

# THE DISTRIBUTION OF THE BLACK-NECKED STORK *Ephippiorhynchus asiaticus australis* IN NEW SOUTH WALES SINCE 1790

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Information is presented on the locations where Black-necked Storks *Ephippiorhynchus asiaticus australis* have been observed in New South Wales since 1790, utilising records from: published data, museums, bird atlases and personal communications. The distribution in New South Wales has not changed significantly since 1790. Its breeding distribution is restricted to the coastal plains from the Queensland border to the Hunter Valley, with occasional breeding south of there and also on the north-west plains. Non-breeding records show a more widespread distribution from the tablelands and west of the Great Dividing Range.

## INTRODUCTION

The Black-necked Stork *Ephippiorhynchus asiaticus* ranges from Pakistan, India, Sri Lanka to Vietnam and the northern Malay Peninsula (subspecies *asiaticus*) and also occurs in the southern part of the island of New Guinea and Australia (subspecies *australis*) (Marchant and Higgins 1990; Hancock *et al.* 1992; del Hoyo *et al.* 1992). In Australia it is found from the Ashburton River, near Onslow, Western Australia across northern Australia to north-east New South Wales. It extends inland in the Kimberley area to south of Halls Creek; in the Northern Territory to Hooker Creek and Daly Waters; and in Queensland inland to the Boulia area and the New South Wales border, with some records as far south as the north-west plains of New South Wales (Marchant and Higgins 1990). It is found as far south along the coast as Sydney and formerly bred near the Shoalhaven River (Bell 1963).

There are a few vagrant records from Victoria, one at Alice Springs and more recently in south-west Queensland and north-east South Australia (Bell 1963; Blakers *et al.* 1984; Marchant and Higgins 1990; Baxter *et al.* 2001; Barrett *et al.* 2003).

The former distribution of the Black-necked Stork in New South Wales is poorly known, with conflicting descriptions. In particular, there is disagreement about whether its range contracted during the 20<sup>th</sup> century. One researcher concluded that the species had declined significantly since European settlement (Dorfman *et al.* 2001; Dorfman 2002) and further claimed that sixty years ago the species was commonly seen on the Victorian border, but now it does not occur very far south of Byron Bay (Eric Dorfman pers. comm. 20.6.2003). Leach (1912) considered the species did not range to the southern parts of Australia, with Cayley (1946) suggesting that it only reached north-eastern New South Wales. The species bred near the Shoalhaven River in the 1960s and 1970s (Bell 1963; Rogers 1975), however, historical records collated for this study indicate that it has only been consistently recorded breeding in coastal wetlands north of Sydney.

This paper details the distribution (specifically 2000–2006) of the Black-necked Stork in New South Wales and investigates whether it has changed over time. This is important as the species is listed as *endangered* in New South Wales. A good understanding of the former and current distribution and any declines or increases in the population is essential for management planning for the species.

## METHODS

All available records of the Black-necked Stork in New South Wales were collated: my records, those of local researchers and naturalists, the NSW Department of Environment, Climate Change and Water (DECCW) Atlas Database (including Birds Australia data), New South Wales Bird Atlasers, regional bird watching clubs and groups, members of the public and from the published literature. All records not already in the DECCW database were entered and maps of distribution over several time periods were produced: pre 1900, 1900–1969, 1970–79, 1980–84, 1985–89, 1990–1994, 1995–99, 2000–2006.

