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Band recoveries and sightings of Yellow-billed Spoonbill and Royal Spoonbill in Australia

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Abstract. Two species of spoonbill occur in Australia. The movement ecology of the Yellow-billed Spoonbill is poorly known, whereas the movement of Royal Spoonbill in Australia is better known, particularly from a recent satellite telemetry study of individuals captured in the Murray Darling Basin. Additional data on the movement of Yellow-billed Spoonbill and Royal Spoonbill (particularly those breeding outside of the Murray Darling Basin) are needed. This study provides an analysis of movement data derived from banding studies, considers their adequacy and makes recommendations for future research. Recoveries and sightings of individuals of both species banded as nestlings or recently fledged young recorded through the Australian Bird and Bat Banding Schemes between 1955 and 2022 were mapped and summarised. Yellow-billed Spoonbill were mostly banded in Western Australia and Royal Spoonbill were only banded in eastern Australia (mostly Victoria). The longest time between banding and recovery of a living bird was 22 years 1 month for a Royal Spoonbill and 11 months for a Yellow-billed Spoonbill. Band recoveries for Yellow-billed Spoonbill were generally at shorter distances from the banding site than for Royal Spoonbill. Yellow-billed Spoonbill recoveries were mostly <100km from banding site, suggesting that young juveniles are mostly sedentary. There was also evidence suggesting that Yellow-billed Spoonbill banded at the same place and time had moved together to other sites (up to 92 km away). Royal Spoonbill exhibited mixed movement strategies in different regions and age groups. There was no evidence of Royal Spoonbill returning to their natal areas. Most Royal Spoonbill recoveries were in coastal New South Wales and Queensland from birds banded in coastal Victoria. This suggests that there may be a coastal flyway spanning from southern Victoria to coastal Queensland, additional to the inland flyway described recently in another study, and possibly with minimal overlap. The relationship between the populations that breed in coastal Victorian sites and those that breed in the Murray Darling Basin is unclear. New telemetry data are needed to document the level of connectivity and interactions between Royal Spoonbill that use coastal sites and those that use the Murray Darling Basin, including connection (or lack of) between the two flyways. This has important implications for how resources should be distributed to maximise the conservation outcomes for Royal Spoonbill at a national scale. Additional tracking is needed of Yellow-billed Spoonbill across eastern Australia, including the Murray Darling Basin, since most Yellow-billed Spoonbill banded to-date were from Western Australia.

Keywords: Yellow-billed Spoonbill, Royal Spoonbill, Platalea, movements, banding, flyway

INTRODUCTION

Two species of spoonbill occur in Australia. The Yellow-billed Spoonbill *Platalea flavipes* is endemic and the Royal Spoonbill *P. regia* occurs in south-east Asia and Australasia (Hancock *et al.* 1992). The movement ecology of the Yellow-billed Spoonbill is poorly known (McGinness *et al.* 2024c). Recently a significant study of the movement of Royal Spoonbill and other aggregate-nesting species in Australia (McGinness *et al.* 2024a,b,c) documented the movements of 42 Royal Spoonbill (five adults and 37 juveniles) captured in the Murray Darling Basin over seven years (2016-2023) using satellite telemetry. They identified common routes used by individual birds based on their long-distance movements and described this as a 'flyway' over 2,000 km long spanning inland Murray Darling Basin from south-west to north-east (McGinness *et al.* 2024b). None of the Royal Spoonbill in that study were tracked moving south of the Murray Darling Basin (McGinness *et al*. 2024b). This provides important context for strategic management including environmental watering and threat mitigation, and McGinness *et al*. (2025b) proposed preferential targeting of resources to this flyway. However, Lowe (2025) documented 26 breeding sites of spoonbill in Victoria outside the Murray Darling Basin and the flyway described in McGinness *et al.* (2024b). The level of interaction between the population of spoonbill that breed outside the Murray-Darling Basin and the proportion of the national population that uses the Murray Darling Basin flyway are unclear, and McGinness *et al.* (2024b) suggested that the Great Dividing Range may act as a low permeability barrier between individuals that breed in the Murray-Darling Basin and coastal areas. In addition, Lowe (1982) suggested that adult Royal Spoonbill feeding on intertidal mudflats and breeding at a coastal location in southern Victoria were sedentary based on repeated sightings of three colour-marked birds over a three year period. Nonetheless, Lowe (1981) documented increases in the population of Royal Spoonbill in Westernport Bay during the severe drought of 1980-81 but a return to previous numbers the following year, indicating that birds from outside the area may have moved nomadically to and from Westernport. In contrast seasonal movements of Royal Spoonbill breeding in New Zealand has shown repeated seasonal inter-island migration and a high degree of philopatry by adults and a lower level by juveniles (Schweigman *et al.* 2014) indicating that the species can be plastic in its movement patterns, as shown by McGinness *et al.* (2024c).

