

SOUTHERN RANGE EXTENSIONS OF FLOCK BRONZEWINGS *PHAPS HISTRIONICA* IN SOUTH AUSTRALIA INCLUDING A BREEDING RECORD

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SUMMARY

The locations of 28 southerly records of Flock Bronzewings in central South Australia from 1987–1995 are presented. Flock Bronzewings moved into and bred in the region following favourable summer rains which stimulated prolific growth of annual grass and forb species. The extent of predominantly summer rainfall patterns apparently limited the distribution of both Flock Bronzewings and their key dietary plants. The status of this species in South Australia is tied to vegetation condition on cracking clay plains, which is enhanced by both favourable summer rainfall and sympathetic pastoral management practices.

INTRODUCTION

The Flock Bronzewing *Phaps histrionica* was once abundant in inland Australia but declined considerably following European settlement (Frith 1982; Badman 1989). Despite an apparent resurgence since the 1950s (Frith 1982; Blakers *et al.* 1984; Higgins and Davies 1996) it is still recognised as a bird of major conservation significance (Reid and Fleming 1992).

In favourable seasons Flock Bronzewings disperse from their stronghold in the Barkly Tablelands of the Northern Territory and north-west Queensland (Williams 1970). Flocks in excess of 100 000 birds have been recorded in south-west Queensland (McAllan 1996) and smaller numbers move into the far north and north-east of South Australia (Cox and Pedler 1977; Reid 1988; Fraser 1990) as far south as Lake Eyre South (Read 1991). Historically, Flock Bronzewings reached the Murray River region (34°S), but they are no longer recorded there (Blakers *et al.* 1984).

This paper documents irruptions of Flock Bronzewings into central South Australia between 1987 and 1994, 100 km further south in the State than any published records from this century. It also documents definite and presumed breeding records and a hunting episode by a Peregrine Falcon *Falco peregrinus*.

OBSERVATIONS

Flock Bronzewings were observed in central South Australia from late 1987 to early 1988 and

again from late 1992 to early 1995 (Table 1; Figure 1). These are the only records south of Lake Eyre, with the exception of a suspected breeding pair of Flock Bronzewings sighted at Farina in 1968 (G. Ragless pers. comm.), and represent a contemporary south-westerly range extension of 100 km for this species. Three additional records from the east of Lake Eyre are presented in McAllan (1996).

All southerly records were from October to April, which suggests that Flock Bronzewings are predominantly summer visitors to the study area. Whilst Flock Bronzewings were also found during the winter months in north-west New South Wales during the same period, most records there also followed summer storms (McAllan 1996). Correlation of Flock Bronzewing records with local rainfall was hampered by the patchiness of rainfall events, in particular summer storms, and the scarcity of rainfall gauging stations. However, the 1987/88 incursion of Flock Bronzewings into the Moolawatana district (30°S, 140°E) coincided with above average rainfall, including good rains the previous summer. The more widespread influx in the summer of 1992/93 corresponded with summer rains and above average rainfall throughout the study region at the same time as below average rainfall in the Barkly district. The vegetation was in good to excellent condition at the time of Flock Bronzewing observations at all locations.

Although in north-east South Australia Flock Bronzewings favour spurge *Phyllanthus* "swards" on low white dunes (Reid 1988), all records from central South Australia were either from cracking clay plains supporting Mitchell grass (*Astrebula* spp.) or from water-points adjacent to this habitat. Mitchell grass flowers and sets seed following prolonged summer rains (Cunningham *et al.* 1981; Badman 1995) and is suspected of being an important food for Flock Bronzewings (Higgins and Davies 1996). Mitchell grass is generally sparse to the south of where we recorded Flock Bronzewings and may be an accurate indicator of the distribution limits of this species.

Table 1. Records of Flock Bronzewings from central South Australia, 1987-1995.

