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### THE SUNBIRD

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#### THE DISTRIBUTION AND ABUNDANCE OF PIED CURRAWONG AND TORRESIAN CROW IN SOUTH-EAST QUEENSLAND

#### PETER F. WOODALL

#### ABSTRACT

Reports of Pied Currawongs and Torresian Crows from gardens in Southeast Queensland during two similar surveys conducted in 1979/80 and 1999/2000 are compared. Over the 20 year period between the surveys the distribution of the Pied Currawong increased to include the northern and southern suburbs of Brisbane. The wider distribution of the Torresian Crow also increased to include some suburbs where it was formerly unreported. The reporting rates for both species also increased over the period suggesting that they now occur more commonly in South-east Queensland gardens.

The Torresian Crow was reported year-round during both surveys and over the 20 years the mean maximum numbers reported rose from 3.0 to 4.2 birds. Months of highest maximum numbers of Pied Currawongs reported in both surveys were from May to July. In other months there were few birds reported in 1979/80, but by 1999/2000 reports had become more regular. As predators of smaller birds and/or their nests, it is suggested that the increased presence of both species may have contributed to decreases in reporting rates recorded for some of the smaller species reported during these garden bird surveys.

#### **INTRODUCTION**

According to garden bird surveys conducted by members of Birds Queensland (Woodall 1995, 2002), the Pied Currawong *Strepera graculina* and the Torresian Crow *Corvis orru* both increased their distribution in South-east Queensland from 1979/80 to 1999/2000. This paper provides a fuller analysis of the results of those surveys obtained for these two species.

Suburban gardens can provide an important habitat for many species of birds (Cannon 1999). The Pied Currawong and Torresian Crow are large omnivorous birds and known nest predators of smaller garden birds (Barker & Vestjens 1991; Major, *et al.* 1996). An increase in their distribution and abundance could have a deleterious affect on other smaller garden birds. Corvids also evoke strong reactions from suburban human residents. Some appreciate their presence while others hate them, particularly their loud calls, and advocate culls to reduce their numbers (Jones & Everding 1994). A knowledge of population trends in these two species is of interest to the community.

#### **METHODS**

This analysis has used the results obtained in the 1979/80 and 1999/2000 garden birds surveys conducted by Birds Queensland (Queensland Ornithological Society). Here records of birds in the garden (IN), in the next garden (NG) and flying over (FO) have been summed and treated as a single record. Further details of the two surveys are described in Woodall (1995, 2002).

#### RESULTS

#### **Geographical Distribution**

From the 1979/80 survey it was clear that the Pied Currawong was frequently recorded from the western suburbs of Brisbane (Table 1). Elsewhere in Brisbane it was uncommon, being recorded in only one garden in each of the northern, eastern and southern suburbs, and in two of these gardens only for a week. On the Gold Coast it was reported from 75% of the gardens surveyed. It was also recorded regularly from gardens at Gympie, Nanango, Toowoomba, Pittsworth, and Stanthorpe (Table 1).

Twenty years later, the 1999/2000 survey reported that the Pied Currawong presence had increased slightly in the western suburbs of Brisbane and now also included, more convincingly, gardens in northern and southern suburbs (Table 1). No records of Pied Currawong came from the 15 gardens located in the eastern suburbs. On the Gold Coast the species was recorded in 100% of the gardens surveyed, although only eight gardens were included in the survey. On the Sunshine Coast it was

Region	By Garden		By Week		
	1979/80	1999/2000	1979/80	1999/2000	
West Brisbane	12/20 = 60%	11/14 = 79%	67/534 = 12.5%	213/514 = 41.4%	
North Brisbane	1/19 = 5%	11/26 = 42%	1/500 = 0.2%	149/751 = 19.8%	
South Brisbane	1/17 = 6%	5/19 = 26%	6/481 = 1.2%	33/514 = 6.4%	
East Brisbane	1/10 = 10%	0/15 = 0%	1/250 = 0.4%	0%	
Gold Coast	6/8 = 75%	8/8 = 100%	102/275 = 37.1%	146/240 = 60.8%	
Sunshine Coast		9/13 = 69%		153/402 = 38.1%	
Northern Qld	1/13 = 8%	4/17 = 24%	5/281 = 1.8%	52/387 = 13.4%	
Western Qld.	0/5 = 0%		0		
lpswich-Darling Downs	2/5 = 40%	8/11 = 73%	47/251 = 18.7%	136/348 = 39.1%	
Southern Border	3/3 = 100%	1/1 = 100%	78/139 = 56.1%	18/29 = 62.1%	

Table 1.	The geographical	distribution	of the Pie	d Currawong
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reported from the majority of gardens but it is not clear if this was an increase since the few sites located here in the 1979/80 survey were included in the category "Northern Queensland".

An analysis of the data by weeks (=records) (Table 1) shows similar trends. There was a consolidation in the western suburbs of Brisbane (from 12.5% to 41.4%) and increases in northern and southern suburbs. There were also many more records from the Gold Coast (37% to 60%) and more for North Queensland, Ipswich and the Darling Downs. All regions in Table 1 show greater numbers of records during the later survey.

The Torresian Crow was widespread and common across Brisbane and all other regions surveyed in 1979/80 except for the Southern Border (Table 2). The 1999/2000 survey revealed as similar result with generally more gardens reporting Torresian Crows (up to 100% in several regions) and also a higher percentage of weeks (=records) of Torresian Crow for all regions except for East Brisbane and North Queensland which were stable.

#### Seasonal variation in Reporting Frequency

In 1979/80 the Pied Currawong was clearly a winter visitor in Brisbane gardens in May, June and July (Fig. 1) It occurred in far fewer gardens for the rest of the year. In the winter of 1980 it was recorded from many more gardens than in 1979.