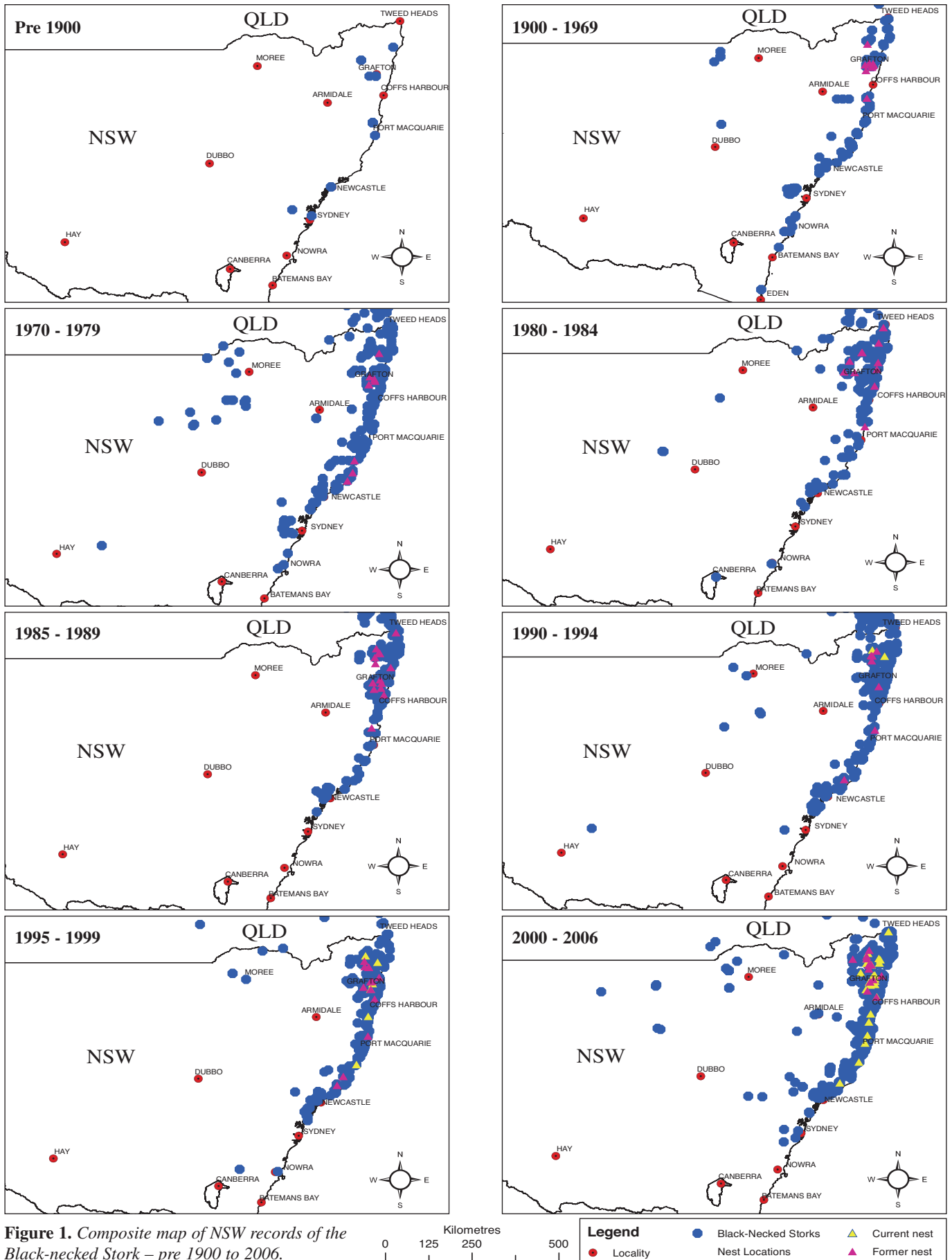
## RESULTS

All records of the species for each time period are displayed in Figure 1. ‘Current’ nests refer to those that were used during the period of the study 2003–2006, whereas former nests are those active before 2003.

The following summarises the distributional records for each time period.

**Before 1900.** The small number of records indicates that the species was found from Sydney north along the coast to the Richmond River, with no observations south of Sydney or from inland New South Wales. There were no available breeding records for this period.

**1900 – 1969.** The species was recorded from Tweed Heads south to the Shoalhaven district with records north of Batemans Bay and north of Eden, 290 and 500 kilometres south of the pre-1900 records, respectively. There were three records west of Moree and one north of Dubbo. Breeding was recorded near Grafton, Macksville, Forster and Castlereagh, west of Sydney.



**1970 – 1979.** The species was recorded from Tweed Heads south to the Shoalhaven River with many probably vagrant records west, south and south-west of Moree, including juvenile or immature birds. There was a single record at Griffith Sewage Works, well south and west of the normal range. The species bred in the Grafton and, Manning and Shoalhaven River areas. This period includes three years of the first Australian Bird Atlas (Blakers *et al.* 1984).

**1980 – 1989.** Records of the species covered the area from Tweed Heads to the Central Coast with vagrants on the Shoalhaven River and in Canberra. There were few records west of the Great Dividing Range. Breeding was recorded at 22 sites from north of Port Macquarie to the Queensland border and possibly at Hannam Vale, between Port Macquarie and Taree. This period includes two years of the first Australian Bird Atlas (Blakers *et al.* 1984).