Date	Number	Location	Latitude, Longitude	Observer
14/10/87	11	9 km S Fossils Bore, Woolatchi	29°58'S, 140°01'E	P. Bird
24/10/87	1	Cootabarlow Bore, Lakeside	30°17'S, 140°07'E	P. Bird
18-31/1/88 (5 records)	up to 300	Moolawatana Bore, Lakeside	30°07'S, 140°08'E	P. Bird
26/1-5/2/88 (4 records)	up to 12	New Bore, Lakeside	30°07'S, 140°19'E	P. Bird
3/10/92	2	Dog Fence near junction of William Creek/Cooper Pedy road	29°04'S, 135°04'E	J. Read
6/10/92	2	Moon Plain	28°32'S, 134°52'E	J. Read
26/10/92	2	20 km N Olympic Dam	30°17'S, 136°56'E	J. Read
6/11/92	1	16 km NE Billa Kalina H.S.	29°51'S, 136°20'E	J. Read
11/11/92	6	Gosse Springs	29°28'S, 137°20'E	J. Read
Nov. 92	ca. 150	Murphys Dam and Tilcha Bore, Tilcha	29°35'S, 140°48'E 29°40'S, 140°36'E	M. James
Nov. 92	1 adult & 2 chicks	3 km SW Mt Morgan, Billa Kalina	29°45'S, 136°22'E	C. Greenfield
Dec. 92	36	6 km SE of Billa Kalina H.S.	29°57'S, 136°14'E	K. Greenfield
Late 92	ca. 2000	Peachawarrina Bore, Clayton	29°01'S, 138°11'E	S. Oldfield
8/1/93	4	Curdimurka	29°28'S, 137°04'E	J. Read
15/1/93	1	25 km N Roxby Downs	30°19'S, 136°51'E	J. Read
19/1/93	19	13 km SW Coorichina Dam, Stuart Creek Station	30°01'S, 137°09'E	P. Bird
20/1/93	1	3 km SE Coorichina Dam, Stuart Creek	29°58'S, 137°17'E	P. Bird
30/1/93	10	Gosse Springs	29°28'S, 137°20'E	J. Read
Feb. 93	70	Peachawarrina Bore	29°01'S, 138°11'E	S. Oldfield
22/3/93	1	Watts Dam, Stuart Creek	29°53'S, 137°01'E	P. Bird
25/3/93	1	Lee Dam, Stuart Creek	29°56'S, 137°04'E	P. Bird
26/4/93	7	Mandy Dam, Stuart Creek	29°40'S, 137°06'E	P. Bird
21/10/93	40	5 km E Bluebush Dam, Stuart Creek	29°16'S, 137°03'E	F. Badman
Nov. 93	1	Danny Matthew's Creek, Billa Kalina	29°33'S, 136°12'E	K. Greenfield
Jan. 94	ca. 40	Knuckey Tank, Murnpeowie	29°33'S, 139°39'E	G. Summers
28/3/94	12	New Bore, Lakeside	30°07'S, 140°19'E	P. Bird
16/4/94	ca. 70	Rachel Dam, Anna Creek	29°13'S, 135°33'E	P. Bird
8/2/95	ca. 50	Cootabarlow Bore, Lakeside	30°17'S, 140°08'E	P. Bird

Breeding Records

In November 1992, two unfledged chicks were located in a sparsely-lined feather and twig nest approximately 3 km south-west of Mt Morgan on Billa Kalina Station. An adult pigeon performed an elaborate broken wing distraction display within a few metres of the nest which continued until the observer left the area. The nest was situated at the base of a barley Mitchell grass *Astrebla pectinata* tussock on an open gibber plain. The vegetation was lush in response to favourable rains throughout the year and also supported a large population of Plains Rats *Pseudomys australis*. No rabbits were noticed within several kilometres of the nest site which may have indirectly reduced the risk of predation by cats, foxes and dingos.

Two other observations led us to speculate that breeding may have taken place elsewhere in the district. Firstly, at 1930 h on 19 January 1993, a

flock of 19 Flock Bronzewings was flushed from a sandy flat within a canegrass *Eragrostis australasica* swamp 13 km south-west of Coorichina Dam on Stuart Creek Station. Several shallow scrapes were found beneath large canegrass clumps and the ground was littered with pigeon droppings, indicating a prolonged occupancy of the site. Although none of the scrapes were lined, suggesting they may have been dust bowls or resting sites, they could feasibly have been old nests. Frith (1982) states that eggs are sometimes laid on bare ground but scrapes are more commonly lined with dry grass.

Secondly, at 0810 h the following morning a single male was observed performing a display flight 3 km east of Coorichina Dam. The bird flew with slow deliberate wing-beats at an altitude of approximately 50 m. At every fourth or fifth beat, the wings were briefly held aloft in a deep V, the

interruption in flapping resulting in a shallow dipping flight. This description closely matches that of sexually active males by Frith (1982) and Reid (1988) but does not necessarily imply that breeding took place, as display flights may be brought on by wet weather at any time (McAllan 1996). The vegetation at both sites was still lush following heavy spring and summer rains.

Attempted Predation by Peregrine Falcon

At 1730 h on 31 January 1988, a flock of about 80 Flock Bronzings was disturbed from Moolawatana Bore, Lakeside Station, and disappeared to the north. Moments later a group of eight birds reappeared, pursued closely by a Peregrine Falcon. One pigeon, struggling to maintain contact with the flock, was singled out by the falcon. With deep wing beats the pigeon began to climb steadily, with the falcon about 30 m behind

it and 3–4 m below. Twice the falcon performed shallow dives but each time failed to make up the vertical distance to the pigeon which maintained a straight path and continued to climb. The falcon discontinued the chase after at least one kilometre with the pigeon still flying strongly.

Peregrines are probably scarce over the predominantly treeless range of the Flock Bronzewing and are unlikely to be significant predators on them. The Peregrine at Moolawatana Bore probably resided in the northern Flinders Ranges, 45 km distant.

