

The following article was written by MEHG committee member Lisa Wray and Marcus Singor and was published in the quarterly newsletter of Western Australian Bird Notes, No. 194 in June 2025

Thank you to Birdlife Western Australia for allowing us to publish this article

Osprey Breeding Census for the Peel Inlet and Harvey Estuary 2024

The Peel-Harvey estuary has the highest concentration of breeding Ospreys Pandion haliaetus cristatus in the southwest of Western Australia.

The results of the 2024 Osprey census around the Peel-Harvey estuary are provided as well as historical data on breeding sites.

A total of 26 active nests were identified and monitored during 2024.

This showed that eight pairs fledged 12 juveniles.

Productivity was found to average 1.5 young fledged per active nest.

Abandoned nests or nests in progress were mapped to inform future monitoring or research.

Continued overleaf

MEMBERS' CONTRIBUTIONS



Fig. 1 Osprey at Mariners Cove, Mandurah with a Yellowtail Trumpeter, August 2024. Photo by Cherilyn Corker.

Introduction

The Osprey is a bird of prey with a global distribution. It is widespread around the Australian coast but absent from Tasmania, Victoria and parts of the southern coast of Western Australia (Dennis and Clancy 2014; Marchant and Higgins 1993). It is non-migratory, inhabiting warmer coastal waters and estuaries (Poole 2019). In WA, high population densities occur at the Houtman Abrolhos Islands (Surman 2019) and around Barrow Island and the adjacent Montebello Islands (Sedgwick 1978; Johnstone et al. 2013). The Osprey feeds mainly on surface fish and was known as a Fish Hawk by colonists of the Swan River (Gould 1848) (Fig. 1).

Males and females can be distinguished by differences in size and plumage. Females are longer and heavier than males, being about 20–30% greater in mass and about 10–15% longer in the wing (Poole 2019). Adult females have a broad band of streaks across the upper breast. Most adult males have a clean white upper breast, but some males have a pale, thin chain of streaks similar to, but paler than that of the females.

Osprey nests are large and conspicuous, and they are loyal to their nesting sites. The female does most of the nest building and incubation. Eggs are laid one or two days apart, and incubation often starts with the first egg which results in asynchronous hatching over 3–5 days (Holsworth 1965; Marchant and Higgins 1993; Poole 2019). In Australia, juveniles can disperse over considerable distances (Holsworth 1965).

This article provides an overview of known Osprey breeding sites around the Peel-Harvey estuary. The Peel-Harvey estuary is the largest and most complex estuarine system in the south-west of Western Australia, with an area of 134 square kilometres.

The aim of this research is to create a reference source of known nesting sites to enable future population densities and recruitment rates to be monitored, and to document historical records of Osprey breeding in the Peel-Harvey area.

Methods

The Peel-Harvey estuary covers a large area and was divided into four districts for monitoring purposes.

Northern sites: These covered the area between the Mandurah estuary and Ravenswood including inland areas along the Serpentine and Murray Rivers.

Eastern sites: These covered the eastern side of the Peel-Harvey estuary between the Forrest Highway bridge over the Murray River, down Austin Bay, Lake McLarty to the Harvey River estuary.

Western sites above Dawesville Channel: These covered the western side of the Peel Inlet south of the Mandurah estuary bridge to the Dawesville Channel.

Western sites below Dawesville Channel: These covered the western shoreline of the Harvey estuary from the Dawesville Channel south to the Harvey River estuary.

Information was collected on past and present Osprey nesting sites by talking to residents and consulting publications including Storr and Johnstone (1988), Storr (1991) and Singor (2019).

Surveys covering the eastern and western side of Peel-Harvey estuary and the northern Peel Inlet were conducted intermittently in 2019, 2021, 2022 and 2023. These provided the framework for the 2024 survey. As old nest sites are abandoned, new or replacement nesting sites are discovered. Not all areas around the Peel-Harvey estuary were readily accessible, especially along the eastern shoreline. There are likely additional nesting sites to be found.

