

# The History and Status of Apostlebirds (*Struthidea cinerea*) in the Sydney Region

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The avifauna of the Sydney region has undergone substantial change since 1900. The apostlebird (*Struthidea cinerea*) is a passerine predominately of inland areas of eastern Australia that does not naturally occur east of the Great Dividing Range in New South Wales. Database records showed that apostlebird sightings have been sporadically reported in the Sydney region as early as 1895. In at least four cases, individuals persisted for periods of seven months to 12 years. Since 1998, three populations have established in Nurragingy Reserve in Doonside, the Pinegrove Lawn Cemetery, Minchinbury and Plumpton. Breeding has been recorded in these three populations, as well as in Lane Cove and the Megalong Valley in the 1960's.

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## INTRODUCTION

Many authors have documented substantial change in the Sydney region's avifauna. Recently, evidence was presented that most of the 15 extant parrot species were rare in the region prior to 1900 (Burgin and Saunders 2007). Some became widespread after escapes from aviaries, whereas others expanded their distribution naturally (Hoskin et al. 1991). Another example, the Australian white ibis (*Threskiornis molucca*) was considered a vagrant prior to 1950, only seen in any numbers in Botany Bay and the Hawkesbury Swamps (Morris 1983; Corben and Munro 2008). Now, it has become widespread in the region.

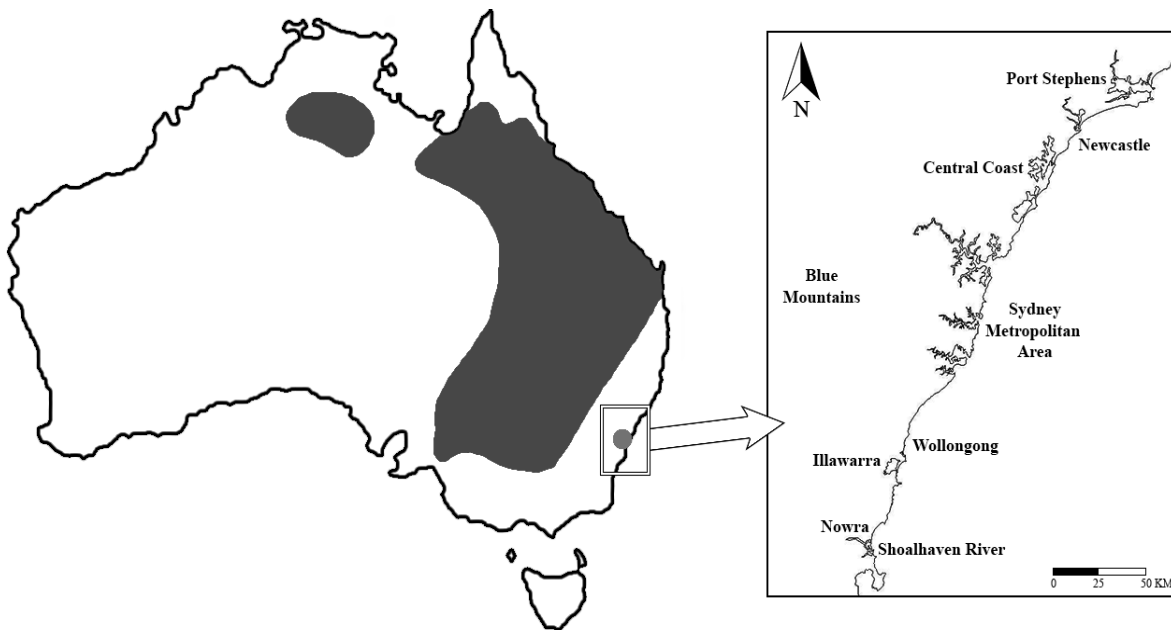
The apostlebird (*Struthidea cinerea*) (Fig. 1), a conspicuous gregarious passerine, is abundant in the inland areas of eastern Australia, with an isolated population in the Top End, Northern Territory (Fig. 2). Changes in the distribution in last century were well-documented, showing that at least half its current range was penetrated in the last 100 years (McAllan and O'Brien 2001; Barrett et al. 2003). Habitation of some localities apparently occurs in response to climatic conditions, receding in times of drought (Mack 1967).