The movements of congeners elsewhere in the world are well studied. Black-faced Spoonbill *P. minor* and Eurasian Spoonbill *P. leucorodia* both have regular north-south seasonal migration and juveniles return to natal sites after three or four years (Chen *et al.* 2021, Son *et al.* 2021, Triplet *et al.* 2008, Kazantzidis *et al.* 2023).

In the absence of any tracking or movement data for Yellow-billed Spoonbill and Royal Spoonbill breeding outside of the Murray Darling Basin, other data are needed to document the connection (or lack of) between birds breeding across their entire range and the inland flyway documented by McGinness *et al*. (2025b). Traditional leg banding studies can provide useful information in this regard until telemetry studies outside the Murray Darling Basin are undertaken. This study provides an analysis of movement data derived from banding studies, considers their adequacy and makes recommendations for future research. One aim of this analysis is to encourage more interest in studying the movement of spoonbill, especially Yellow-billed Spoonbill.

METHODS

All band recoveries and colour-mark sightings for Yellow-billed Spoonbill and Royal Spoonbill held in the Australian Bird and Bat Banding Schemes (ABBBS 2025) database were obtained up to the end of 2024. Records were received in a spreadsheet, including band number, date banded and recovered, banding and recovery location (place name and co-ordinates), age, sex, method of banding and recovery, distance and time elapsed between banding and recovery, and method of capture for banding and for recovery. Records were mapped and checked for accuracy – three had obvious errors where the banding place names did not coincide with the co-ordinates reported by the bander for other banding records. Three other recoveries were reported at a banding site on land but the co-ordinates were at sea. These errors in co-ordinates were corrected to be consistent and all were checked on a map. Recoveries of birds held in captivity, where bands without birds were found (ie band only records) and recoveries at the banding site less than a month after banding were excluded from the analysis. Distance between banding and recovery location and time elapsed as calculated by the ABBBS were used. All records of colour-marked sightings were included.

RESULTS

There were 285 Yellow-billed Spoonbill and 1910 Royal Spoonbill banded in Australia between 1955 and 2024 and all were banded as nestlings or recent fledglings (ABBBS 2025). There were 36 band recoveries for Yellow-billed Spoonbill and 30 for Royal Spoonbill up to the end of 2024, the latest being in 2019 (Fig. 1a & 1b). All but two recoveries were reported by 1995. The proportion of the recoveries of both species combined that were banded in each decade was: 1950-59 – 6%, 1960-69 – 13%, 1970-79 – 22%, 1980-89 – 50% and 1990-1999 – 9%.

Yellow-billed Spoonbill

The 36 recoveries comprised 32 birds banded in WA, single birds banded in New South Wales and South Australia and two birds banded in Victoria. Birds were banded at two sites in WA, and at one site in Victoria (Table 1). Banding sites in WA were coastal and the Victorian and New South Wales banding sites were in the Murray Darling Basin region. Of the 32 recoveries from birds banded in Western Australia, 31 were sightings of colour-marks, the other was retrapped with a net at another site. No recoveries were from dead birds. Searches for colour-marked birds were made by the banders at the banding sites and at 14 other non-breeding sites in south west Western Australia over a 17 month period and discontinued after this. All Yellow-billed Spoonbill banded in Western Australia were recovered or sighted at distances <100 km except for one bird recovered 567 km from the banding site (Fig.1b). Most movements were local in scale between breeding sites in the same region. There were sightings that suggested juvenile birds banded on the same day and place had moved together between sites. For example: three birds were resighted together at a site 54 km away a week later, another three birds where resighted together at a site 92 km away 2 months later and four birds where resighted together at a site 72 km away over a period of 4 to 9 months later.

