

Dataset of long-term bird census in Cigu, 2004–2017

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Abstract

For the conservation of the black-faced spoonbill (*Platalea minor*) and the avian community in Cigu, Tainan City, Taiwan, the Taiwan Black-faced Spoonbill Conservation Association initiated the Long-Term Bird Census in Cigu (LTBCC) project in August 2004. The censuses were conducted twice a month in ten sites which represented agricultural fields, tidal mudflats, windbreaks, fish ponds, and abandoned salt pans in Cigu. The dataset for the 13 census years from August 2004 to July 2017 consists of 2,885 sampling events and 25,974 occurrence records. A total of 522,246 individuals in 54 families and 235 species were counted and identified. Passeriformes, included 26 families and 97 species, occupied the highest percentage of the number of species, followed by Charadriiformes, with eight families and 62 species. However, the Charadriiformes was the order with the highest accumulated number of individuals (329,227), followed by the Pelecaniformes (114,779).

Keywords: Sampling event, Cigu, Tainan, Taiwan, Long-term Bird Census project

七股地區長期鳥類調查資料集 2004-2017

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摘要

臺灣黑面琵鷺保育學會為保育黑面琵鷺 (*Platalea minor*)，自 2004 年 8 月起，於臺南市七股區啓動「七股地區長期鳥類調查計畫 (LTBCC)」，選擇當地農墾地、感潮灘地、防風林、魚塭及廢棄鹽田等 5 類代表性棲地的 10 處地點進行每月兩次之鳥類調查。本資料集內容涵蓋 2004 年 8 月至 2017 年 7 月，共計 13 調查年度之所有調查紀錄，共計觀察事件 2,885 筆、出現紀錄 25,974 筆，記錄鳥類 54 科 235 種 522,246 隻次。種類上以雀形目 (Passeriformes) 26 科 97 種為最多，其次為鴿形目 (Charadriiformes) 8 科 62 種；數量上以鴿形目 329,227 隻次為最多，其次為鵜形目 (Pelecaniformes) 114,779 隻次。

關鍵詞：取樣事件、七股、臺南、臺灣、長期鳥類調查

Introduction

The East Asian–Australasian Flyway (EAAF) supports the largest number of bird species of any flyway. A total of 471 migratory bird species are found in the EAAF (Kirby 2010), with the minimum total number of migratory shorebirds at approximately eight million (Bamford *et al.* 2008). Taiwan occupies a central position in the EAAF and contains 12 of the 397 internationally significant sites (Bamford *et al.* 2008). A total of 296 migratory bird species have been recorded in Taiwan, including 57 legally protected species such as the black-faced spoonbill (*Platalea minor*) and the Chinese crested tern (*Thalasseus bernsteini*) (Ding *et al.* 2017).

Although Taiwan is one of the major habitats in the EAAF for migratory birds, especially waterbirds, long-term bird population data and knowledge about population trends are lacking, except for certain flagship species such as the black-faced spoonbill. Therefore, the members of Taiwan Black-faced Spoonbill

Conservation Association voluntarily initiated the Long-Term Bird Census in Cigu (LTBCC) project in 2004. The aims of the LTBCC were to monitor the structure and composition of the avian community, as well as to build the population trends of the flagship and the common species to provide the necessary information for decision-making on the management of the Black-faced Spoonbill Refuge in Cigu District, Tainan City, Taiwan.

From August 2004 to July 2017, 2,885 sampling events and 25,974 occurrence records were collected. In total, 522,246 bird individuals belonged to 54 families and 235 species were counted. Passeriformes, included 26 families and 97 species, occupied the highest percentage of the number of species, followed by Charadriiformes, with eight families and 62 species. However, the Charadriiformes was the order with the highest accumulated number of individuals (329,227), followed by the Pelecaniformes (114,779) (Table 1).

Table 1. List of orders, families, and numbers of species and birds in the dataset

表 1. 資料集內涵蓋的鳥類目別、科別、鳥種數及數量

Order	Family	No. of Species	No. of Birds
Accipitriformes	Accipitridae	10	170
	Pandionidae	1	100
Anseriformes	Anatidae	15	31,357
Apodiformes	Apodidae	2	349
Bucerotiformes	Upupidae	1	1
Charadriiformes	Charadriiformes sp.	--	6,250
	Charadriidae	8	73,301
	Glareolidae	1	56
	Haematopodidae	1	1
	Laridae	15	55,049
	Recurvirostridae	2	13,227
	Rostratulidae	1	32
	Scolopacidae	33	181,309
	Turnicidae	1	2
Columbiformes	Columbidae	5	5,338
Coraciiformes	Alcedinidae	2	562
Cuculiformes	Cuculidae	6	25
Falconiformes	Falconidae	2	63
Galliformes	Phasianidae	1	5
Gruiformes	Rallidae	6	605
	Acrocephalidae	1	21
	Alaudidae	1	41
	Campephagidae	2	4
	Cettiidae	3	38
	Cisticolidae	3	3,268
	Corvidae	3	292
	Dicruridae	3	264
	Emberizidae	4	216
	Estrildidae	3	2,671
	Fringillidae	3	13
	Hirundinidae	4	6,290
Laniidae	3	1,201	