A DJI Mavic 3 Pro drone was used to monitor the nests. This model has the quieter blades and a camera with a 28x zoom lens which is ideal for wildlife photography.

The mobility of the drone allowed unobtrusive nest monitoring from a safe distance and access to remote and difficult sites. The drone saved time and expenditure. We were able to monitor events as they unfolded in the nest such as occupancy, feeding behaviour, the mortality of chicks and number of abandoned eggs. Drone videos were taken of each nesting site for closer analysis at a later stage.

Estimates of the commencement of breeding were based on an incubation period of ~36 days and a hatchling to fledgeling period of ~62 days. These were used to estimate when eggs were first laid, and fledging was due (Marchant and Higgins 1993; Dennis 2007). Incubation starts before the clutch is complete.

Volunteers assisted in the collection of data and are recognised in the acknowledgements. Monitoring commenced in May when Ospreys returned to their nesting sites and were observed bringing back nesting material. It ceased in January when the last young had fledged. Surveys were conducted monthly, and more frequently during the breeding season.

Table 1. Osprey nests monitored around Peel-Harvey estuary 2024. Successful: successful nest or territory, number of fledged juveniles in parenthesis. Abandoned: Osprey disengaged during the breeding season.

ocation	GPS	GPS	2024	Comments	Nest location
Vorthern sites					
Coodanup, Fraser Landing	32°33'00 S	115°45'20 E	Abandoned	At nest June-Sept. Nest empty in Sept.	Artificial nesting platform
Coodanup, Bertram Street	32°33'46 S	115°45'34 E	Successful (2)	Overlooking samphire flats	Large dead tree
Coodanup, Nairns, Serpentine River	32°34'12 S	115°45'41 E	Abandoned	At nest June-Oct.	Artificial nesting platform
Creery Island	32°33'48 S	115°44'20 E	Abandoned	Osprey showed cursory interest in site.	Casuarina tree
Barragup, Serpentine River	32°32'11 S	115°46'34 E	Abandoned	Hatched early Dec, chick died	Eucalypt tree
Vandurah, Pinjarra Rd - Forrest Str.	32°32'02 S	115°43'36 E	Abandoned	Harassment by Australian Ravens	Telecommunications tower
North Yunderup, Culeenup Rd	32°34'50 S	115°47'02 E	Abandoned	At nest July-Sept.	Norfolk Island pine
Ravenswood, Murray River Bend	32°35'39 S	115°49'53 E	Abandoned	At nest July-early Sept.	Dead tree crown, live tree
itake Hill	32°28'02 S	115°48'10 E	Abandoned	At nest July and October	Eucalypt tree.
Eastern sites					
Birchmont, Lake McLarty	32°42'41 S	115°42'28 E	Abandoned	Nest fell twice in season	Dead tree crown
Point Grey, Reserve	32°37'15 S	115°40'25 E	Succesful (1)	2 eggs; one chick	Dead tree crown
oint Grey, Carrabungup Rd.	32°38'02 S	115°41'39 E	Abandoned		Dead tree crown
South Yunderup, Austin Bay	32°35'42 S	115°46'38 E	Successful (3)	Fledged juveniles in early December 2024	Casuarina tree
Western sites above Dawesville					
Dudley Park, Channel Island sign (1)	32°33'36 S	115°43'11 E	Abandoned	At nest July-Sept. Nest empty in Sept.	Dead tree
Dudley Park, Channel Island (2)	32°33'50 S	115°43'16 E	Successful (1)	East side of island	Casuarina tree
Erskine, Walpole Way	32°33'19 S	115°42'49 E	Abandoned	At nest May-Nov.	Artificial nesting platform
Erskine, Len Howard Drive	32°33'52 S	115°41'41 E	Abandoned	At nest June-Sept.	Artificial nesting platform
Erskine, Wayford Mews	32°33'34 S	115°42'14 E	Abandoned	Incubating for two months. Sept to Nov.	Marri tree, exposed branch
Falcon, Novara Foreshore Reserve	32°34'26 S	115°40'19 E	Abandoned	Nest built in 2024. Late breeder in December	Dead tree
alcon, Branchfield Way, North	32°35'29 S	115°40'02 E	Successful (1)	Area under threat from development	Large dead tree
alcon, Branchfield Way, South	32°35'29 S	115°40'02 E	Abandoned	Present around nest June to December	Large dead tree
Western sites below Dawesville					
Dawesville, Caddadup foreshore	32°36'47 S	115°38'30 E	Successful (1)	At nest June-Dec.	Dead tree
Dawesville, Warranup Spring	32°39'39 S	115°39'21 E	Abandoned	At nest in June, Nov. and December	Eucalypt tree
Dawesville, 550 Estuary Road	32°39'14 S	115°38'59 E	Successful (2)	Fledged 6 December	Eucalypt tree
Herron, Hexham Close	32°46'32 S	115°41'59 E	Abandoned	Late breeder, one chick did not survive heat	Dead tree crown
Herron, Island Point	32°45'34 S	115°41'31 E	Successful (1)	3 eggs, one deceased chick in nest	Artificial nesting platform