In the eastern states post-natal movement appeared to be more variable but sample sizes are small. One bird banded near Kerang was recovered dead 266 km from banding site to the south within 4 weeks and one bird banded near Barham was recovered 69 km from the banding site to the south within 7 weeks. The others were found dead near the banding site within 3 months.

No colour-marked birds were resighted more than 11 months later after banding. All reports of colour-marked birds were made by the banders conducting the studies.

Royal Spoonbill

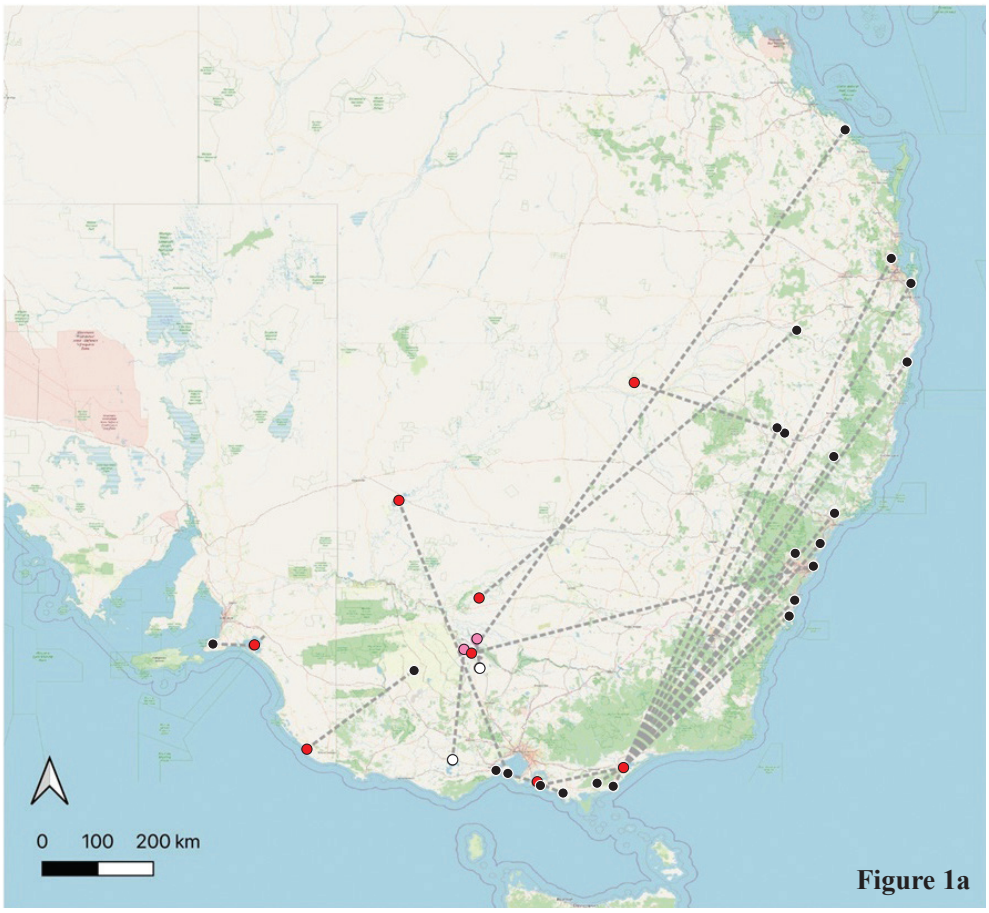
The 30 recoveries comprised 26 birds banded in Victoria (3 sites), one bird banded in South Australia and three birds banded in New South Wales (3 sites) (Table 1). All banding sites in New South Wales and one site in Victoria were in the Murray Darling Basin region; the others were in coastal regions. All recoveries were from birds found dead, except for a bird that was trapped alive tangled in fishing gear and another found sick/injured. Bands were recovered up to 1,476 km from the banding site.