**Figure 1.** An apostlebird *Struthidea cinerea* at the Pinegrove Lawn Cemetery, Minchinbury. Photo, M. Mo.

Apostlebirds do not naturally occur east of the Great Dividing Range in New South Wales (NSW). Individuals located in the metropolitan areas of Sydney and Newcastle are believed to be aviary escapees or deliberate releases (Hoskin et al. 1991). Likewise, individuals had sporadically turned up in Brisbane in the 1960's (Stenhouse 1964). Occurrences of apostlebirds in coastal areas have historically

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**Figure 2. Map showing the natural distribution of the apostlebird *Struthidea cinerea*. Inset map shows the study area in an Australian context.**

been short-lived, with freed individuals presumably not surviving as indicated by the absence of many subsequent sightings. More recently, apostlebirds have become a frequent sight in three locations in western Sydney.

This paper synthesises information on the history of apostlebird sightings in the Sydney region, and examines the regional status of this species.

### METHODS

In this paper, the Sydney region is defined as the area bound by Port Stephens in the north and the Shoalhaven River in the south, west to the Blue Mountains and Great Dividing Range (Fig. 2). Sightings of apostlebirds were extracted from the Atlas of NSW Wildlife (OEH 2015) and Atlas of Living Australia (ALA 2015), which also includes preserved specimens lodged at the Australian Museum, South Australian Museum and Tasmanian Museum and Art Gallery. Sighting records were also obtained from three organisations: NSW Bird Atlasers (NSWBA), Cumberland Bird Observers' Club (CBOC) and Birdlife Australia.

NSWBA was established in 1982 with the aim of monitoring bird distributions. Its database comprises of records contributed by members and other bird-watching groups, as well as locations inferred from literature.

The CBOC database has been maintained since 1986. In addition to sighting locations, members

also provide an indication of flock size (1-5, 6-20, 21-50, 51-100, >100) and breeding information.

Birdlife Australia collects records from its members through the web portal Birdata. To date, the organisation has conducted two nation-wide atlas surveys, the first during 1977-1981 (Blakers et al. 1984) and most recently during 1998-2001 (Barrett et al. 2003). In addition, Birdlife Australia (then Birds Australia) compiled the Historical Bird Atlas (HBA), which is a collection of records derived from museum collections, personal notebooks, published and unpublished literature between 1629 and 1976.

Records presented in this paper were current in February 2015. Duplicate records were identified and removed. Some interpretations were made based on the number of records available, such as recurring records from the same location within a short time period (<6 months) possibly representing the same individuals persisting. It should also be noted that in some cases, a submitter may observe apostlebirds over consecutive days and only lodge one record; hence the subsequent observations are not represented in the data. Additional data were gathered from published literature and personal observations.

### RESULTS

The database search retrieved 291 records, 76 percent of which were from localities in western Sydney (Blacktown, Hawkesbury, Hills, Penrith and Macarthur districts; Tables 1, 2). The earliest known

**Table 1. Records of the apostlebird *Struthidea cinerea* in the Sydney region prior to 1950.**

**Source:** NSWBA = New South Wales Bird Atlasers, HBA = Historical Bird Atlas (Birdlife Australia), ALA = Atlas of Living Australia

Location	Date	Source
Hyde Park	Jun 1895	NSWBA, ALA
Mosman	1920	NSWBA, ALA
Upper Colo	Oct 1923	HBA, NSWBA, ALA
Doonside	1925	NSWBA, ALA

records occurred in Hyde Park in the central business district over two days in June 1895, presumed the same individual (Table 1). A further three sightings occurred in the 1920's with no consistency in their locations.

Reports from the majority of locations since 1950 were also transient individuals (Table 2). There was no clear geographical pattern to these data, except for a series of sightings in the Sutherland district in 1972 and the early 1980's (Fig. 3). There have been two records from the Royal National Park (NSWBA, in litt.; Anyon-Smith 2006), however other comprehensive fauna surveys did not detect the species (Andrew 2001; DECCW 2011; Schulz and Magarey 2012). Two breeding events recorded pre-date the establishment of populations in western Sydney (Smith and Smith 1990; Higgins et al. 2006; Table 2). Whether these breeding attempts were successful is not known.