MEMBERS' CONTRIBUTIONS

Table 2. Overview of historical nest locations and breeding outcomes around Peel-Harvey estuary. Number of fledged juveniles in parenthesis.

Locations	Historical breeding records
Northern sites	
Coodanup, Fraser Landing	Nest present since 2019. Breeding success 2021 (1); 2022 (2); 2023 (1)
Coodanup, Bertram Street	Nest present since at least 2019. Breeding success 2022 (3); 2023 (2)
Coodanup, Nairns, Serpentine	Mesh base for nest installed in 2017. Ospreys present 2021, 2022, 2023 did not result in breeding.
River	
Creery Island, Coodanup	Nest present since 2022. There are two nests on Creery Island. Breeding success 2022 (3)
Mandurah, Pinjarra Rd - Forrest	Nest present since 2018. Nest on top of telecommunication fower. Breeding success 2021 (2)
Str.	
North Yunderup, Culeenup Ra	Nest present since 2019. No breeding recorded.
Ravenswooa, Murray River Bena.	Nest relocated 200 m Upstream in 2021. Breeding success 2022 (1); 2023 tailed
SIGKE HIII	Nesi been inere 14-15 years
Eastern sites	
Birchmont, Lake McLarty	Breeding at this location since 2006 Breeding success 2019 (1): 2022 (1): 2023 (2)
Point Grev Reserve, headland	Report from Robert Bay. December 2009. nest with 2 fledgelings.
Point Grey, Carrabungup Rd	Nest present since 2019 located along road. Breeding success 2019 (2); 2022 (2)
South Yunderup, Austin Bay	No historical information
Western sites above Dawesville	
Dudley Park, Channel Island (1)	Large nest near sign in dead tree. 2020 (2); 2021 (2)
Dudley Park, Channel Island (2)	Nest on east side of Channel Island. Present since 2021.
Erskine, Walpole Way	Osprey nesting site for 40 years. Nest was moved due to housing development. Successful most ye
Erskine, Len Howard Drive	Nest present since 2019. Breeding success 2021 (2).
Erskine, Osprey Waters	Artificial nesting platform since 2021, breeding not recorded.
Erskine, Wayford Mews	Nest present since 2023.
Faicon, Branchfield Way, North	Nest present since 2020.
Faicon, Branchtiela Way, South	Nest present since 2020. Nest tell down January 2025.
Western sites below Dawesville	
Bouvard Waterside Caravan Pk	Nest present since 2012, 2022 (1)
Dawesville, Caddadup Reserve	Located inland near water tank, 2020 (2): 2021 (2)
Dawesville, Warrungup Spring	Nest present since 2021. Nest blew down in winter 2022 and rebuilt in 12 days. 2021 (1); 2022 (2).

Results

The breeding season around the Peel-Harvey estuary ran from July 2024 till January 2025.