Twenty-one (70%) recoveries were > 50 km away from the banding site. The average distance between banding and recovery site was 436 km for birds recovered between 3 and 12 months after banding (n=15, SD=428), 177 km for recoveries between 13 and 36 months (n=6, SD=343) and 644 km between 37 and 250 months (n=4, SD=490) which is not significantly different ($F=2.7$, $p>0.05$).

Ten recoveries of birds banded in south-east coastal Victoria were to the north and east of the banding sites, of which eight were in coastal regions and two were on or west of the Great Dividing Range in New South Wales. Another five birds were recovered to the west on the coast within a year.

One bird banded in the northern New South Wales was recovered to the east in inland New South Wales. Three birds banded in the southern Murray Darling Basin were recovered to the north in coastal New South Wales and Queensland. By contrast one Royal Spoonbill banded in the Menindee Lakes in western New South Wales was recovered to the south near Port Phillip Bay near Melbourne within six months. One bird from South Australia moved inland to the Victorian Wimmera region (277 km north-east).

Banded birds were recovered up to 22 years and 1 month after banding, with 56% being reported dead within 12 months.



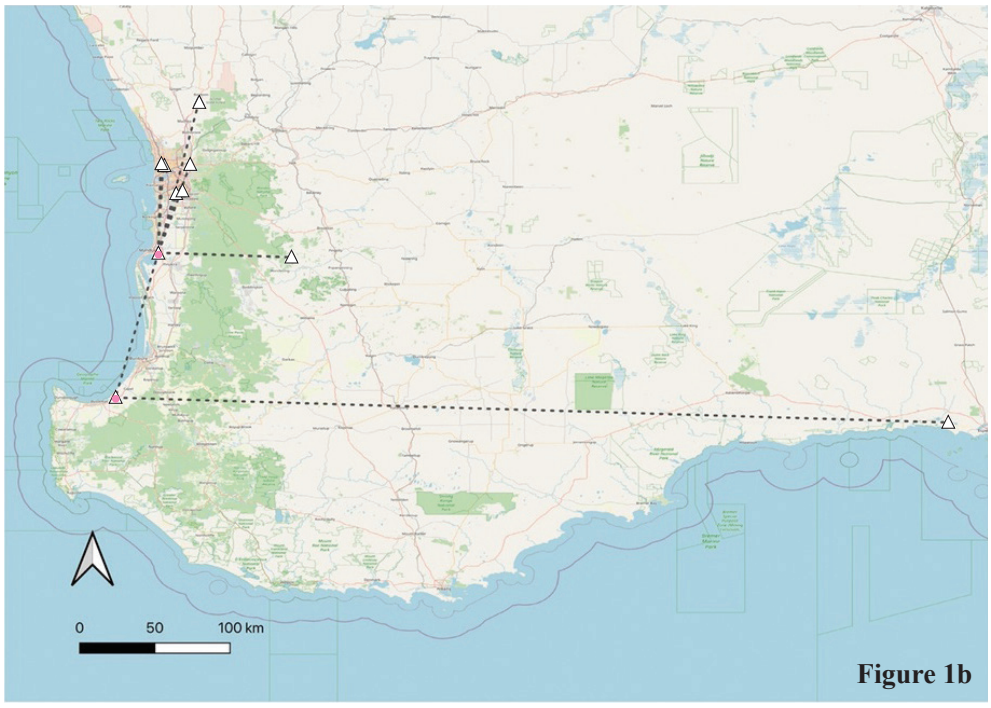


Figure 1a and 1b: *Sites of band recovery and colour-marking sightings of spoonbill that are more than 50 km from the banding site. Banding sites indicated by pink circles or triangles (Yellow-billed Spoonbill) or red circles (Royal Spoonbill). Open circles are sites where Yellow-billed Spoonbill bands were recovered, open triangles where Yellow-billed Spoonbill colour-marks were sighted and closed circles are sites where Royal Spoonbill bands were recovered. Broken lines are shortest distance between banding and recovery site and do not infer route travelled.*

Table 1 -

Banding sites of recovered spoonbill, region and number of recoveries at each site.