#### Persisting individuals

Although much of the data relate to sporadic records, there were some series of records identified that were common in location and time (Fig. 3; Table 2). These series suggests that some apostlebirds persisted over a short period of time, for example, records in Chatswood West between 1961 and 1962, and Annangrove in 1974.

The earliest known records of apostlebirds in southern Sydney occurred in the Kurnell and Cronulla area in the mid-1950's (Fig. 3; Table 2). Some apparently persisted for at least 15 years (Morris in Higgins et al. 2006), which possibly explains resurgence in records from various locations in the Sutherland district in 1972. In 1961, 12 sightings were recorded in Holsworthy, with subsequent records nearby at Deadmans Creek in 1962.

#### Established populations

Records for three established populations (Fig. 3) constituted 55% of the data; Nurragingy Reserve,

Doonside (n = 12), Plumpton (n = 65) and Pinegrove Lawn Cemetery, Minchinbury (n = 83).

There were records in Nurragingy Reserve in 1998, which discontinued until 2010 (Table 2), however Roberts (2009) considered apostlebirds a common sight within this period (Fig. 4). The largest flock size to date numbered six individuals (CBOC, in litt.). At least three breeding events were recorded; one fledgling was located on 28 November 2010 and nest building was observed on 21 October 2013 and 26 October 2014 (CBOC, in litt.).

There were two records at the Pinegrove Lawn Cemetery in 1988, but it was only until 1998 that regular sightings began to occur (Table 2). Initially, the rate of reported sightings was low, with intervals of up to six months between records from 1998 to 2001. From 2002 to the present day, the number of database records per year ranged from two to 12. Several more sightings have occurred without formal lodgment in databases (A. Katon, B. Way, A. Lumnitzer and G. Turner, pers. comm; pers. obs). The earliest known breeding event at this site was recorded on 21 February 2002, although the observer did not specify any further details (CBOC, in litt.). Additional accounts of breeding include a nestling seen on 14 November 2008 and nests with eggs reported on 17 October 2011 (CBOC, in litt.). The largest flock size recorded here was six apostlebirds. Individuals had also been seen in the adjoining Wonderland Sydney site prior to its closure in April 2004 (B. Way, pers. comm).

Since January 2007, 65 database records have concentrated on two parkland reserves in Plumpton, Alroy Park and Plumpton Park (Table 2). A nestling was located on January 2007; hence these individuals had occupied the area as early as 2006. Breeding events have been recorded each year since 2007 (CBOC, in litt.). Nest building was observed in the months of March, April, June, August and September to December. Nests with eggs were located in September 2007, September 2011 and October 2012, and fledglings were located in January 2009 and November 2010.

## DISCUSSION

Records of apostlebirds in Sydney could be categorically placed into three sitings: transient individuals, persistent individuals and established populations. The sporadic appearance of transient individuals suggests that several separate introduction and/or dispersal events have occurred, either by deliberate releases, aviary escapes or movements

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**Table 2. Summary of apostlebird *Struthidea cinerea* records in the Sydney region post-1950. Records have been grouped into general time periods based on author discretion. Abundance has been recorded as a range by some databases. Source: NSWBA = New South Wales Bird Atlasers, CBOC = Cumberland Bird Observers' Club, BLA = Birdlife Australia, HBA = Historical Bird Atlas (Birdlife Australia), AS = 1977-81 atlas survey (Birdlife Australia), ALA = Atlas of Living Australia, OEH = Atlas of NSW Wildlife (Office of Environment and Heritage)**