Region	By G	arden	By Week		
	1979/80	1999/2000	1979/80	1999/2000	
West Brisbane	19/20 = 95%	12/14 = 86%	355/534 = 67%	459/514 = 89%	
North Brisbane	16/19 = 84%	26/26 = 100%	370/500 = 74%	651/751 = 87%	
South Brisbane	16/17 = 94%	19/19 = 100%	324/481 = 67%	392/514 = 76%	
East Brisbane	10/10 = 100%	14/15 = 93%	192/250 = 77%	248/333 = 74%	
Gold Coast	7/8 = 88%	8/8 = 100%	218/275 = 79%	218/240 = 91%	
Sunshine Coast		13/13 = 100%		318/402 = 79%	
Northern Qld	10/13 = 77%	11/14 = 79%	159/281 = 57%	223/387 = 58%	
Western Qld.	5/6 = 83%		30/77 = 39%		
Ipswich-Darling Downs	5/5 = 100%	10/11 = 91%	159/251 = 63%	317/348 = 91%	
Southern Border	0/3 = 0%	0/1 = 0%	0/139 = 0%	0/29 = 0%	

Table 2. The geographical distribution of the Torresian Crow

In 1999/2000 the Pied Currawong was again recorded from most gardens in May, June, July and August (Fig. 1) and from fewest gardens in summer (December and January). The winter peak was much less accentuated because birds were recorded from many more gardens in autumn and spring. The difference between in the seasonal patterns of the two surveys was tested using a chi-squared test on raw data and was highly significant (P<0.001).

The Torresian Crow showed very little seasonal variation in the percentage of gardens from which it was recorded in both 1979/80 and 1999/2000 (Fig. 2). Chi-squared tests on the raw data showed that there were no significant differences in the distribution by month (P>0.8 for 1979/80 and P>0.9 for 1999/2000).

#### **Changes in Mean Numbers**

The monthly mean maximum numbers of Pied Currawongs reported per Brisbane garden showed a range of 1 to 6.8 (mean 4.3) in 1979/80 and 1.1 to 3.1 (mean 1.9) in 1999/2000. These means are significantly different (Mann-Whitney U-test, P< 0.001). The seasonal variation (Fig. 3) illustrates these changes more dramatically. In 1979/80 there were mean maxima of 1 for much of the year (single records from single gardens) but then pronounced winter peaks of 4 to 6.8 birds per garden. In 1999/2000 there was much less seasonal variation in the mean maxima, with a peak of just over 3 in July but these means derived from many more gardens.

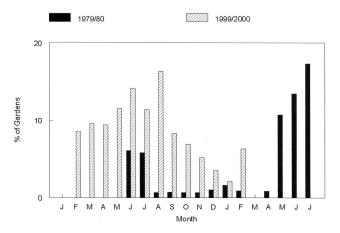


Fig. 1. Seasonal variation in the percentage of gardens in Brisbane that recorded Pied Currawongs in 1979/80 (solid bars) and 1999/2000 (shaded bars).

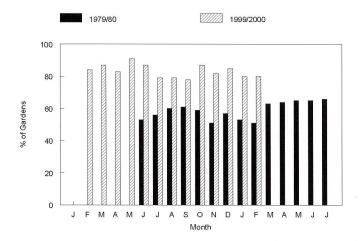
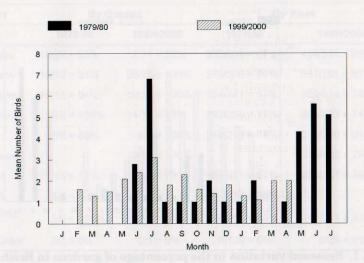


Fig. 2. Seasonal variation in the percentage of gardens in Brisbane that recorded Torresian Crows in 1979/80 (solid bars) and 1999/2000 (shaded bars).

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#### Fig. 3. Seasonal variation in the mean maximum numbers of Pied Currawongs in Brisbane gardens that recorded them in 1979/80 (solid bars) and 1999/2000 (shaded bars).

The monthly mean maximum numbers of Torresian Crows reported per Brisbane garden showed a range of 2.5 to 3.9 (mean 3.0) in 1979/80 and 3.2 to 5.4 (mean 4.2) in 1999/2000. The mean maximum numbers are significantly different (Mann-Whitney U-test, P< 0.001) and there is no apparent seasonal variation in the presence of Torresian Crows in Brisbane gardens.

#### **Correlations between Pied Currawongs and Torresian Crows**

Possible association between the two species was investigated by using Spearman's correlation on the number of weeks of records for each species in each garden. In 1979/80 there was a weak positive correlation (r = 0.245, P <0.007) which was stronger in 1999/2000 (r = 0.486, P<0.0001). This suggests that the species more frequently recorded together in particular gardens, probably reflecting a similar habitat selection, particularly during the second survey.

#### DISCUSSION

There are many possible explanations for the reported increases in distribution and abundance of these two large omnivorous birds. In Australia (Bell 1984, Veerman 2002), as elsewhere in the world (Marzluff et al. 2001), corvids have expanded in urban and suburban areas over the past four to five decades. Jack (1938) wrote, "Much patient stalking has been necessary to certify that the Australian Raven is present at Mt Coottha. Possibly the Crow is also there, but the identification of these two birds is always a problem in the field, and is not rendered any easier by their excessive wariness". Although his identification of the Australian Raven Corvus coronoides as the species present at Mt Coot-tha was probably incorrect, the scarcity of corvids is clearly apparent. Similar comments for Sydney were made by Bell (1984). By the 1970's Roberts' (1979) publication on the birds of South-east Queensland reported that the Torresian Crow was "Very common. [In] Urban, lightly-wooded, pastoral and other open areas".