Species	Banding site	State	Latitude (S)	Longitude (E)	Region	Number of recoveries
Yellow-billed	Barraghup Swamp, Mandurah	WA	32.55	115.78	coastal	20
Yellow-billed	Mcarleys	WA	33.61	115.46	coastal	12
Yellow-billed	Brinkley	SA	35.36	139.36	coastal	1
Yellow-billed	29 km NNW Barham	NSW	35.38	144	MDB	1
Yellow-billed	Top Marsh Kerang	VIC	35.6	143.73	MDB	2
Yellow-billed	**All**					**36**
Royal	Lake Menindee	NSW	32.38	142.31	MDB	1
Royal	Narran Lake	NSW	29.85	147.41	MDB	1
Royal	Torry Plains Station, Near Balranald	NSW	34.5	144.05	MDB	1
Royal	Lake Bonney	SA	37.75	140.33	coastal	1
Royal	Dowds Morass	VIC	38.15	147.16	coastal	15
Royal	Reedy Lake Kerang	VIC	35.68	143.88	MDB	8
Royal	Rhyll Phillip Island	VIC	38.46	145.3	coastal	3
Royal	**All**					**30**

DISCUSSION

Documenting the movements of waterbirds provides vital data for coordinated management to maximise conservation benefit. Recovery of banded birds provides data on where the birds have been at some time in their life but does not document the paths they used and where they were before the recovery. However, in the absence of movement data from continuous tracking, such as with radio or satellite transmitters, band recoveries can provide some useful data. In this study band recoveries provide the only information available on Yellow-billed Spoonbill movements and the Royal Spoonbill recoveries provide supplementary information to the comprehensive data produced from birds satellite tracked from the southern Murray Darling Basin.

In the case of the Yellow-billed Spoonbill there were sufficient samples of the resighting of colour-marked birds in south-western Australia to provide a preliminary understanding about the movements of young juveniles within a year of fledging. These data suggested that juvenile Yellow-billed Spoonbill have limited dispersal from the natal sites, mostly within a range of 100 km, suggestive of a relatively sedentary movement strategy by young birds (Figure 1b). There was also evidence suggesting birds from the same natal site moved between sites together. Data are still sparse in the eastern states with only two birds recovered away from the banding site (both had moved south).

No colour-marked Yellow-billed Spoonbill were resighted more than 11 months after banding despite searches being made for up to 17 months, suggesting either high mortality rates in their first year and/or movement away from banding sites to unknown sites.

For Royal Spoonbill, of the three recoveries of birds banded in the southern Murray Darling Basin, one was recovered in coastal New South Wales, one in inland New South Wales and one in coastal Queensland well north of the natal area, consistent with movements described by McGinness *et al.* (2024a,b,c), which found that no Murray Darling Basin banded birds had travelled south out of the Murray Darling Basin. However, one bird banded in the Murray Darling Basin differed from that pattern and was recovered in coastal Victoria 668 km south of the natal area.

