Shorebird Monitoring: Lee Point, Darwin, Northern Territory (January 2026)

Defence Housing Australia

4 elements

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Revision History

Version	Purpose	Issued by	Date	Reviewer	Date
1	Final	V. Wiklund	10/01/2026	P. Tomkins	09/10/2026

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Contents

Figures

Tables

Plates

1.0 Introduction

Defence Housing Australia (DHA) is proposing an urban development on the outskirts of Darwin that will establish a residential, community, and commercial precinct in the suburb of Nightcliff. During the environmental approvals process, the proposal was identified as having potential to impact Darwin's migratory shorebird population through increased beach traffic at key roosting and feeding areas on the city's northern beaches. To mitigate any potential impacts to these populations, the Northern Territory Environment Protection Agency (NT EPA) provided the following recommendation in its assessment report for this project:

> *Recommendation 3*
> *That approvals for the proposal should include a condition that requires DHA to develop and implement a monitoring program to quantify impacts from the Proposal on local shorebirds. The program is to be designed in consultation with Flora and Fauna Division, Department of Environment Natural Resources, and Wildlife and Heritage Division, Department of Tourism and Culture Parks, and implemented before commencement of construction activities. Results and annual updates from the program should be made publicly available on the internet (NT EPA 2018).*

The EIS for this project included a detailed report by Dr Amanda Lilleyman (Charles Darwin University) outlining the potential impacts of increased anthropogenic disturbance on Darwin's migratory shorebirds. This monitoring program was adopted in a report published by EcOz Pty Ltd (*Shorebird Monitoring Program: Lee Point Master-planned Urban Development*) in September 2022, which was updated in August 2023 (EcoZ 2023) with a few minor adjustments. This monitoring program was reviewed by Brydie Hill from the Flora and Fauna Division (Department of the Environment, Parks and Water Security) and Dean McAdam (Parks and Wildlife Division), with their assessment concluding that the proposed methodology is adequate for detecting project-related impacts to local shorebird populations. Finally, this monitoring program was adopted by Ecology and Heritage Partners (*Shorebird Monitoring Plan: Lee Point, Darwin, Northern Territory*, 2023) with a minor adjustment to the minimum tide height (from 6.5 m to 6 m).

Four Elements Consulting was commissioned by Defence Housing Australia to conduct the shorebird monitoring program in accordance with the *Shorebird Monitoring Plan: Lee Point, Darwin, Northern Territory*, (Ecology and Heritage Partners 2023). Darwin's northern beaches provide habitat for up to 10,000 shorebirds comprising over 20 different species, with the majority breeding in the northern hemisphere in China, Russia and Alaska before migrating through eastern Asia to Australia and New Zealand each year. Migratory shorebirds begin arriving in Australia in August and remain through the austral summer before departing again in March or April. This January survey captures their ongoing presence during the non-breeding stopover on Darwin's northern beaches.

This report presents the findings from the January survey, part of the summer monitoring period for Year 2 of the shorebird monitoring program. It continues the long-term effort to assess potential impacts of the Lee Point development on Darwin's migratory shorebird populations. This survey was conducted in collaboration with Larrakia Nation, the peak body representing the Larrakia people, to ensure cultural considerations and local knowledge are incorporated into the monitoring process.

2.0 Methodology

2.1 Study Area

The study included five survey locations on Darwin's northern beaches – Lee Point (**Plate 1**), Sandy Creek (**Plate 2**), Nightcliff Rocks (**Plate 3**), Spot on Marine (**Plate 4**) and East Point (**Plate 5**). Lee Point and Sandy Creek, which are public beaches approximately 15 km north of Darwin (**Figure 1**), provide important shorebird foraging and roosting habitat and may experience increased anthropogenic disturbance as a result of the proposal (i.e., impact sites). The remaining three sites (Nightcliff Rocks, Spot on Marine and East Point) are not expected to be impacted by the proposal but will act as controls whilst also providing a greater understanding of shorebird utilisation in the Darwin area. Nightcliff Rocks and East Point are headlands with exposed intertidal rock flats located approximately 8.5 km and 6.5 km north of Darwin respectively, while spot on Marine is an exposed mangrove mudflat approximately 6.5 km north of Darwin.