The 1979/80 Garden Bird Survey showed that the Torresian Crow was common and widespread in Brisbane gardens and twenty years later the percentages of gardens and percentage of weeks reporting it was greater across most regions. Sinden (2002) surveyed 110 randomly selected sites in Greater Brisbane and recorded the percentage presence of Torresian Crows and the mean numbers seen in 0.785 ha (50 m radius) plots as follows: Urban 80%, 2.5; Urban Parks 100%, 2.3; Suburbs 92%, 2.4; Suburban Parks 96%, 3.0; Rural 90%, 1.6; Wildland 20%, 0.2. These results are broadly comparable with those of the Garden Bird Surveys and confirm the abundance and wide distribution of Torresian Crows in Brisbane.

Jack (1938) recorded Pied Currawongs from Mt Coot-tha, writing "the reserve is likely to suffer at any time an influx of Currawongs, who take over control for a while, and then disappear as mysteriously as they came". Roberts (1979) reported that the Pied Currawong was "common" in Southeast Queensland, being found in rainforests and other forests with thick under storey.

The 1979/80 survey showed that the Pied Currawong was recorded from a few gardens in the western suburbs of Brisbane for most of the year but from May to July it was reported from a wider range of gardens. The gardens in the western suburbs are in closer proximity to the Brisbane Forest Park and other forested areas that probably provided the source of these birds. This also supports Roberts (1979) statement that they

dispersed to "more open habitats in winter months". Results from the 1999/2000 survey showed that Pied Currawongs had expanded into the northern and southern suburbs and that there was still a peak in their distribution from May to August but their distribution outside this period did not decline nearly so much as it had in 1979/80. The peak in mean maximum numbers per garden was also much more evident in 1979/80 than in 1999/2000. The Canberra Garden Bird Survey (Veerman 2002) also showed that the Pied Currawong had a strong seasonal pattern with higher numbers in winter, when it formed flocks, and then a decline to smaller numbers in summer. This pattern persisted over the 18 years of the Canberra survey, but in the latter years (1993-1999) the amplitude of the changes was much less, with lower winter numbers and higher summer ones. Veerman (2002) argued that the higher spring and summer numbers of the 1990's were of most significance when evaluating its role as a predator of smaller birds, since it is at this time that most of them are breeding.

Regardless of the causes of the demonstrated increases in the presence of both Torresian Crow and Pied Currawong in Brisbane this may affect other species. A comparison of the 1979/80 and 1999/2000 Queensland garden bird surveys (Woodall 2002) indicated that ten species that declined over the 20-year period were all small (<50g) and species that increased in frequency were all large (>100g). There are probably many reasons for the declines of the smaller species, including increases in the Noisy Miner *Manorina melanocephala* (Woodall 1996, 2002) and increases of Torresian Crows and Pied Currawongs. Major *et al.* (1996) showed that in 134 cases of observed predation at artificial nests, Pied Currawongs accounted for 52% and were the major nest predator in the suburban gardens surveyed, followed by Australian Magpies *Gymnorhina tibicen* (13%).

#### ACKNOWLEDGEMENTS

I am very grateful to the many members of Birds Queensland who recorded the birds of their gardens for these surveys and to the volunteers who included the survey forms with the Birds Queensland newsletter each month. Their contributions were invaluable for this project and I hope that these analyses provide some indication of the value of their efforts. Dr Darryl Jones provided valuable comments on the paper.

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#### YELLOW CHAT *EPTHIANURA CROCEA* IN NATURAL WETLANDS OF THE GEORGINA AND DIAMANTINA CHANNEL COUNTRY

#### ROGER JAENSCH

#### ABSTRACT

Sightings of the Yellow Chat *Epthianura crocea* in natural wetlands on floodplains of the Georgina and Diamantina River systems in the Queensland Channel Country in 2001 and 2002 are reported. Habitats occupied were shrub swamps, wet thickets and drying lakebeds. Most previous records of Yellow Chats in south-western Queensland have been from artificial habitats sustained by discharge of bore water. A borecapping program is reducing the extent of artificial habitat and may thereby increase the importance to Yellow Chats of temporary natural habitats that are created periodically by floods.

#### **INTRODUCTION**

The Yellow Chat *Epthianura crocea* occurs at widely separated localities across tropical and central eastern Australia (Blakers *et al.* 1984, Higgins *et al.* 2001, Barrett *et al.* 2003). In Queensland, the critically endangered subspecies *macgregori* occurs on the Capricorn coast and the nominate subspecies *crocea*, which is not nationally threatened, occurs in the Channel Country, Mitchell Grass Downs and Gulf Plains bioregions (Arnold *et al.* 1993, Garnett & Crowley 2000, Higgins *et al.* 2001, DEH 2004, Houston *et al.* 2004, Jaensch *et al.* 2004). Under the *Nature Conservation Act 1992* the subspecies *crocea* is listed as Vulnerable in Queensland.

Most reports of subspecies *crocea* in Queensland are from the south-west. Some accounts (e.g. Pizzey & Knight 1999) imply a continuous distribution of this subspecies across the Lake Eyre Basin from north-eastern South Australia into south-western Queensland, connecting to central Northern Territory. Other accounts instead indicate sparse occurrence in the Basin. In the Queensland part of the Channel Country bioregion as defined by DEH (2004), Barrett *et al.* (2003) and McFarland (1992) each map records from only a handful of the bioregion's many grid blocks. Higgins *et al.*  (2001) describe regular occurrence in the Basin, and some breeding, only at swamps sustained by bore drains in the Coorabulka and Davenport Downs area in Queensland, and at Pandiburra Bore in north-eastern South Australia (see also Black *et al.* 1983), with vagrant occurrence farther south, e.g. in New South Wales. Recollections of records near Whitula Creek, W of Windorah, include descriptions of both natural and bore-fed small wetlands (Reynolds *et al.* 1982, McFarland 1992, I. Venables pers. com., P. Slater pers. com.). There is at least one report from the bore drain at Birdsville (T. Wilson, posted to the Birding-Aus archive http://www.cse.unsw.edu.au/birding-aus/ on 26 May 2002). A report from the lower Barcoo River (Environmental Protection Agency database) lacks details on habitat (D. McFarland pers. com.).