This study also provides new information that juvenile birds banded in coastal Victoria were recovered both east and west from their banding site along the coast, some significantly to the northeast in northern New South Wales and southern Queensland. Sixteen of 18 birds banded in coastal Victoria were recovered within 25 km of the coast scattered in Victoria, New South Wales and Queensland (Figure 1a). While movement pathways cannot be derived from banding recoveries, it seems plausible that birds may have largely moved along the coast without crossing the Great Dividing Range. This suggests that there may be an additional coastal flyway to that described by McGinness *et al.* (2024b), possibly with with minimal overlap and the Great Dividing Range acting as a low permeability barrier. Nonetheless, the relationship between the populations that breed in coastal Victorian sites (and may use a separate coastal flyway) and those that breed in the Murray Darling Basin population is unclear. New telemetry data are needed to document the precise movements of birds that disperse from coastal breeding areas so that the potential coastal flyway can be verified and the interaction between the two flyways explored. This has important implications for how resources could be distributed to maximise the conservation outcomes for the national Royal Spoonbill population. The maximum size of the breeding aggregations in coastal Victoria where these birds were banded was 375 nests in 2020-21 (Lowe 2025) compared with a maximum of 3,276 nests recorded in 2022-23 in the Murray Darling Basin (UNSW 2025). Both estimates are likely to be underestimates, as few observers report nesting data. In addition, the size of nesting events fluctuates significantly from year to year based on environmental conditions. Nonetheless they give some indication of the relative size of these breeding populations.

Royal Spoonbill have mixed movements strategies that vary between parts of their range and by age groups. For example, Lowe (1981, 1982) provided evidence of some adult Royal Spoonbill being sedentary in the Westernport region, while drought-related nomadic movement into and out of this region and the recovery

data reported here documents post-fledging dispersal from the same area. McGinness *et al.* (2024c) concluded that birds in the Murray Darling Basin are nomadic to varying degrees and that most juvenile Royal Spoonbill stay in northern parts of Australia until reaching breeding age (approximately 3 years old), at which point they may return south to breeding sites. This delayed return by juveniles is generally what occurs in the Royal Spoonbill population in New Zealand (Schweigman 1999; Schweigman *et al.* 2014) and congeners in Europe and Asia (Chen *et al.* 2021, Son *et al.* 2021, Triplet *et al.* 2008, Kazantzidis *et al.* 2023). However, this return has not yet been extensively tracked in Australia (McGinness *et al.* 2024b). McGinness *et al.* (2024c) also showed that there are exceptions, with some juveniles and adults remaining in the south and behaving nomadically over successive years. The relationship between distance from banding site and time elapsed of recoveries reported here does not provide evidence of return to natal sites after 3 years but may indicate nomadism of juveniles.

Royal Spoonbill recoveries suggest that a high proportion of mortalities may occur within the first year of life, as 56% of recoveries occurred within the first year, while the longest lived bird was recovered over 22 years after banding. This is similar to that reported for Australian White Ibis (Lowe 1984, Smith *et al*. 2013).

McGinness *et al.* (2024b) speculated that the Great Dividing Range may represent a barrier to Royal Spoonbill movements from inland parts of Murray Darling Basin and this study supports this contention. McGinness *et al.* (2024b) proposed giving preference for management to sites along the inland flyway that they identified. The current study raises the possibility that birds using inland and coastal sites may be part of the same population and their co-ordinated management may require sympathetic management of both inland and coastal sites. The extent of this connection and the relative importance of both areas to their conservation could be explored using genetic analysis as developed by for Australian White Ibis by Davis *et al.* (2021).

The banding recoveries reported here are few and probably biased by the distribution and density of humans but nonetheless provide interesting supplementary data to the more productive and complete dataset produced by telemetry data. Much more data are needed. These preliminary and tentative insights provided by banding indicate that additional telemetry studies of birds captured in coastal Victoria would make a significant contribution to our understanding and help provide more informed views about management activities both inside and beyond the Murray Darling Basin. It may also help untangle the variety of movement strategies used by birds in coastal regions. These topics are ideal candidates for new studies of these charismatic birds.

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REFERENCES

ABBBS. (2025). Australian Bird and Bat Banding Schemes. Extract of banding data. Generated 15 January 2025.

Chen, Y., Yu, Yt., Meng, F. *et al.* (2021). Migration routes, population status and important sites used by the globally threatened Black-faced Spoonbill (*Platalea minor*): a synthesis of surveys and tracking studies. *Avian Res* **12**, 74 (2021). https://doi.org/10.1186/s40657-021-00307-z

Davis, S., Brandis, K.J. and Stow, A.J. 2021. Population genetics informs the management of a controversial Australian waterbird. *Conservation Genetics* **22.** https://doi.org/10.1007/s10592-021-01393-8.