**1990 – 1999.** There were records from Tweed Heads to the Central Coast, with records west of Sydney, on the Shoalhaven River and scattered records west of the Great Divide; near Moree, Baradine, Goulburn and north-east of Hay. There were breeding records along the coast north from Bulahdelah and breeding possibly occurred near Wyong (Alan Morris pers. comm.).

**2000 – 2006.** There were records from Tweed Heads south to south-west of Sydney, extraordinary vagrant records at Narran Lake and north of Bourke as well as breeding in the Moree (Gingham) Watercourse area – the first confirmed breeding west of the Great Dividing Range in New South Wales. There were eleven Northern and Central Tablelands records and coastal breeding occurred north from Bulahdelah. The second Australian Birds Atlas, between 1998 and 2002 (Barrett *et al.* 2003) and fieldwork and communication with colleagues contributed to the large number and distribution of records during this period.

## DISCUSSION

The contemporary distribution of the Black-necked Stork in New South Wales is confined mainly to coastal and sub-coastal areas from the Queensland border south to Sydney with one breeding pair west of the Great Dividing Range, near Moree, and vagrants occurring elsewhere. This is similar to the distribution at the beginning of the 20<sup>th</sup> century, with no evidence that it was very different at the time of European settlement. The only exception being a pair that unsuccessfully nested at Coomonderry Swamp, on the Shoalhaven River near Nowra in the 1960s and 1970s. The small size of the Coomonderry female and the infertility of the eggs indicated that she was probably young and possibly not physically ready for breeding (Bell 1963). A nesting attempt west of Sydney (at Castlereagh in 1959) was similarly unsuccessful (Bell 1963). Bell (1963) suggested that the species disappeared completely from the Hunter Valley and central and southern New South Wales in the late 19<sup>th</sup> century and only returned to the Hunter in 1930 and to the Hawkesbury Swamps west of Sydney in 1944 (Bell 1963). This assessment was based on the lack of records in these areas during the early part of the 20<sup>th</sup> century and the opinions of local birdwatchers.

The current breeding distribution of the Black-necked Stork in New South Wales is similar to that which has been recorded throughout the 20<sup>th</sup> century, north from, and including, the northern Hunter Valley. Birds south of the northern Hunter are

probably young birds moving away from productive, occupied territories in the north to possibly marginal habitat in the south. Possibly a small reduction in distribution and abundance has occurred since the 1970s, from the Shoalhaven River to just south of Sydney. Regular breeding south of Sydney prior to the 1960s, if it had occurred, would most likely have been recorded. The distribution west of the Great Dividing Range has fluctuated, with records mostly of young birds, apart from the recent breeding birds in the Moree area. The fluctuation inland may also reflect sampling variability among years. The breeding attempt near Moree in 2005 was unsuccessful but young birds have been seen in the area in earlier years (Jen and Bruce Southern pers. comm.) suggesting successful local breeding or immigration from the coast. The New South Wales distribution during the period 2000 to 2006 is the most extensive recorded for any of the mapped time periods, but this mostly reflects intensive searches and increased reporting. Interest generated by the second Atlas (1998–2002) may have also contributed, but the methodology adopted was not conducive to the comprehensive recording of storks, which resulted in fewer records of the species than in the first Atlas. This was because the methodology used in the second Atlas was more locally based rather than broadly based as in the first Atlas, when many stork records would have been collected while travelling between sites.

The range and breeding distribution of the Black-necked Stork in New South Wales seems to have changed little since 1900 and perhaps since European settlement with most territories occurring in the Northern Rivers and Mid-north Coast Regions and others south to the northern Hunter (Bulahdelah). The southern extent of the range fluctuates over time with breeding occurring south to the Shoalhaven in the 1960s and 1970s and to Wyong (adults with young) in the 1990s. During the period of the study Black-necked Storks were observed in and to the west and south-west of Sydney.

The relatively small change in distribution over time suggests that the species is likely to be occupying most of the available habitat in the state and has coped, to some extent, with the changes to its natural habitat. The Black-necked Stork occurs in disturbed wetland habitat and most nests are situated on agricultural land. The fluctuating southern limit is typical of a species at the edge of its distributional range with random local colonisation and subsequent loss, but may also be due to increased urbanisation (with a proliferation of powerlines) and, draining and pollution of wetlands. It may also be due to variation in weather, spreading south during warmer or wetter times.

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Photo: Greg P. Clancy

Adult pair of Black-necked Storks (male on left, female on right) foraging in wetland at Coutts Crossing near Grafton, NSW.