Plate 1 Lee Point

Plate 2 Sandy Creek

Plate 3 Nightcliff Rocks

Plate 4　Spot on Marine

Plate 5　East Point

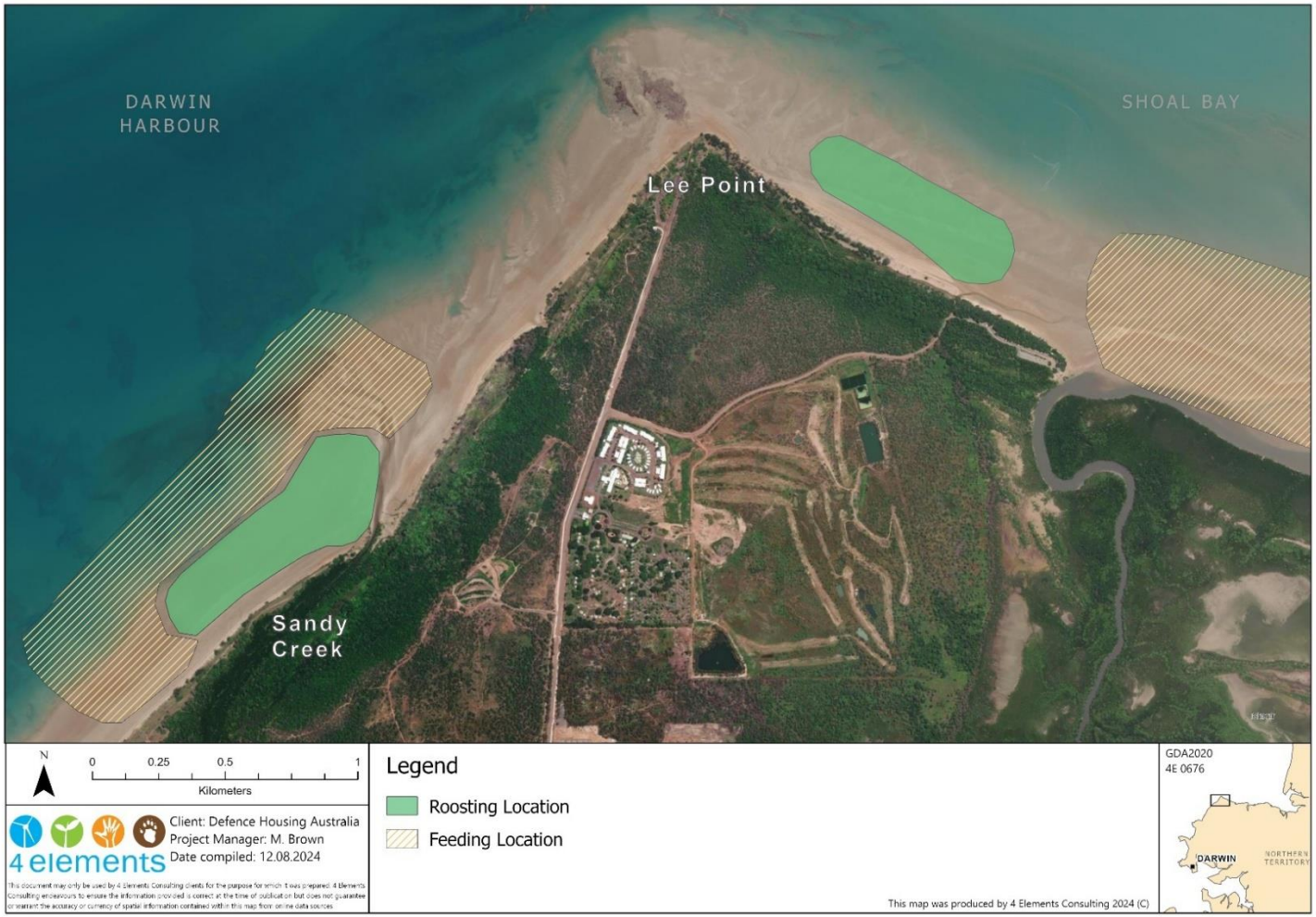

Figure 1 Lee Point and Sandy Creek Survey Locations

2.2 Field Assessments

Shorebird surveys were undertaken from 7th to 9th of January 2026 by two qualified Ecologists competent in shorebird identification and counting techniques, in collaboration with two representatives from Larrakia Nation. Monitoring was conducted in accordance with the methods outlined in *Shorebird Monitoring Plan: Lee Point, Darwin, Northern Territory* (Ecology and Heritage Partners, 2023). Each of the five survey locations was surveyed once by one person for a two-hour period approximately one hour either side of the high tide (see **Table 1**). In accordance with the Shorebird Monitoring Program (Ecology and Heritage Partners, 2023), the high tides on these days exceeded 6 m (see **Table 1**). Sandy Creek and Lee Point were surveyed simultaneously as shorebirds are known to move between these proximate roosts (i.e., shorebirds roosting at Lee Point one day may roost at Sandy Point the next day), thus ensuring an accurate count of birds utilising the area. Surveys were conducted at least 100 m from roosts to minimise disturbance to shorebirds, with each surveyor equipped with binoculars (10 × 42) and a spotting scope (20–60× magnification). On occasion, birds moved closer than the intended survey distance, in which case surveyors maintained a passive presence and took all reasonable measures to avoid disturbance.

Table 1 Survey Periods, Tide Data and Weather Data

Date	Site	High Tide Height (m)	High Tide Time	Weather	Temperature (ºC)	Rainfall (mm)	Wind Speed (km/h)/ Direction	Survey Period
07/01/2026	Nightcliff Rocks	08:15	06.64	Scattered clouds	30	6.2	17 WNW	07:30-09:30
08/01/2026	Lee Point	09:04	06.42	Light rain	27	47.6	7 SSW	08:00-10:00
08/01/2026	Sandy Creek	09:04	06.42	Light rain	27	47.6	7 SSW	08:00-10:00