Hancock, J.A., Kushlan, J.A. and Kahl, M.P. (1992). *Storks, Ibises and Spoonbills of the World.* Academic Press, London.

Kazantzidis, S., Naziridis, T. and Katrana, E. (2023). *Breeding population trends and nesting success of Eurasian Spoonbill Platalea leucorodia in Greece*. In: Champagnon, J., Kralj J., Mikuska, A, Cano Alonso, L. S. and Sundar, K.S.G. (ed.) Proceedings of the X Workshop of the Eurasian Spoonbill International Expert Group. IUCN-SSC Stork, Ibis and Spoonbill Specialist Group Special Publication 3. Arles, France. Available from: https://www.researchgate.net/publication/374557331_Breeding_population_trends_and_nesting_success_of_Eurasian_Spoonbill_Platalea_leucorodia_in_Greece [accessed Dec 24 2024].

Lowe, K.W. (1981). *The habitat requirements of herons, egrets, ibises and spoonbills of the Westernport Region.* State of Victoria: Melbourne. Available from: https://www.researchgate.net/publication/390992714_The_habitat_requirements_of_herons_egrets_ibises_and_spoonbills_of_the_Westernport_Region

Lowe, K.W. (1982). Feeding behaviour and diet of Royal Spoonbills *Platalea regia* in Westernport Bay, Victoria. *Emu* **82**: 163-168.

Lowe, K.W. (1984). The Feeding and Breeding Biology of the Sacred Ibis *Threskiornis aethiopicus* in Southern Victoria. PhD Thesis, University of Melbourne: Melbourne.

Lowe, K.W. (2025). Breeding events and success of Yellow-billed and Royal Spoonbills in Victoria. *Corella* **49**, 33-43.

McGinness, H. M., Lloyd-Jones, L. R., Robinson, F. *et al.* (2024a). Habitat use by nomadic ibis and spoonbills post-dispersal from breeding sites. *Landscape Ecology* **39**: 189. https:// doi. org/ 10. 1007/ s1098 0-024-01982-1.

McGinness, H. M., Lloyd-Jones, L. R., Robinson, F. *et al.* (2024b). Extensive tracking of nomadic waterbird movements reveals an inland flyway. *Ecology and Evolution* **14(12),** e70668. doi:https://doi.org/10.1002/ece3.70668

McGinness, H. M., Lloyd-Jones, L. R., Robinson, F. *et al.* (2024c). Satellite telemetry reveals complex mixed movement strategies in ibis and spoonbills of Australia: implications for water and wetland management. *Movement Ecology* **12**, Article number 74. doi:https://doi.org/10.1186/s40462-024-00515-4

Schweigman, P. (1999). Breeding age of Royal Spoonbills in New Zealand. *Notornis* **46**(4), 502-502.

Schweigman, P. (2000). Royal spoonbill census. *Southern Bird* **3**, 2.

Schweigman, P., Cash, W.F. and Thompson, M.P. (2014). Seasonal movements and survival of royal spoonbill (Platalea regia) breeding in New Zealand. *Notornis* **61**, 177-187.

Son, S., Lee, K., Kwon, I., Kang, J., Lee, S., Kim, I., Cho, H. and Yoo, J. (2021). Black-faced Spoonbill *Platalea minor* population trends, breeding success, and nest characteristics in the Chilsan Archipelago, South Korea. *Ornithol. Sci*. **20**: 57–64.

Triplet, P., Overdijk, O., Smart, M., *et al.* (Compilers). (2008). *International Single Species Action Plan for the Conservation of the Eurasian Spoonbill Platalea leucorodia.* AEWA Technical Series No. 35. Bonn, Germany.

UNSW. (University of New South Wales) (2025). Australian Waterbird Surveys website (http: aws.ecosystem.unsw.edu.au). University of New South Wales, Sydney (accessed 25 August 2025).