformes	Threskiornithidae	10	0	0	0	0	0	1	0	7	5	0	162	5	11
<i>Nycticorax nycticorax</i> (Black-crowned Night Heron)	Pelecaniformes	Ardeidae	3	0	0	0	0	0	0	0	0	1	0	0	0	0
<i>Ardea alba</i> (Great Egret)	Pelecaniformes	Ardeidae	2	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Leucocarbo magellanicus</i> (Magellanic Cormorant)	Suliformes	Phalacrocoracidae	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Leucocarbo atriceps</i> (Imperial Shag)	Suliformes	Phalacrocoracidae	128	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Nannopterum brasilianum</i> (Neotropic Cormorant)	Suliformes	Phalacrocoracidae	50	0	0	0	0	0	0	0	0	207	0	0	0	0
<i>Haematopus palliatus</i> (American Oystercatcher)	Charadriiformes	Haematopodidae	27	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Himantopus mexicanus</i> (Black-necked Stilt)	Charadriiformes	Recurvirostridae	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Charadrius semipalmatus</i> (Semipalmated Plover)	Charadriiformes	Charadriidae	25	0	0	0	0	0	0	0	0	0	0	0	0	0

<i>Charadrius falklandicus</i> (Two-banded Plover)	Charadriiformes	Charadriidae	44	7	0	0	0	0	8	0	0	11	0	0	0	0
<i>Vanellus chilensis</i> (Southern Lapwing)	Charadriiformes	Charadriidae	2	0	0	22	0	0	0	0	44	20	2	89	59	72
<i>Thinocorus rumicivorus</i> (Least Seedsnipe)	Charadriiformes	Thinocoridae	0	0	0	0	0	0	0	0	0	2	0	0	0	0
<i>Calidris bairdii</i> (Baird's Sandpiper)	Charadriiformes	Scolopacidae	22	11	0	0	0	0	39	0	0	381	0	0	0	0
<i>Calidris fuscicollis</i> (White-rumped Sandpiper)	Charadriiformes	Scolopacidae	0	0	0	0	0	0	4	0	0	217	0	0	0	0
<i>Gallinago magellanica</i> (Magellanic Snipe)	Charadriiformes	Scolopacidae	0	0	0	0	0	0	0	0	0	0	0	0	15	0
<i>Phalaropus tricolor</i> (Wilson's Phalarope)	Charadriiformes	Scolopacidae	0	0	0	0	0	0	0	0	0	18	0	0	0	0
<i>Tringa flavipes</i> (Lesser Yellowlegs)	Charadriiformes	Scolopacidae	1	0	0	0	0	0	0	0	0	9	0	0	0	6
<i>Chroicocephalus maculipennis</i> (Brown-hooded Gull)	Charadriiformes	Laridae	94	0	0	0	0	0	0	0	0	220	0	0	0	0
<i>Larus dominicanus</i> (Kelp Gull)	Charadriiformes	Laridae	383	0	0	0	0	0	0	0	9	128	0	0	0	0
<i>Larus atlanticus</i> (Olrog's Gull)	Charadriiformes	Laridae	9	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sterna trudeaui</i> (Snowy-crowned Tern)	Charadriiformes	Laridae	116	0	0	0	0	0	0	0	0	6	0	0	0	0
<i>Thalasseus maximus</i> (Royal Tern)	Charadriiformes	Laridae	15	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tyto alba</i> (Barn Owl)	Strigiformes	Tytonidae	0	0	0	0	1	0	0	0	0	0	0	0	0	0
<i>Cathartes aura</i> (Turkey Vulture)	Cathartiformes	Cathartidae	26	20	63	48	26	33	39	4	23	13	0	8	3	10
<i>Coragyps atratus</i> (Black Vulture)	Cathartiformes	Cathartidae	0	0	13	24	0	0	0	0	4	0	0	0	0	12