During the 2024 surveys, 26 nesting sites were monitored and other potential sites were investigated. There were eight successful breeding pairs during 2024, fledging 12 juveniles overall. The breeding results for 2024 season are found in Table 1.

There is little historical information available about the distribution of Ospreys around the Peel-Harvey estuary. The late Craig Lester did some of the preliminary survey work between 2014-2015 and left the first map showing 15 active and seven inactive sites around the estuary. Historical information on breeding outcomes (based on information from this study and that of Singor (2019)) is shown in Table 2.

Osprey nesting locations were concentrated along the northern part of the Peel Inlet and along the western shoreline of the Peel-Harvey estuary. Quite a few Osprey nests were built behind dune ridges providing protection from the prevailing westerly winds.

Three cases of chick mortality were recorded at Herron (Island Point), Barragup and Falcon (North). This represents a mortality rate of 20% among chicks. A heat wave was suspected in one case and the large age difference between two chicks in another.

Discussion

The surveys conducted during the 2024 breeding season were the most comprehensive carried out to date

and covered all known nesting sites. Considering the size of the Peel-Harvey estuary we had expected the breeding population to be larger. The eastern side of the estuary was not surveyed as intensely, and some nesting sites might have been missed. The construction of the new Mandurah estuary bridge involved a bridge piling program that operated from June to December 2024. This possibly disturbed the Ospreys as nesting sites near the bridge were unsuccessful.

It is interesting to note that Storr and Johnstone (1988) and Storr (1991) did not list any mainland nesting sites in the Peel-Harvey area apart from an unsuccessful attempt to breed at Yunderup in 1986. The current survey results no doubt are due to much increased efforts at survey and monitoring.

Based on the occupancy rate of territories at the start of the breeding season at the Peel-Harvey estuary, the estimated population in this area was around 40-50 Ospreys. These were not necessarily sedentary birds and may have included young Ospreys returning to their natal area to establish breeding territories. Philopatric recruitment has been evident in South Australian studies (Dennis 2007).

Late breeding Ospreys seemed more common along the southern end of the Harvey estuary where nestlings fledged during the first half of January (Fig. 2).

Several Osprey nests were occupied at the start of the season and progressed from nest building, nest restoration, mating to sitting in the nest only to be abandoned in September/October. This sequence was observed at ten nests and the reason for abandonment is unknown.

The Osprey breeding season around the Peel Inlet and Harvey Estuary is extensive. The earliest date eggs were laid was late July/early August by the Falcon pair and the latest date was at the end of October by the Hexham pair. This takes fledging into late January early February 2025. The Novara pair was sitting on an egg on 6 December 2024, but this attempt failed.

Nest location

Preferred nesting locations around the Peel-Harvey estuary were in the dead tree crown of a live or dead tree. These trees provide an unimpeded view that Ospreys prefer. The downside is that these nests are at risk of blowing down in storms or branches giving way under the weight of the nest.

There are five artificial nesting platforms in place around the Peel-Harvey estuary. Out of these, four were occupied for part of the breeding season but only the pair at Island Point was successful, fledging one juvenile.

There are several rivers that flow into the Peel-Harvey estuary, the Serpentine River, Murray River and Harvey River. Ospreys breed upstream along the Serpentine and Murray Rivers. They generally don't travel far upstream. There were three nests along the Serpentine River at 1.6 km, 3.8 km and 6.7 km from the river mouth. There were two nests along the Murray River at 2.2 km and 9 km from the river mouth.

Two nests fell down this season, one at Lake McLarty and one at Caddadup foreshore south.

Nestlings

Incubation started late July/early August with August and September being the main months eggs were laid. However, egg laying was recorded in late October and in one case an Osprey was sitting on an egg in early December.

In some nests not all eggs hatched, or some were lost. This was the case at Point Grey (1), Island Point (1), Channel Island (1), Hexham Close (1), Novara (1) and Bertram (1). In total, six eggs were identified that did not hatch or were lost. Infertile eggs were presumably one of the reasons. Some eggs remained unbroken in the nest for a couple of weeks, and one was still unbroken after four weeks.