DISCUSSION

The appearance of the Flock Bronzewing in the southern Lake Eyre Basin and Lake Frome regions is probably related to several factors. Heavy rainfall events in the summers of 1986–87, 1988–89

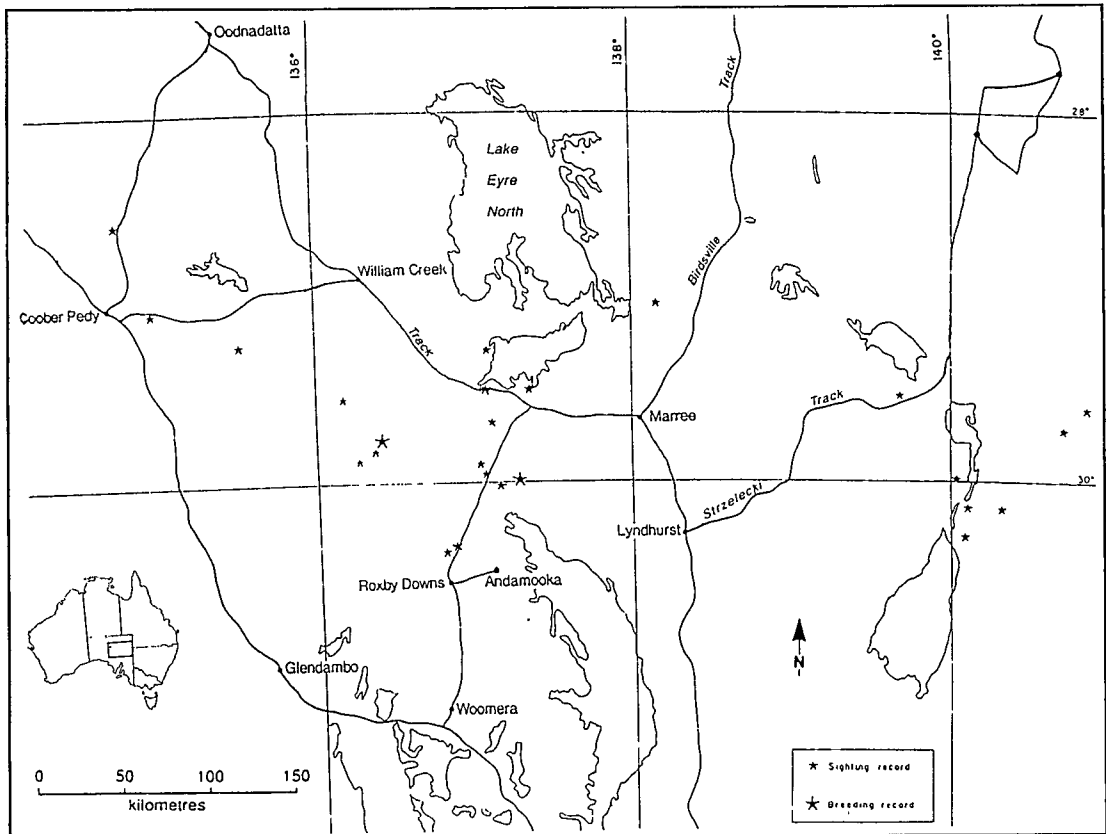


Figure 1. Localities of Flock Bronzewing sightings and breeding records in central South Australia, 1987–95.

and late 1991 and 1992 probably provided the impetus for Flock Bronzewings to move into, and breed, in these districts (Fraser 1990). The major incursion of Flock Bronzewings into central South Australia from late 1992 to early 1993 coincided with records from north-west New South Wales which was experiencing similarly good conditions (McAllan 1996). Flock Bronzewings were presumably attracted by plentiful supplies of their major food sources, including Mitchell grass and herbage (Frith 1982), *Phyllanthus* seeds (Reid 1988) and pop saltbush *Atriplex spongiosa* fruits (Read 1991). This study also suggests that the southern distribution of Flock Bronzewings may coincide with the limit of the predominantly summer rainfall region to the north, which determines the range of many of their food plants.

Increased bush density and regeneration have been recorded at Bulgunnia Station since 1970 (Lay *et al.* 1994) and this trend is probably mirrored at other stations in the northern pastoral district. Regeneration in the past twenty years has been enhanced by an unusual frequency of above average rainfall years and a paucity of severe droughts. These good seasons have marked the cessation of dust storms which used to last for days (Badman 1991) and were a poignant indication of the poor condition of northern South Australian rangelands. Rabbits continue to devastate large areas of northern South Australia but are relatively uncommon on the heavy clays of Mitchell Grass Plains. Therefore, rabbits may impact less on Flock Bronzewings than domestic stock (McAllan 1996).

We concur with Fraser (1990) that, given a series of good seasons, Flock Bronzewings may again be a common and conspicuous member of the arid South Australian avifauna. Further improvements in pastoral management practices can only enhance this species' status.

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