	Locustellidae	3	47
	Monarchidae	3	37
	Motacillidae	9	522
	Muscicapidae	21	680
	Oriolidae	1	1
	Passeridae	1	7,773
	Phylloscopidae	6	349
	Pittidae	1	1
	Ploceidae	1	1
	Pycnonotidae	2	6,491
	Sturnidae	6	1,072
	Timaliidae	1	1
	Turdidae	8	288
	Zosteropidae	1	5,565
Pelecaniformes	Ardeidae	14	63,136
	Fregatidae	1	1
	Phalacrocoracidae	1	379
	Threskiornithidae	3	51,263
Phoenicopteriformes	Phoenicopteridae	1	1
Piciformes	Picidae	2	133
Podicipediformes	Podicipedidae	1	2,375
Procellariiformes	Procellariidae	1	7
Strigiformes	Strigidae	1	2

Project details

Project title: Long-Term Bird Census in Cigu

Funding: None

Study area descriptions: Five habitat types, namely, tidal mudflats, agricultural fields, fish ponds, abandoned salt pans, and windbreaks, in Cigu District, Tainan City, Taiwan.

Design description: Volunteer implementation of a long-term bird census project involving certain sites, periods, and methods, to establish baseline data of the avian community in various major bird habitats in Cigu.

Taxonomic coverage

General taxonomic coverage description:

A total of 235 species from 54 families in 18 orders were recorded. Passeriformes, included 26 families and 97 species, occupied the highest percentage of the number of species, followed by Charadriiformes, with eight families and 62 species.

Taxonomic ranks:

Class: Aves

Common names: Bird

Spatial coverage

General spatial coverage: Area of Cigu District, Tainan City, Taiwan

Coordinates: 23°2'34.8"N and 23°11'34.8"N (latitude), 120°1'51.6"E and 120°8'42"E (longitude)

Temporal Coverage

Temporal coverage: August 1, 2004–July 22, 2017

Methods

Method description: The survey methods and periods for each site are listed in Table 2. One or more volunteers used pairs of 8–12x binoculars and/or 32–60x spotting scopes to detect birds in the selected survey sites during a particular period. The start and finish times, weather conditions, and water coverage (ratio of the area covered by water, classified as five levels from 0/4 to 4/4) were recorded for each survey event. Each species of bird sighted or heard was recorded, with species, number, and type of movement (flyover or rest in the survey site) noted.

Study scope description: Seven sites in four major habitat types in Cigu were selected at the beginning of the project in August, 2004. Three sites (L0 agricultural field, E2 fish pond, E3 windbreak habitat) with one more habitat type were added in August 2005. The site code, habitat type, survey method, site size or length of line transect, duration, coordinates, survey period, and notes are given in Table 2 and Figure 1.

Table 2. Profile of survey sites

表 2. 調査點說明

Site Code	Habitat Type	Survey Method	Area/Length	Duration	Coordinate (WGS84)	Survey Period	Notes
L0	Agricultural Field	Total Count	2.6ha	20~30min	23.0903° N 120.1064° E	2005.8~	The main crop is shallot (<i>Allium ascalonicum</i>).
M1	Tidal Mudflat	Total Count	98ha	60min	23.0754° N 120.0487° E	2004.8~	Northern part of the Black faced Spoonbill Refuge, surrounded by embankments but water can flow in and out through the water gates.
M2	Tidal Mudflat	Total Count	83ha	20min	23.068° N 120.0513° E	2004.8~	Southern part of the Black-faced Spoonbill Refuge, the elevation is slightly higher than M1.
J2、 J2A、 J2B	Wind-break	Line Transect	150m	30min	J2 : 23.0856° N 120.0366° E J2A : 23.0817° N 120.0367° E J2B : 23.0803° N 120.0371° E	2004.8~	The area was becoming smaller because several extreme weather events occurred during observation years; therefore, the position of the line transect was moved south twice (J2A & J2B), only several trees left until July 2017.

J3、 J3A	Wind- break	Line Transect	450m, 300m after August 2017	30min	23.077° N 120.037° E	2004.8~	The area was becoming smaller for the same reason as J2. The length of the line transect was shortened by 150 m after August 2017.
E1	Fish Pond	Total Count	12ha	30~90min	23.0755° N 120.067° E	2004.8~	The 2 survey sites were nearby each other, and surveys were conducted at the same time.
E2	Fish Pond	Total Count	6ha		23.0753° N 120.069° E	2005.8~	
E3	Wind- break	Line Transect	150m	30min	23.0716° N 120.0657° E	2011.8~	The site was added in response to the lost area of J2 & J3.
D1、 D1A	Aban- doned Salt Pan	Total Count	D1 : 20ha D1A : 40ha	30min	D1 : 23.1709° N 120.1148° E D1A 23.1735° N 120.1148° E	2004.8~	Because of the small population of birds, the site was scaled up to twice the size from August 2011(D1A&D2A)
D2、 D2A	Aban- doned Salt Pan	Total Count	D2 : 20ha D2A : 40ha	30min	D2 : 23.1706° N 120.1108° E D2A : 23.1735° N 120.1108° E	2004.8~	