The clutch size is generally said to be two to three eggs, rarely four (Marchant and Higgins 1993), although on the south coast three eggs were more often the rule (Serventy and Whittell 1976). The loss of six eggs equates to two clutches.

MEMBERS' CONTRIBUTIONS



Fig. 2. Juvenile Osprey calling at Mandurah; note white rimmed feathers and chest band. Photo by John Clarke

Threats

The following threats have been observed in the Peel-Harvey area.

A helicopter spraying for mosquitoes, flew along the inlet's foreshore and close to Osprey nests, posing a disturbance threat.

The location of some Osprey nests next to busy roads such as along the Estuary Road, presented a risk to young fledgelings.

On one occasion an Osprey brought a large live fish to the nest and had difficulty controlling the fish, which was flapping all over the nest, even hitting the chick in the head.

Ospreys defend their nests throughout the breeding season and most aggressive interactions involve corvids (Clancy 2006). Continuous harassment by Australian Ravens *Corvus coronoides* is thought to be a factor in nest failure in Western Australia.

Acknowledgements

The following observers contributed towards these records: John Clarke, Cherilyn Corker, Judy Drayton, Polly Hammond, Debbie Larke, Julie McDonald, Jacquie Pemberton and Ben Roennfeldt. We thank The Mandurah Environment and Heritage Group (MEHG) for their support.

References

- Clancy, G.P. (2006). The breeding biology of the Osprey Pandion haliaetus on the north coast of New South Wales. Corella **30**, 1-8.
- Dennis, T.E. (2007). Reproductive activity in the Osprey (Pandion haliaetus) on Kangaroo Island, South Australia. *Emu* **107**, 300-307.
- Dennis, T.E. and Clancy, G.P. (2014). The status of the Osprey in Australia. The Journal of Raptor Research **48**(4), 408-414. doi:10.3356/JRR-OSPR-14-01.1

Gould, J. (1848). 'The Birds of Australia: in

seven volumes. Vol. 1.' Ed. R. and J.E. Taylor: London. http://nla.gov.au/nla. obj-52986886 [accessed 9 May 2021].

- Holsworth, W.N. (1965). Nesting success of the Osprey on Rottnest Island, Western Australia. Western Australian Naturalist **10**, 13-15.
- Johnstone, R.E., Burbidge, A.H., and Darnell, J.C. (2013). Birds of the Pilbara region, including seas and offshore islands, Western Australia: distribution, status and historical changes. Records of the Western Australian Museum, Supplement **78**, 343-441. doi:10.18195/ issn.0313-122x78(2).2013.343-441
- Marchant, S. and Higgins, P.J. (eds). (1993). 'Handbook of Australian, New Zealand and Antarctic Birds. Vol. 2. Raptors to Lapwings.' (Oxford University Press: Melbourne.)
- Poole, A.F. (2019). 'Ospreys: The Revival of a Global Raptor' (Johns Hopkins University Press: Baltimore.)
- Sedgwick, E.H. (1978). A population study of the Barrow Island avifauna. Western Australian Naturalist **14**, 92-108.
- Serventy, D.L. and Whittell, H.M. (1976). 'Birds of Western Australia'. (University of Western Australia Press: Perth, WA.)
- Singor, M. (2019). Osprey nesting sites around the Peel-Harvey estuary. Western Australian Bird Notes **171**, 31-35.
- Storr, G.M. (1991). Birds of the South-West Division of Western Australia. *Records of the Western Australian Museum* No. **35**, page 43.
- Storr, G.M. and Johnstone, R.E. (1988). Birds of the Swan Coastal Plain and adjacent seas and islands. Records of the Western Australian Museum, Supplement No. **28**, page 28.
- Surman, C. (2019). 'Houtman Abrolhos: A Natural History'. (Halfmoon Biosciences and Scott Print: Perth.)

Marcus Singor and Lisa Wray



Roebuck Plains, from BBO report, page 28. Photo by Jamie Van Jones