09/01/2026	East Point	09:52	06.10	Light rain	28	6.2	19 NE	08:15-10:15
09/01/2026	Spot on Marine	09:52	06.10	Light rain	28	6.2	19 NE	08:15-10:15

All shorebirds and waterbirds seen during the survey period were identified, counted and recorded. The behaviour of all birds was recorded (i.e., roosting, foraging etc.), as were any changes to the environment, disturbances, and potential disturbances. As per the Shorebird Monitoring Program (Ecology and Heritage Partners, 2023), disturbances were defined as proximate stimuli (e.g., humans, dogs, raptors etc.), and the response of shorebirds to each disturbance was recorded (i.e., flight, walk away, no response). Distant disturbances were categorised as potential disturbances, and although these do not elicit a response from

shorebirds, they provide a measure of anthropogenic disturbance on the beach. The time and type of each disturbance and potential disturbance was also recorded.

3.0 Results

Sixteen species of migratory shorebird were observed during the survey period – red knot (*Calidris canutus*), great knot (*Calidris tenuirostris*), sanderling (*Calidris alba*), red-necked stint (*Calidris ruficollis*), common sandpiper (*Actitis hypoleucos*), ruddy turnstone (*Arenaria interpres*), greater sand plover (*Charadrius leschenaultia*), Siberian sand plover (*Charadrius mongolus*), eastern curlew (*Numenius madagascariensis*), grey plover (*Pluvialis squatarola*), whimbrel (*Numenius phaeopus*), bar-tailed godwit (*Limosa lapponica baueri*), black-tailed godwit (*Limosa limosa*), Terek sandpiper (*Xenus cinereus*), pacific golden plover (*Pluvialis fulva*), and grey-tailed tattler (*Tringa brevipes*). All observations made during the survey period are detailed below.

Lee Point

Lee Point was surveyed concurrently with Sandy Creek on January 8th 2026. Twelve species of migratory shorebird were recorded (**Table 2**), as well as 10 species of non-migratory waterbirds. No disturbances or potential disturbances were recorded during the survey period.