Thus, in the Lake Eyre Basin, most records of Yellow Chat have been from artificial wetlands, notably bore drains, rather than natural wetlands. Typical wetland vegetation in these artificial habitats has been beds of cumbungi *Typha domingensis* and/or sedge (e.g. Reynolds *et al.* 1982). In contrast, in the inland of the Northern Territory the same subspecies of Yellow Chat is commonly seen in temporary natural wetlands, some covering thousands of hectares, in northern bluebush *Chenopodium auricomum*, lignum *Muehlenbeckia florulenta*, pea-bush *Sesbania* spp. and/or annual verbine *Cullen cinerea*, as well as at bore overflows (Strong & Fleming 1987, R. Jaensch pers. obs.). Breeding in the Northern Territory has been observed in natural lignum swamp at Lake Woods (Barkly Tableland) and in lignum/grass swamp in the Birrindudu Marshes (Sturt Creek) (R. Jaensch pers. obs.).

#### **OBSERVATIONS**

On the morning of 14 April 2001 I saw a group of Yellow Chats in extensive, dry bluebush swamp (24° 48.1' S, 139° 34.4' E) on floodplain of the Eyre Creek section of the Georgina River system. The birds were perched atop lignum shrubs that grew sparsely along a minor drainage gutter and at times were on the ground or on an adjacent fence. The site supported lush but desiccating ground cover of grasses and forbs because a major flood had inundated the entire Eyre Creek floodplain in January 2001.

The group included at least three fully coloured, male Yellow Chats, each marked with a black crescent on the chest. Several fully coloured male Orange Chats *Epthianura aurifrons* each marked with a black face and several grey-brown chats that may have been of either species were nearby. This loose flock of about ten chats was flighty, not allowing a

closer look at its grey-brown members.

In mid afternoon of the same day, I saw about ten Yellow Chats in drying swamp (24° 51.7' S, 139° 31.8' E) downstream and approximately 8 km south-west of the first sighting. This loose group was in tall lignum shrubs that had been partly defoliated due to recent prolonged inundation. Water was now shallow or confined to muddy pools, and wet mud was extensive. Beds of dense low spike-rush *Eleocharis plana* occurred between some lignum clusters. The site was only 50 m inside a vast area of lignum swamp that extended across the full extent of the floodplain.

None of the ten Yellow Chats was a fully coloured male. They were identified by their pale irides (Higgins *et al.* 2001) by observations as close as 2 m using binoculars (9x) and a tripod-mounted spotting scope (20x). Also, I heard these birds uttering the high-pitched "pee-pee" call that I knew well from previous encounters with the species.

A year later, under much drier conditions, I saw Yellow Chats at three sites in the vicinity of Lakes Koolivoo and Mipia, situated about 10 km south-east and south-west of the second 2001 sighting, on the same floodplain. Several were seen in the morning of 12 May 2002 in an open area within lignum swamp (24° 56.3' S, 139° 35.9' E) surrounding Lake Koolivoo, on dry, cracked grev clay with sparse, short green forbs. Around midday, eight Yellow Chats were sighted 2 km to the north on the drying bed of this lake (24° 55.2' S, 139° 36.0' E), near the inflow mouth of Eyre Creek. Here the chats were hopping on wet mud and in the shallowest shore water. Sparse stubby tufts of rat's tail couch Sporobolus mitchellii and occasional lignum shrubs provided the only cover. In late afternoon of the same day, several more Yellow Chats were seen in similar habitat to that of the first sighting of the day, beside Lake Mipia, situated 10 km to the west (24° 56.3' S, 139° 29.5' E). At this site some of the lignum had been burnt to the ground since the 2001 flood, creating small clearings, and some water from a small 2002 flow in the Eyre Creek system persisted in gutters within the clearings.

All Yellow Chats seen at these lakes in 2002 were grey-brown but were identified by their pale irides. Additionally, four of the birds on the bed of Lake Koolivoo were identified as non-breeding adult male Yellow Chats because each had on its chest a black or dark grey crescent or small oval patch (Higgins *et al.* 2001, p. 1230). Similar numbers of Orange Chat were present in the vicinity (in lignum swamp) or were closely associated with the Yellow Chats (on lake bed) in each sighting. Plainly coloured Orange Chats were identified by their dark irides and their backs were browner than the dominantly grey-brown backs of the Yellow Chats. At a glance, the plainly coloured Yellow Chats appeared to have a whiter head and brighter (more contrasting) yellow rump and vent than the plainly coloured Orange Chats.

Yellow Chats were also seen on the Diamantina River floodplain in 2002. In the late afternoon on 10 May I saw two Yellow Chats and several Orange Chats in extensive lignum swamp around the treeless eastern end of Windaroo Waterhole (25° 39.3' S, 140° 12.8' E), a near-permanent wetland near the southern side of the floodplain. This area had substantially dried back following the minor floods of 2001 and apparently had received little substantial river inflow in 2002. The birds were seen in isolated, dense thickets of pea-bush *Sesbania* sp. to 2.5 m in height growing in mud and in water up to 15 cm deep. The Yellow Chats were foraging close to water level on exposed root mat at the bases of the flowering *Sesbania* plants. Apart from a black chest patch and a yellow rump and vent, each bird was plainly coloured.