Location	Date	Abundance	Source
<i>City and surrounds</i>			
Randwick	Feb 1966		NSWBA, ALA
Surry Hills	1989		AM, ALA
Erskine Park	Sep 2008	21-50	CBOC
<i>Northern Sydney</i>			
Dee Why	Jun 1959		CBOC, NSWBA
	Dec 1984-Jan 1985		NSWBA
Chatswood West	Nov 1961-Jun 1962 <sup>SR</sup>		NSWBA, HBA
Lane Cove	1962 <sup>B</sup>		Higgins <i>et al.</i> 2006
Marsfield	Mar 1970		NSWBA
<i>Blacktown district</i>			
Blacktown	1974		NSWBA, ALA
	Jul 1990-Dec 1991		NSWBA, ALA
	Jun 1993		NSWBA, ALA
	Sep 2003	1-5	CBOC
	Jul 2004		CBOC
	Aug 2005-Apr 2006 <sup>SR</sup>	1-5	CBOC
Northmead	1974		NSWBA, ALA
Minchinbury	May, Nov 1988		NSWBA, ALA
	Dec 1998-present <sup>EST, B</sup>	51-100	CBOC, BLA, NSWBA, ALA, pers. obs.
Mount Druitt	Jan 1989		OEH, ALA
	Jun 1999-May 2000		NSWBA, ALA
	Sep 2007	6-20	CBOC
	Mar 2011		OEH
Nurragingy Reserve, Doonside	Aug, Dec 1998	1	NSWBA, CBOC, BLA
	Oct 2010-present <sup>EST, B</sup>		CBOC, ALA
Featherdale Wildlife Park, Doonside	May 2005		ALA
Plumpton	Mar 2002	6	OEH, ALA
	Jan 2007-present <sup>EST, B</sup>	6-20	CBOC
Westmead	No date		Roberts 2009
<i>Hawkesbury</i>			
Scheyville	Feb-Jun 1974		HBA, NSWBA, ALA
Marsden Park	Nov 1977		NSWBA, ALA
	Oct 2006	1-5	CBOC
Cattai	Apr 2000		NSWBA, ALA
	Aug 2008		NSWBA, ALA
Wilberforce	Jan 2006		NSWBA, ALA
Pitt Town	Aug 2008		ALA
Ebeneezer	Aug 2008		NSWBA, ALA
<i>Hills district</i>			
Annangrove	Apr-Oct 1974 <sup>SR</sup>		NSWBA, ALA
<i>Penrith district</i>			
Penrith	Mar-Jun 1998		NSWBA, ALA
Emerton	Apr 2000		NSWBA, ALA
Bidwill	Jul 2000		NSWBA, ALA
Emu Plains	Aug 2004		ALA
Ropes Crossing	Apr 2010		BLA, CBOC, ALA
Bringelly	Feb 2013	1	CBOC
Luddenham	Dec 2013	6-20	CBOC

**Table 2 continued**

Location	Date	Abundance	Source
<i>Sutherland district</i>			
Kurnell	Dec 1954		NSWBA, ALA
Cronulla	Mar 1955		NSWBA, ALA
	Jan 1972		HBA, ALA
	Apr-Jul 1981		NSWBA, ALA
Caringbah	Nov 1972		NSWBA, ALA
Sutherland	Jan 1972		HBA, ALA
	Jan 1981	9	OEH, ALA
Taren Point	Nov 1972		HBA, ALA
Menai	Nov 1972		HBA, ALA
Barden Ridge	Nov 1972		NSWBA, ALA
Heathcote	May-Jun 1981 <sup>SR</sup>	1-5	OEH, CBOC, NSWBA, ALA
	Oct 1982	1-5	CBOC, NSWBA, ALA
	Jun 1983	9	CBOC, NSWBA, OEH, ALA
Royal National Park	May 1983		NSWBA, ALA
	No date		Anyon-Smith 2006
<i>Bankstown district</i>			
Holsworthy	Apr-Sep 1961 <sup>SR</sup>		NSWBA, ALA
Sandy Point	May-Aug 1962		NSWBA, ALA
Milperra	Oct-Nov 1985	2	CBOC, OEH, ALA
<i>Macarthur district</i>			
Narellan	Sep 1956		NSWBA, ALA
	Jun 2012		ALA
Camden	Dec 1989		NSWBA, ALA
<i>Blue Mountains</i>			
Megalong Valley	1968 <sup>B</sup>	2	Smith and Smith 1990
Newnes State Forest	May 1998		NSWBA, ALA
Katoomba	Jul 2000		ALA
<i>Hunter Region</i>			
Lake Macquarie area	3 records ~1977-81		AS
Raymond Terrace	Dec 1978		AS
Seaham	Dec 1978		NSWBA, ALA
Shortland	Feb 1996		NSWBA, ALA

<sup>SR</sup>SR = Subsequent records ( $\geq 5$ ) in short succession ( $< 6$  months)