<i>Vultur gryphus</i> (Andean Condor)	Cathartiformes	Cathartidae	0	0	0	0	0	0	0	0	0	0	0	0	19	11
<i>Elanus leucurus</i> (White-tailed Kite)	Accipitriformes	Accipitridae	0	0	0	4	0	0	0	0	0	0	0	0	0	0
<i>Circus cinereus</i> (Cinereous Harrier)	Accipitriformes	Accipitridae	2	0	0	0	0	1	3	0	1	4	0	4	3	2
<i>Geranoaetus polyosoma</i> (Variable Hawk)	Accipitriformes	Accipitridae	0	2	6	1	0	3	2	1	1	1	0	0	7	0
<i>Geranoaetus melanoleucus</i> (Black-chested Buzzard-E)	Accipitriformes	Accipitridae	0	0	0	0	0	0	2	3	0	0	1	4	5	12
<i>Colaptes pitius</i> (Chilean Flicker)	Piciformes	Picidae	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Colaptes campestris</i> (Campo Flicker)	Piciformes	Picidae	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Dryobates mixtus</i> (Checkered Woodpecker)	Piciformes	Picidae	0	0	0	5	2	0	0	0	0	0	0	0	0	0
<i>Caracara plancus</i> (Southern Caracara)	Falconiformes	Falconidae	0	1	6	0	0	0	0	0	1	0	0	0	7	4
<i>Daptrius chimango</i> (Chimango Caracara)	Falconiformes	Falconidae	11	5	0	10	1	1	7	0	4	8	0	7	4	12
<i>Falco sparverius</i> (American Kestrel)	Falconiformes	Falconidae	1	0	8	15	1	0	0	0	2	3	6	41	13	9
<i>Falco femoralis</i> (Aplomado Falcon)	Falconiformes	Falconidae	0	0	0	0	0	0	0	0	0	0	0	3	0	0
<i>Falco peregrinus</i> (Peregrine Falcon)	Falconiformes	Falconidae	0	0	0	0	0	0	0	0	1	0	0	0	0	0
<i>Cyanoliseus patagonus</i> (Burrowing Parrot)	Psittaciformes	Psittacidae	64	22	0	46	6	10	39	2	103	22	0	0	28	0
<i>Geositta cunicularia</i> (Common Miner)	Passeriformes	Furnariidae	0	0	0	0	0	0	0	1	0	10	1	0	0	0
<i>Geositta rufipennis</i> (Rufous-banded Miner)	Passeriformes	Furnariidae	0	0	0	0	0	0	0	0	0	0	0	0	0	4
<i>Leptasthenura platensis</i> (Tufted Tit-Spinetail)	Passeriformes	Furnariidae	0	0	0	0	1	0	0	1	0	0	0	0	0	0
<i>Ochetorhynchus phoenicurus</i> (Creamy-breasted Cana)	Passeriformes	Furnariidae	0	0	0	1	0	0	1	5	0	0	0	0	0	0
<i>Furnarius rufus</i> (Rufous Hornero)	Passeriformes	Furnariidae	0	0	0	30	0	0	0	0	0	0	0	0	0	0
<i>Phleocryptes melanops</i> (Wren-like Rushbird)	Passeriformes	furnariidae	0	0	0	0	0	0	0	0	0	0	0	0	0	4
<i>Upucerthia dumetaria</i> (Scale-throated Earthcreeper)	Passeriformes	Furnariidae	0	0	1	0	1	0	0	0	0	2	1	0	0	0

<i>Leptasthenura aegithaloides</i> (Plain-mantled Tit-Spine)	Passeriformes	Furnariidae	6	1	8	1	3	5	5	8	4	1	2	0	1	0
<i>Asthenes modesta</i> (Plain-breasted Earthcreeper)	Passeriformes	Furnariidae	0	0	0	0	0	6	4	0	3	0	0	0	0	0
<i>Asthenes pyrrholeuca</i> (Sharp-billed Canastero)	Passeriformes	Furnariidae	0	0	7	0	0	2	2	3	0	0	1	0	0	0
<i>Pseudasthenes patagonica</i> (Patagonian Canastero)	Passeriformes	Furnariidae	0	0	0	0	2	2	1	2	0	0	0	0	0	0