#### CONCLUSIONS

These observations demonstrate that Yellow Chats occur in natural wetlands in at least two major river systems (Georgina/Eyre Creek and Diamantina) of the Queensland Channel Country. Recent occurrence in a natural wetland in the Cooper Creek system in the South Australian Channel Country has been reported (J. Reid pers. com.).

In the recent sightings, largest numbers were on the Georgina (Eyre Creek) floodplain, with at least 13 birds recorded in both April 2001 and May 2002. Larger populations (e.g. 40-50 birds: Ford & Parker 1972, Stewart & Gynther 2003) have sometimes been recorded from artificial wetland habitats (bore drain swamps) in dry landscapes near the edge of the bioregion. No census of chats has been attempted on the broad floodplains, whereas, presumably it has been easier to census concentrations of chats at point and linear habitats such as bore drain swamps.

Although I conducted ground surveys of waterbirds at more than 40 natural wetland sites in the Channel Country from March 1999 to March 2004, I had few encounters with Yellow Chats and they were not always recorded during visits to the sites described above. This suggests that occurrence of Yellow Chats in natural wetlands of this region is not continuous in space or time. Despite tens of thousands of hectares of probably suitable habitat, the abundance of this species in the Channel

Country floodplains may be quite low and its distribution rather patchy.

Natural wetland habitats used by Yellow Chats in the Queensland Channel Country were similar, often identical, to those used by this species in the lakes district of the Barkly Tableland, Northern Territory, which supports a substantial population (Strong & Fleming 1987, R. Jaensch pers. obs.).

A possible explanation for occurrence of Yellow Chats in the Eyre Creek wetlands in 2001 and 2002 is that birds followed the Georgina River southward from its headwaters in the Barkly Tableland, in response to the particularly large flood of January 2001. Indeed, Strong & Fleming (1987) reported large numbers of Yellow Chats on upper reaches of the Georgina River near Burramurra, Northern Territory. A similar route may have been used by the several 'northern' waterbirds reported in the Eyre Creek and Diamantina wetlands in the flood years 1999, 2000 and/or 2001 (Johnson & Eddie 2000, Baxter *et al.* 2001, Jaensch & Reid in prep.).

Alternatively, or in addition, during the flood period the chats may have dispersed into inundated natural wetlands of the Georgina and Diamantina systems from bore drain swamps (where the species is found in all seasons: Higgins *et al.* 2001) near Coorabulka and Davenport Downs. Coorabulka is only 150 km NNE of the Eyre Creek localities described above and 210 km N of the Diamantina localities, and is much closer to the nearest edges of the two floodplains.

Ford and Parker (1974) suggested that the species had colonised western Queensland since the 1890s, which was when the first artesian bores were sunk. Recent declines in abundance of Yellow Chats at some of the bore drain swamps have been noted where bore capping has reduced outflow of water and thus reduced the artificial swamp habitat (Stewart & Gynther 2003). It is possible that some Yellow Chats have relocated from the artificial bore-sustained habitats into natural habitats over the past decade as the bore-capping program has accelerated. However, with so few records of the chat, it is difficult to understand its former occurrence and to predict its future status, or to compare its ecology and movements with those of other birds of the bioregion, such as the irruptive Grass Owl *Tyto capensis*.

Conceivably, the chats dispersed widely once most of the floodplain wetlands dried out in 2002. Drought-induced dispersal after a major wet period could account for many of the records (Higgins *et al.* 2001) of vagrant Yellow Chats in inland Australia.

Many of the Yellow Chats sighted in 2001 and 2002, under both wet and dry conditions, were associated with Orange Chats. Where the Yellow Chats occurred only in plain-coloured plumage they could easily have been overlooked and assumed to be Orange Chats. Observers therefore should take extra care when identifying yellow-rumped chats in and near wetlands in central Australia. Detection of birds with pale irides would indicate identity as Yellow Chat but sighting of at least one bird with a black or distinct, dark chest mark would be desirable to confirm the record.

I am not aware of any major issues concerning local management of habitats needed to sustain populations of Yellow Chat in natural wetlands of the Queensland Channel Country. However, given the species' typical association with inundated and drying floodplain, all flows of water on to the floodplains, by river and overland, should be guaranteed in order to recreate these temporary habitats and maintain the present population.

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#### THE RECOVERY PROCESS FOR THE EASTERN BRISTLEBIRD DASYORNIS BRACHYPTERUS IN QUEENSLAND

#### DAVID STEWART, SHEENA GILLMAN AND DAVID ROUNSEVELL

#### ABSTRACT

The recovery process for the Eastern Bristlebird in Queensland from 2001 to 2004 is summarised. Included are the results obtained by the recovery team responsible for the actions in the first recovery plan to be implemented for this species in Queensland and the extent of completion of those actions. The objective and actions in this first plan are due for review.

During the life of this recovery plan much has been done to begin the process for the recovery of this bird in Queensland but it remains 'critically endangered'. There has been a high degree of cooperation between the participating individuals and organizations, and funding from competitive grants. Considerable additional resources were contributed voluntarily by the community in south-east Queensland to complete, or, commence the implementation of all the planned actions through the responsible coordinating representatives of the recovery team. The equivalent of two years fulltime work was contributed by the collective actions of all the volunteers. The many government and community organizations, private landowners, individuals and volunteers involved are acknowledged.

Despite comprehensive searching, no new local populations of the bird were found in Queensland and some known local populations appear to have been lost. The abundance of the species in the northern part of its range is continuing to decline and is estimated to be below 50 birds. A new recovery plan, containing a new objective and actions for the next 5 years, needs developing by workshopping with the participants involved in the recovery process.