Table 2 Bird Observations at Lee Point

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
08:00	Pied oystercatcher	2	NE	100	0	Roosting
08:00	Sooty oystercatcher	3	NE	100	0	Roosting
08:00	Bar-tailed godwit	21	NE	100	0	Roosting
08:00	Black-tailed godwit	1100	NE	100	0	Roosting
08:00	Common tern	5	NE	100	0	Roosting
08:00	Great knot	2200	NE	100	0	Roosting
08:00	Red knot	250	NE	100	0	Roosting
08:00	Greater crested tern	23	NE	100	0	Roosting
08:00	Lesser crested tern	6	NE	100	0	Roosting
08:00	Greater sand plover	220	NE	100	0	Roosting
08:00	Sanderling	16	NE	100	0	Roosting
08:00	Ruddy turnstone	12	NE	100	0	Roosting
08:00	Silver gull	44	NE	100	0	Roosting
08:00	Whiskered tern	1	NE	100	0	Roosting
08:00	Red-capped plover	16	NE	100	0	Roosting
08:00	Little tern	65	NE	100	0	Roosting
08:00	Siberian sand plover	12	NE	100	0	Roosting
08:00	Eastern curlew	2	NE	100	0	Roosting
08:00	Red-necked stint	32	NE	100	0	Roosting
08:00	Black-bellied plover	6	NE	100	0	Roosting

08:30	Caspian tern	2	N	120	50	Flying
08:30	Common sandpiper	1	W	100	0	Foraging

Sandy Creek

Sandy Creek was surveyed concurrently with Lee Point on January 8th 2026. Five migratory shorebird species and three non-migratory shorebird species were recorded during the survey period (**Table 4**). One potential disturbance was recorded during the survey period (**Table 5**).

Table 3 Bird Observations at Sandy Creek

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
08:00	Eastern curlew	12	NW	100	0	Roosting
08:00	Black-bellied plover	13	NW	100	0	Roosting
08:00	Bar-tailed godwit	3	NW	100	0	Roosting
08:00	Great knot	2	NW	100	0	Roosting
08:00	Sanderling	51	NW	100	0	Roosting
08:00	Silver gull	5	NW	100	0	Roosting
08:00	Caspian tern	2	NW	100	0	Roosting
08:00	Greater crested tern	14	NW	100	0	Roosting

Table 4 Disturbance Observations at Sandy Creek

Time	Type	Duration (min)	Shorebird Response	Species	Number Affected	Did the Affected Birds Leave the Site?	Entry and Exit Points of Disturbance	Notes
09:06	Plane	1	None	NA	NA	No	NA	Low-flying plane approached from the north of the roost and passed within ~500m of birds. **Potential disturbance.**

Nightcliff Rocks

Twelve species of migratory shorebirds and eight species of non-migratory waterbird were observed at Nightcliff Rocks during the survey period (**Table 6**). One potential disturbance and three disturbances were recorded during the survey period (**Table 7**).

Table 5 Bird Observations at Nightcliff Rocks

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
07:30	Great knot	1200	W	100	0	Roosting
07:30	Red knot	10	W	100	0	Roosting
07:30	Pacific golden plover	12	W	100	0	Roosting
07:30	Red-necked stint	10	W	100	0	Roosting
07:30	Whimbrel	8	W	100	0	Roosting
07:30	Greater sand plover	90	W	100	0	Roosting
07:30	Black-bellied plover	10	W	100	0	Roosting
07:30	Siberian sand plover	23	W	100	0	Roosting
07:30	Ruddy turnstone	4	W	100	0	Roosting
07:30	Terek sandpiper	8	W	100	0	Roosting
07:30	Common sandpiper	9	W	100	0	Roosting/Foraging
07:30	Greater crested tern	17	W	120	0	Roosting
07:30	Lesser crested tern	2	W	120	0	Roosting
07:30	Grey-tailed tattler	11	W	120	0	Roosting
07:30	Silver gull	16	W	100	0	Roosting
07:30	Sooty oystercatcher	2	W	100	0	Roosting
07:30	Pacific reef heron	1	W	100	0	Roosting
07:30	Masked lapwing	7	W	100	0	Roosting
07:30	Pacific reef heron	1	E	60	0	Foraging
07:40	Striated heron	1	W	80	0	Foraging

Table 6 Disturbance Observations at Nightcliff Rocks

Time	Type	Duration (min)	Shorebird Response	Species	Number Affected	Did the Affected Birds Leave the Site?	Entry and Exit Points of Disturbance	Notes
08:00	Human	30	-	-	-	-	-	Gardeners on lawnmowers in sunset park. **Potential disturbance.**
08:22	Human	20	-	-	-	-	Staircase in front of bird viewing area	One adult and two children walked onto rocks from sunset park but did not venture from the are directly

								adjacent to the stairs.
08:27	Human	5	Moved roosts	Terek sandpipers, grey-tailed tattlers	6	No	Staircase in front of bird viewing area	Two people walked onto rocks towards roosting birds, resulting in terek sandpipers and grey-tailed tattlers moving further out onto the rocks.
08:58	Human	5	Moved roosts	Greater sand plover, great knot	5	No	Staircase in front of bird viewing area	Fisherman walked towards roosting birds resulting in 5 greater sand plovers and 30 great knots moving further out on the rocks.