<i>Pseudoseisura gutturalis</i> (White-throated Cacholote)	Passeriformes	Furnariidae	0	0	0	0	2	3	3	5	0	0	0	0	1	0
<i>Pseudoseisura lophotes</i> (Brown Cacholote)	Passeriformes	Furnariidae	0	0	0	3	0	4	1	0	0	0	0	0	0	0
<i>Tachuris rubrigastra</i> (Many-colored Rush Tyrant)	Passeriformes	Tyrannidae	0	0	0	0	0	0	0	0	0	0	0	0	0	3
<i>Stigmatura budyoides</i> (Greater wagtail-tyrant)	Passeriformes	Tyrannidae	0	0	0	2	0	0	0	2	0	0	0	0	0	0
<i>Elaenia albiceps</i> (White-crested Elaenia)	Passeriformes	Tyrannidae	0	0	0	0	0	0	0	0	0	0	0	0	0	6
<i>Anairetes parulus</i> (Tufted Tit-Tyrant)	Passeriformes	Tyrannidae	0	0	5	0	1	0	0	2	1	0	0	0	0	0
<i>Serpophaga subcristata</i> (White-crested Tyrannulet)	Passeriformes	Tyrannidae	0	3	1	6	3	0	0	0	0	0	2	0	0	0
<i>Pitangus sulphuratus</i> (Great kiskadee)	Passeriformes	Tyrannidae	0	0	0	10	0	0	0	0	2	0	0	0	0	0
<i>Empidonomus aurantioatrocristatus</i> (Crowned Slaty F)	Passeriformes	Tyrannidae	0	0	0	8	0	0	0	0	0	0	0	0	0	0
<i>Tyrannus melancholicus</i> (Tropical Kingbird)	Passeriformes	Tyrannidae	0	0	0	11	1	0	0	0	0	0	0	0	0	0
<i>Tyrannus savana</i> (Fork-tailed Flycatcher)	Passeriformes	Tyrannidae	1	3	2	21	3	0	0	0	0	0	0	0	0	0
<i>Progne modesta</i> (Southern Martin)	Passeriformes	Hirundinidae	26	1	0	75	2	0	0	8	0	0	0	4	0	0
<i>Pyrocephalus rubinus</i> (Vermilion Flycatcher)	Passeriformes	Tyrannidae	0	0	0	7	0	0	0	0	0	0	0	0	0	0
<i>Lessonia rufa</i> (Austral Negrito)	Passeriformes	Tyrannidae	6	5	0	0	0	0	3	0	32	49	6	11	10	29
<i>Muscisaxicola capistratus</i> (Black-fronted Ground-Tyra	Passeriformes	Tyrannidae	0	0	0	0	0	0	0	0	0	0	1	0	0	0
<i>Muscisaxicola maclovianus</i> (Dark-faced Ground-Tyran	Passeriformes	Tyrannidae	0	0	0	0	0	0	1	0	0	1	0	0	0	17
<i>Pyrope pyrope</i> (Fire-eyed Diucon)	Passeriformes	Tyrannidae	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Neoxolmis coronatus</i> (Black-crowned monjita)	Passeriformes	Tyrannidae	0	0	0	0	1	0	0	0	0	0	0	0	0	0
<i>Neoxolmis rufiventris</i> (White-tailed Shrike-Tyrant)	Passeriformes	Tyrannidae	0	0	1	0	0	0	0	0	0	0	0	0	0	0
<i>Neoxolmis rubetra</i> (Chocolate-vented Tyrant)	Passeriformes	Tyrannidae	0	0	1	0	3	3	0	0	0	0	0	0	0	0
<i>Agriornis montanus</i> (Black-billed Shrike-Tyrant)	Passeriformes	Tyrannidae	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Agriornis lividus</i> (Great Shrike-Tyrant)	Passeriformes	Tyrannidae	0	0	0	0	0	1	0	0	0	0	0	0	0	2
<i>Agriornis micropterus</i> (Gray-bellied Shrike-Tyrant)	Passeriformes	Tyrannidae	0	0	1	1	3	1	0	1	0	0	1	0	0	0
<i>Hymenops perspicillatus</i> (Spectacled Tyrant)	Passeriformes	Tyrannidae	0	3	0	4	0	0	2	0	5	0	0	0	1	5
<i>Tachycineta leucopyga</i> (White-rumped Swallow)	Passeriformes	Hirundinidae	20	4	8	28	8	0	1	2	66	16	2	2	5	42