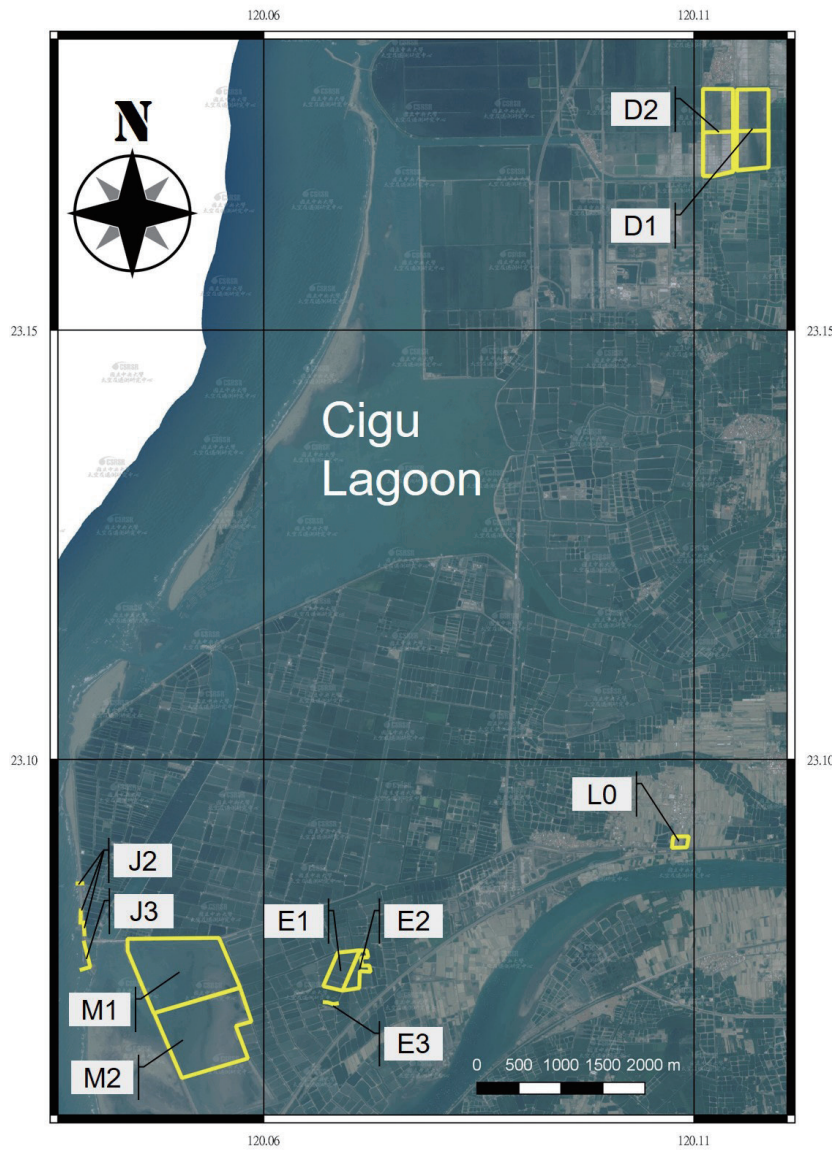


Figure 1. Distribution of LTBCC sampling sites.

圖 1. 調查點位置圖。

Sampling description: Ten sites representing five habitat types were selected with the aim of collecting avian community data in Cigu. Since the winter migratory birds were the main monitoring target group of LTGCC, the study period was from August to July of the following year. In each survey, all of the sites were investigated by a team of volunteers led by a senior observer during the daytime. The survey frequency for each site was generally twice a month, except in August 2004 (four times) and September and October 2004 (three times each). Several surveys were not conducted because of weather conditions or other reasons.

Quality control description: The sampling effort equaled the number of observers times the total amount of time surveyed. For example, the sampling effort would be forty observer minutes when a survey was conducted by four observers in ten minutes. The people conducting the surveys, the number of participants, and the observational equipment varied in each survey, thus possibly resulting in quality differences. When each survey was completed, the results were sent to the secretary, who compiled the data in a digital file and then returned it to the survey team leader for verification.

Datasets

Dataset description:

Object name: Darwin Core Archive Long-term Bird Census in Cigu 2004–2017

Character encoding: UTF-8

Format name: Darwin Core Archive

Format version: 1.0

Distribution: <https://www.gbif.org/dataset/>

b6ca9b0b-b6eb-46c5-b623-cd479a71e566; http://ipt.taibif.tw/archive.do?r=ltccc_bfsa

Preferred identifier: <https://doi.org/10.15468/u6p7vi>

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Language: English

License of use: Creative Commons Attribution (CC-BY) 4.0 (<https://creativecommons.org/licenses/by/4.0/legalcode>)

Metadata language: Chinese

Metadata creation date: 2018-07-02

Hierarchy level: Dataset

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