#### **INTRODUCTION**

The Eastern Bristlebird *Dasyornis brachypterus* lives mainly in dense ground vegetation in small populations scattered across three distinct regions in Victoria, New South Wales and Queensland (Higgins & Peter 2002). Its conservation status is 'endangered', nationally and in each of the three range states.

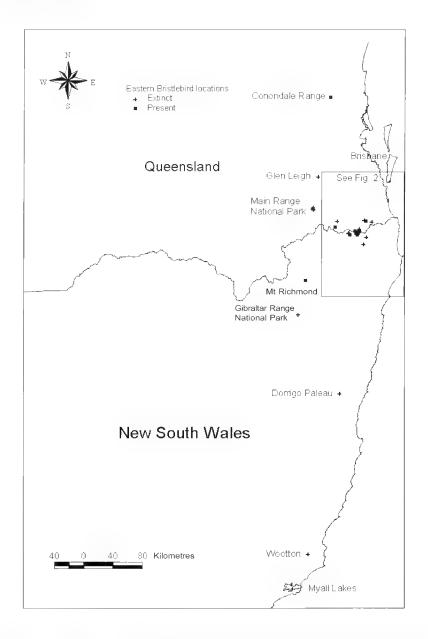


Figure 1. Known locations of populations of the Eastern Bristlebird (D. b. monoides) (from Stewart 2002).

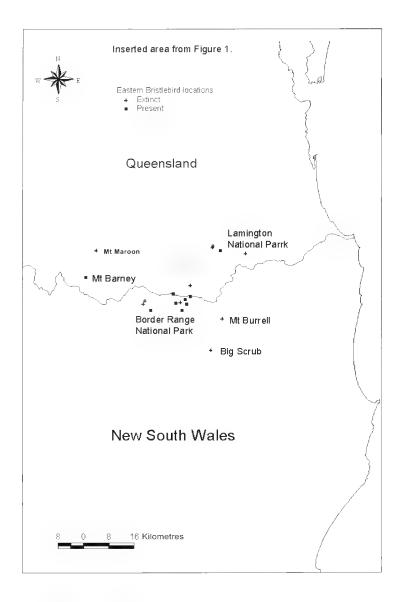
Populations of D. brachypterus in the northern-most part of its distribution straddle the state border between eastern NSW and Qld (Figure 1). Birds of these populations live in the dense grassy understoreys of open montane forests, habitat that is quite different from the coastal heathlands occupied by the species in the two southern regions (Chapman 1999, Garnett & Crowley 2000). Northern birds (subspecies monoides) can be distinguished from the more southerly birds (subspecies brachypterus) by small but consistent differences in their appearance (Schodde & Mason 1999). Preliminary genetic analysis has not demonstrated any consistent genetic differences between birds from the three regions (M. Elphinstone pers comm. cited in: Higgins & Peter (2002)).

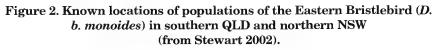
Populations in the northern region are few, small and very difficult to find. They occur from the Gibraltar Range National Park, north-east NSW, to the Conondale National Park, south-east Queensland (Figure 2). Counts of individual birds in this northern region (maximum 156 birds) have been repeated over a decade (Holmes 1989). The number of birds detected is small and decreasing rapidly (Holmes 1997, Rohweder 2003). The conservation status of D. b. monoides is 'critically endangered' (Garnett & Crowley 2000).

In November 1997 representatives of the three states met in Brisbane and formed a national recovery team to implement a national recovery plan for the species (Holmes 1998). Three regional recovery groups responsible for the conservation of the three regional populations were formed. (A first recovery team for the northern population had been formed in 1992 but disbanded several years later.) Each recovery group wrote and began to implement a recovery plan.

The Eastern Bristlebird Recovery Team (Northern Working Group) first met in March 1998. The main objective of the first plans to be implemented was to protect the species and prevent any further decline in abundance (NSW NPWS 2001, Stewart 2002). Separate recovery plans are prepared to implement actions and manage habitat for the species on public land in each state.

In the period from 2001 to 2005 land managers, landowners, volunteers and the individuals and organisations represented on the Northern Working Group (NWG) have cooperated to implement the first recovery plan for the species in Queensland (Stewart 2002). The principal actions in the plan were:





- 1. Map and monitor the habitats of known populations and implement appropriate fire regimes to limit the impacts of wildfire on them.
- 2. Census the known populations and locate birds in potential new habitat.
- 3. Protect known populations from disturbance by humans, stock and feral species.
- 4. Increase public awareness of the species.
- 5. Develop other conservation techniques.

Some of the earliest results of these actions are reported in Garnett & Crowley (2000). This article provides more detailed information about how these actions were addressed.

#### METHODS

The meeting minutes of the Eastern Bristlebird Recovery Team (NWG) and the recovery plan (Stewart 2002) contain the specific details of the implementation of this recovery process. The Queensland Parks and Wildlife Service (QPWS) administered two Commonwealth Government National Heritage Trust grants awarded to this recovery through a competitive process. For the methodological details of the surveys and other activities reported here readers are referred to the original reports cited below. Copies of the unpublished reports may be requested through institutional libraries. Abbreviations used in the names of locations are National Park (NP) and State Forest (SF). Locations from which the species has been recorded at any time in the past are referred to below as 'known' sites and 'new' sites are where it is yet to be found.

#### RESULTS

Recovery team meetings (NWG) were held, and written minutes circulated, in March 1998, April 1999, November 1999, July 2000, February 2001, January 2002, October 2002 and March 2004. The venue of the April 1999 NWG meeting was the Canungra Hotel, near Eastern Bristlebird habitat. This meeting was a public forum that included as many stakeholders as possible, particularly local land managers and landowners. Other meetings involving local community representatives and organisations were held at the Conondale Hall and three training workshops for volunteers were held in the Conondale NP (see *Increasing Public Awareness* below).