<i>Progne tapera</i> (Brown-chested Martin)	Passeriformes	Hirundinidae	0	0	0	5	0	0	0	0	0	0	0	0	0	0
<i>Pygochelidon cyanoleuca</i> (Blue-and-white Swallow)	Passeriformes	Hirundinidae	13	1	9	18	0	1	0	7	53	3	0	11	26	13
<i>Troglodytes aedon</i> (House Wren)	Passeriformes	Troglodytidae	2	0	1	12	1	0	0	0	4	0	0	0	0	1
<i>Cistothorus platensis</i> (Sedge Wren)	Passeriformes	Troglodytidae	0	0	0	0	0	0	0	0	0	0	0	1	3	0
<i>Mimus patagonicus</i> (Patagonian Mockingbird)	Passeriformes	Mimidae	27	21	23	19	45	19	31	14	12	1	3	0	0	0
<i>Mimus saturninus</i> (Chalk-browed Mockingbird)	Passeriformes	Mimidae	2	0	0	3	2	3	0	0	0	0	0	0	0	0
<i>Mimus triurus</i> (White-banded Mockingbird)	Passeriformes	Mimidae	5	5	5	5	0	2	1	1	0	0	0	0	0	0
<i>Passer domesticus</i> (House Sparrow)	Passeriformes	Passeridae	0	0	0	5	0	0	0	0	166	0	0	0	0	22

<i>Turdus chiguanco</i> (Chiguanco thrush)	Passeriformes	Turdidae	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Turdus falcklandii</i> (Austral thrush)	Passeriformes	Turdidae	0	0	0	2	0	0	0	0	25	0	0	0	0	33
<i>Anthus correndera</i> (Correndera Pipit)	Passeriformes	Motacillidae	0	1	0	0	0	0	0	0	12	9	5	13	14	2
<i>Spinus magellanicus</i> (Hooded Siskin)	Passeriformes	Fringillidae	0	50	1	35	4	1	0	0	20	0	0	0	1	16
<i>Zonotrichia capensis</i> (Rufous-collared Sparrow)	Passeriformes	Passerellidae	8	102	38	37	40	20	24	91	22	8	46	4	0	7
<i>Leistes loyca</i> (Long-tailed Meadowlark)	Passeriformes	Icteridae	3	22	5	16	13	1	15	0	19	5	5	27	87	61
<i>Molothrus bonariensis</i> (Shiny Cowbird)	Passeriformes	Icteridae	3	12	8	76	0	0	0	0	36	0	0	0	0	0
<i>Agelaioides badius</i> (Bay-winged Cowbird)	Passeriformes	Icteridae	0	0	0	31	1	0	0	0	3	0	0	0	0	0
<i>Agelasticus thilius</i> (Yellow-winged Blackbird)	Passeriformes	Icteridae	0	0	0	1	0	0	0	0	0	0	0	0	0	5
<i>Rhopospina fruticeti</i> (Mourning sierra finch)	Passeriformes	Thraupidae	0	21	9	0	26	60	11	25	12	0	2	1	0	0
<i>Saltator aurantiirostris</i> (Golden-billed Saltator)	Passeriformes	Thraupidae	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Sicalis flaveola</i> (Saffron Finch)	Passeriformes	Thraupidae	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Sicalis luteola</i> (Grassland Yellow-Finch)	Passeriformes	Thraupidae	30	23	14	4	20	2	2	0	0	7	0	0	0	1
<i>Phrygilus gayi</i> (Gray-hooded Sierra-Finch)	Passeriformes	Thraupidae	0	0	0	0	0	0	0	3	3	0	6	0	0	2
<i>Rauenia bonariensis</i> (Blue-and-yellow tanager)	Passeriformes	Thraupidae	0	0	0	2	0	0	0	0	0	0	0	0	0	0
<i>Diuca diuca</i> (Diuca-Finch)	Passeriformes	Thraupidae	0	180	9	8	17	30	13	6	1	0	0	0	0	3

Appendix 4. Cumulative number of bird species for 14 sampling stations throughout the 14 bird surveys.