Spot on Marine

Sic species of migratory shorebirds and three species of non-migratory shorebird were recorded at Spot on Marine during the survey period (**Table 8**). No disturbances or potential disturbances were recorded during the survey period.

Table 7 Bird Observations at Spot on Marine

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
08:15	Eastern curlew	18	SE	100	0	Roosting
08:15	Whimbrel	27	SE	100	0	Roosting
08:15	Black-bellied plover	13	SE	100	0	Roosting
08:15	Bar-tailed godwit	3	SE	100	0	Roosting
08:15	Common sandpiper	1	SE	100	0	Roosting
08:15	Common greenshank	1	S	120	0	Foraging
08:30	Beach stone-curlew	2	SE	80	0	Foraging
08:30	Masked lapwing	2	SE	60	0	Foraging
08:25	Nankeen night heron	1	SE	80	50	Flying

East Point

Nine species of migratory shorebirds and six species of non-migratory waterbirds were recorded at East Point during the survey period (**Table 9**). No disturbances or potential disturbances were recorded during the survey period.

Table 8 Bird Observations at East Point

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
08:15	Greater sand plover	16	NW	100	0	Roosting
08:15	Siberian sand plover	3	NW	100	0	Roosting
08:15	Ruddy turnstone	16	NW	100	0	Roosting
08:15	Great knot	3	NW	100	0	Roosting
08:15	Terek sandpiper	4	NW	100	0	Roosting
08:15	Common sandpiper	8	NW	80	0	Roosting/Foraging
08:15	Grey-tailed tattler	6	NW	100	0	Roosting
08:15	Pacific golden plover	3	NW	100	0	Roosting
08:15	Sooty oystercatcher	3	NW	100	0	Roosting
08:15	Masked lapwing	1	NW	100	0	Roosting
08:15	Greater crested tern	5	NW	100	0	Roosting
08:15	Silver gull	1	NW	100	0	Roosting
08:20	Whimbrel	2	NW	150	15	Flying
08:20	Pacific reef heron	2	NW	130	0	Foraging
08:30	Striated heron	1	NW	50	2	Foraging

4.0 Conclusion

The aim of this survey was to quantify the richness and abundance of shorebirds present on Darwin's northern beaches during the austral summer period, and to gather data on anthropogenic disturbance at five key feeding and roosting locations. Monitoring was conducted in accordance with the *Shorebird Monitoring Plan: Lee Point, Darwin, Northern Territory* (Ecology and Heritage Partners 2023).

During the January survey, a total of 16 migratory shorebird species were recorded across the five survey sites, with the highest abundance and species richness observed at Lee Point. Shorebird density and abundance were generally consistent with previous months. However, numbers at Nightcliff were significantly lower in January compared to December, which may be attributable to the high levels of disturbance recorded during the survey period. Few disturbances were recorded at the other survey sites, which is likely a result of inclement weather.

The shorebird monitoring program will continue throughout the austral summer to ensure that shorebird numbers remain consistent, while also providing a measure of anthropogenic disturbance at key roosting sites.

5.0 References

Ecology & Heritage Partners (2023). *Shorebird Monitoring: Lee Point, Darwin, Northern Territory (Winter 2023)*. Report prepared for Defence Housing Australia, Darwin, Northern Territory.

EcOz Environmental Consulting (2022). *Shorebird Monitoring Program Lee Point Master-planned Urban Development*. Defence Housing Australia, Darwin, Northern Territory.

Lilleyman, A. (2017). *Report on Potential Impacts from Disturbance to Migratory Shorebirds in Darwin: Defence Housing Australia – Lee Point Master-planned Urban Development.* Defence Housing Australia, Darwin, Northern Territory.

Northern Territory Environmental Protection Authority (2018). *Assessment report 88 – Lee Point master-planned urban development.* Defence Housing Australia, Darwin, Northern Territory.