Volunteers contributed, altogether, over 5260 hours of work (approx 660 working days) to this recovery process. Most of their time was spent searching for new populations (see *Looking for Birds* below) but the balance of 1280 hours (approx 160 working days) was spent publicly

advertising the recovery process (see *Increasing Public Awareness*) and in extension work with private land owners to protect habitat for birds on private land (see *Protecting Local Populations* below).

#### **Habitat Mapping and Fire Management**

This planned action was completed in 2003. Fire plans and fire history logs were established and land managers responsible for known populations on public land have completed habitat maintenance work (see *Protecting Local Populations* below). Drought and wildfires during the period 2001 - 2004 in the habitat of some remote known populations did not always allow fire frequency to be controlled as planned.

Fire breaks were established in Conondale NP and Green Mountains NP by the end of 2000. Detailed fire history mapping was completed for all known populations located in NSW in 2001. Fifty-three vegetation monitoring transects were established to detect long term habitat changes at all known population locations in both NSW and Qld during 2002. Habitat management burning to rehabilitate former habitat was also planned for NSW and Qld locations. By the end of 2003 detailed fire history mapping at all the known population locations in Qld was completed and the 53 vegetation monitoring transects in both states were re-surveyed.

Figure 3. Eastern Bristlebird photographed by Glen Trelfo (Stewart 2002).



**Looking for Birds** 

Surveys conducted for Eastern Bristlebirds in north-east NSW and southeast Queensland in 1989 located 156 birds in 103 territories (Holmes 1989). Stewart (1998), when re-surveying these territories in 1997, and again in 1998, recorded just 14 and 21 birds, respectively.

Between 1999 and 2004 all known locations and many potential new locations were searched with the added support of teams of trained volunteers. Sixty-four volunteers were trained at three workshops provided by QPWS and Birds Queensland (BQ) to recognise habitat and Eastern Bristlebirds by their songs. BQ provided the ongoing coordination for volunteers and led field trips to search for the bird. Field trips were regularly advertised in the newsletters of BQ and the Threatened Bird Network to inform and attract volunteers.

Despite difficulties with weather and access to some places over the fouryear period 56 volunteers spent over 4000 hours (approx 500 working days) searching for birds in new locations. Twenty-three farming families participated in this work by providing access and hospitality for volunteers. Some landowners participated directly in searches and also in managing potential habitat under the other recovery actions. Many areas were surveyed for the species during this period without any new subpopulations being found. The most recent positive records (Table 1) from the survey work were of individual birds at known territories.

Location	Birds present	Year recorded
Conondale National Park	2	2003
Mt Barney	2	2003
Sarabah Range	2	2002
East Mt Gipps	6	2002
Spicerís Gap	Yes	2001
Stretcher Track	Yes	2000

Table 1.	The	most	recently	recorded	<b>D</b> .	brachypterus monoides	
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#### at all sites.

Thirty-two sites were initially surveyed or re-surveyed in November and December 1999 at Lamington NP (Duck Creek Rd. Bristlebird Creek, Sarabah and Snake Ridge), Mt Clunie, Glennrock, Jimna-Kenilworth Rd., Mt Cordeaux and the Conondale Range (Greenslopes and South Booloumba).

Throughout 2000 (except for May and June) over 100 sites were initially

surveyed or re-surveyed at Main Range NP (Spicers Gap) and Main Range, Lamington NP (Surprise Rock), Mistake Plateau (eastern slopes), Koreelah NP (Wallaby Creek), Burnett Creek SF, Little Liverpool Range, Mt Clunie, Richmond Range NP (Mt Brown), North Branch Rd (Darlington), Stretcher Track, Duck Creek Rd, Goomburra and Gibraltar Range NP (Anvil Rock, Surprise Rock, Picnic Creek and Davies Creek).

In 2001, sites at Border Ranges NP (Mt Glennie), Mt Develin, Girrad SF (Mt Richmond) and Gibraltar Range NP (Anvil Rock) were surveyed, and in 2002, sites at Mt Guymer, Mt Diaper, Mt Stanley, Kilcoy Forest Area, Jimna Forest, Bare Rock, Sylvesters Lookout, Mt Cordeaux, Mt Michell, Mt Matheson, Sarabah, Levers Plateau and Davies Ridge were surveyed.

Sites surveyed in 2003 were at Mt Clunie, Upper Taloom, Conns Plains, Spicers Gap, Brindle Creek, Sarabah, Bellthorpe Forest, Nonmus SF and Stretcher Track. [In this year the *Eastern Bristlebird Bulletin* (No 3) estimates the number of Eastern Bristlebirds remaining at less than 40.]

During 2004 sites were surveyed at Sarabah, Cunninghams Gap, Mt Cordeaux, Goomburra, Booloumba Creek and Richmond. [Because of the possible effects of drought in south-eastern Qld and north-eastern NSW over recent years and the apparent absence of some pairs, the number of birds may still be decreasing.]

This is an ongoing process requiring the census and re-census of birds at the known sites and searching for potential new sites. Since 1999 all the known sites have been censussed at least twice and many new sites have been visited.

#### **Protecting Local Populations**

Many planned actions to protect and maintain habitat on public land were completed by 2003. Land managers responsible for known populations on public land were able to complete habitat maintenance work and to commence the sometimes difficult or longer tasks of excluding, or, controlling feral pests or weeds to protect and improve known local habitats for the bird. Records of habitat disturbance or weed invasions were made when visiting sites to search for birds. Meetings were held with key private land holders to discuss fire and stock control at known sites. From 1999 until 2003 feral pig control was conducted annually at Conondale NP in a joint operation between QPWS and the Department of Natural Resources & Mines (DNR&M).