<sup>EST</sup>EST = Established population

<sup>B</sup>B = Evidence of breeding

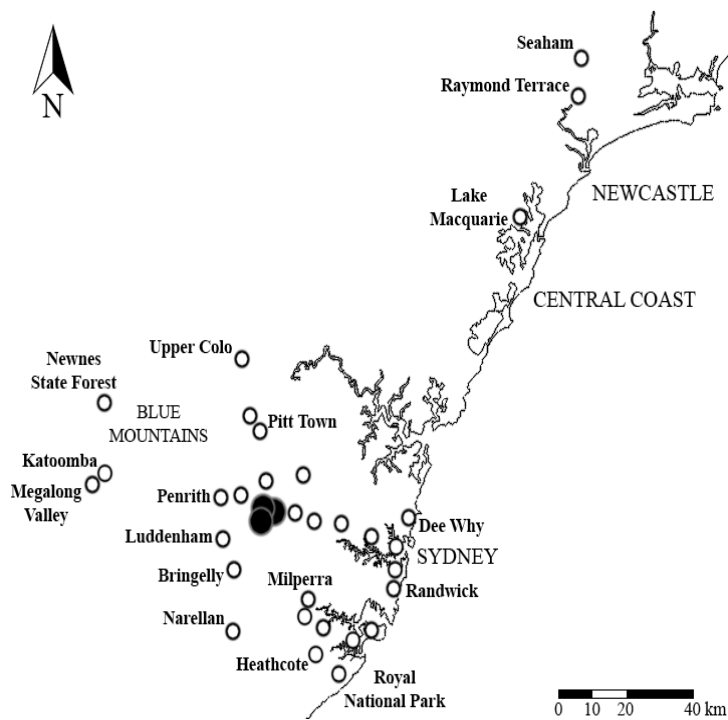
from established populations.

Previous studies on apostlebird movements suggest that it is sedentary (Britton and Britton 2000; Griffioen and Clarke 2002), though may move widely over large home ranges (Chapman 1998; Robinson 2000). This suggests that apostlebirds present in an area should be easily detectable, especially in the metropolitan region; however no information on movement patterns in urban environments is available. The volume and consistency of records from Doonside, Minchinbury and Plumpton give a clear indication that populations have naturalised at these locations. Less frequent records at nearby

suburbs such as Mount Druitt and Blacktown suggest that apostlebirds periodically disperse into these areas. Despite established populations, apostlebirds have so far remained localised, unlike parrots, ibis and exotic avifauna (Barrett et al. 2003; Burgin and Saunders 2007).

The apostlebird frequently exploits parks and gardens in settled areas (Stenhouse 1964; Longmore 1978; Britton and Britton 2000). The occurrence of apostlebirds near Cronulla from the 1950's to 1970's represent the first coastal population in NSW, although these individuals did not remain extant. Records of breeding in Brisbane in the 1960's (Stenhouse

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**Figure 3.** Locations of sporadic records (white circles) and established populations (black circles) of the apostlebird *Struthidea cinerea* in the Sydney region.

1964) demonstrate the possibility of coastal urban populations forming in Sydney. Being a mudnester, the climate of the eastern seaboard may perhaps facilitate its breeding by the continuous availability of damp soil and reliable rainfall. In addition, urban environments present fewer natural predators such as birds of prey and monitor lizards. Although domestic



**Figure 4.** A flock of five apostlebirds *Struthidea cinerea* in Nurragingy Reserve, Doonside. Photo, M. Mo.

cats are a major threat to avifauna (Barratt 1998), the powerful mobbing defence seen in apostlebird flocks (Woxvold and Magarh 2004) may reduce their vulnerability.

An important consideration in this study is the possibility that apostlebirds present in an area may either not be detected or not be recorded in databases, hence an absence of records does not necessarily reflect an absence of the species. The Cumberland Plain has historically supported a number of inland woodland species (Schulz and Ransom 2010), such that the possibility that an unrecorded population of apostlebirds have always been present should also be considered. In particular, movements of inland species into the Sydney region have often been attributed to drought conditions in central and western New South Wales (Keast 1995; Bayly 1999; Major and Parsons 2010).

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