During 2000 fences, bollards and signs were installed and a vehicle track

closed at Green Mountains NP to better manage habitat. Walking tracks at Mt Gipps were closed on a seasonal basis from 2000 to avoid any unwanted fires or disturbance to breeding birds.

At Mt Gipps habitat was fenced to exclude stock wandering into it from private property in 2002. Greencorps volunteers began a program to control weeds and transplant native *Sorghum* in habitat at Conondale NP in 2002 and this program was continued in 2004.

#### **Increasing Public Awareness**

The recovery process for the Eastern Bristlebird is now identified by key participants in the south-east Queensland community as a priority for action. This will help to maintain the support needed from the community for the recovery process in the future. Three workshops were held at Conondale NP in 1999 where 27 BQ volunteers learned to recognise the songs and the habitat of the Eastern Bristlebird to enable them to search for the bird and to identify it successfully. Two further workshops were held in Brisbane to train 37 volunteers to identify the Eastern Bristlebird by its songs, and also to identify the types of grasses found in its preferred habitats. A song can be heard at the University of Queensland, School of Natural & Rural Systems Management Lamington National Park website http://lamington.nrsm.uq.edu.au/Documents/Birds/easternbristlebird.htm.

Throughout the recovery period notices were published regularly in the *Birds Queensland Newsletter* and *Volunteer* (the newsletter of the Threatened Bird Network) calling for volunteers to participate in field excursions to search for the bird.

Articles on the recovery process for the species were published in newsletters during 1999 (Land for Wildlife, Threatened Bird Network and Conondale Range Committee) and a poster and mobile display describing the species and the recovery were produced for use at public venues.

In 2000 a high quality brochure (QPWS, 2001) describing the species and the recovery process was produced by the NWG for public distribution and information (available as an online publication at the QPWS website).

The NWG and volunteers used the displays prepared in 1999 to advertise the recovery to members of the public at the Enviro Expo (3 June Ipswich), the Environmental Festival (25 June Mt Tamborine) and Queensland Museum & Lone Pine Sanctuary (7 September) and to Fassifern Field Naturalists (16 September). *Totally Wild* (TV Channel 10) featured a segment on the recovery. Newsletter articles were prepared for *Birds Queensland* (Vol. 31/1) and *Land for Wildlife SEQ* (Vol. 1/5). The recovery was featured in interpretive displays by QPWS at Cunninghams Gap, Spicers Gap, Green Mountain, Binna Burra, Goomburra and Mt Barney.

The first *Eastern Bristlebird Bulletin* (Newsletter No. 1) was produced in 2001 and a street display was produced for Threatened Species Day in King George Square, Brisbane (7 September). Newsletter articles were prepared for *Birds Queensland* (Vol. 33/3) and World Wide Fund for Nature (*The Web* Vol. 13/4, Vol14/1)

In 2002 a Public Action Plan was written and the *Eastern Bristlebird Bulletin* (Newsletter No. 2) was published. A combined workshop for Barung Landcare and Kenilworth/Maleny Rural Fire Brigades was held at the Connondale Hall (6 April).

A talk was presented to the Threatened Species Network at Goomburra Camp (16-17 March) about the involvement of BQ volunteers in the recovery.

The *Eastern Bristlebird Bulletin* (Newsletter No. 3) was published in 2003 and an illustrated talk was presented to the Brisbane Bushwalkers Association. The progress of the recovery was reported to the Birds Australia Congress and Campout at Crows Nest in September 2004.

#### Alternative Conservation Techniques

Radiotelemetry trials were abandoned in 2001 because of difficulties in catching birds. A University of Queensland student (C. Corden) spent months on fieldwork attempting to measure the home range sizes of individual birds in 2002. A feasibility plan for captive rearing trials was prepared in 2002 and DNR&M was approached to build a suitable aviary at Brisbane Forest Park.

A policy to take two eggs from wild nests and to hatch and rear the chicks in captivity until they are suitable for release was announced in 2003 (*Eastern Bristlebird Bulletin* (Newsletter No 3). In 2004 captive rearing plans were expanded to include the David Fleay Wildlife Park and the facility for captive rearing of bristlebirds at Brisbane Forest Park was completed.

#### DISCUSSION

During the life of the current recovery plan (2001 to 2004) most of the habitat of the species has experienced prolonged drought and, in some locations, devastating wildfires. This may have reduced food availability (invertebrates) and consequently limited breeding in some populations. When combined with the few positive census results from known sites (Table 1) and the apparent negative survey results from potential new sites, these concerns support the conclusion that at present the population of D.b.monoides is still declining.

New directions are needed to sustain the process towards the recovery of the species in the long term. A new recovery plan, for the next 5 years, containing a new objective and actions needs to be developed by workshopping with the participants involved in the recovery process. It will reflect on what has been learned during the first stage of this recovery process and detail the tasks, participants and funding needed to successfully continue the recovery process for the species in Queensland.

Vegetation transects recently established for long term monitoring of areas of habitat need to be visited regularly to protect the areas and inform their management. A new initiative involving captive rearing needs to begin. Searching for the bird at known and potential new sites remains probably the most productive action in this long-term recovery process. The continued involvement of volunteers and the cooperation of land managers, private and public, will continue to be critical contributions to implementing the next plan.

#### ACKNOWLEDGMENTS

This recovery process has been generously supported by the actions of many people and organizations. We have attempted to list many of them below and to acknowledge their support on behalf of the Eastern Bristlebird Recovery Team (Northern Working Group). Collectively, over the last four years volunteers have committed to this recovery process the equivalent of two years fulltime work. Our sincere apologies to anyone who contributed to the recovery process but has been overlooked in the list below.

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