



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

Defence Housing Australia



4 elements

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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 foraging 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 6.0 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 April survey captures their presence towards the end of the non-breeding stopover on Darwin's northern beaches.

This report presents the findings from the April survey, the final survey of the summer monitoring period for Year 2 of the shorebird monitoring program. A single winter survey will be undertaken in July to assess over-wintering shorebird numbers, with summer monitoring resuming in September. The program 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

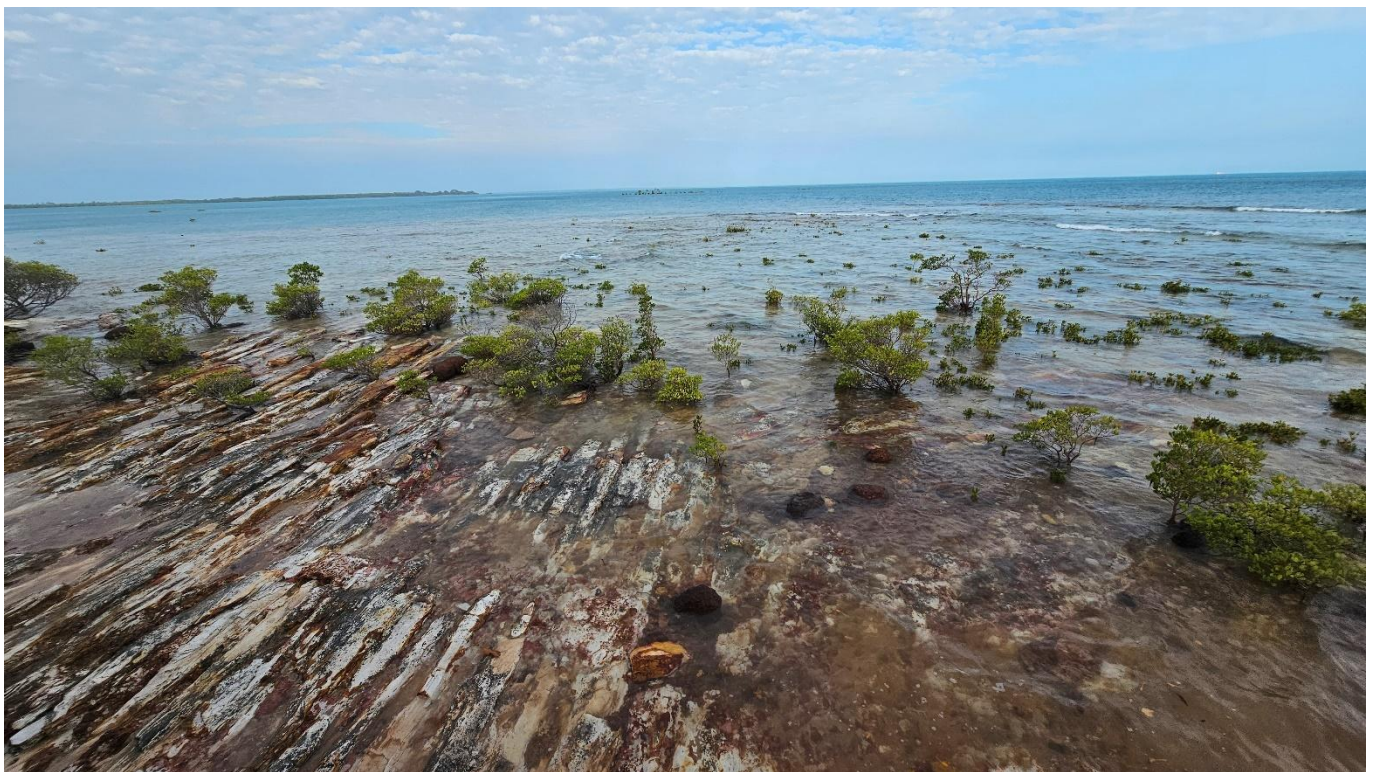


Plate 3 Nightcliff Rocks



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 22nd to 24th April 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 (°C)	Rainfall (mm)	Wind Speed (km/h)/ Direction	Survey Period
22/04/2026	East Point	7.16	09:36	Passing clouds	28	13.2	17 SE	08:30-10:30
22/04/2026	Spot on Marine	7.16	09:36	Passing clouds	28	13.2	17 SE	08:30-10:30
23/04/2026	Lee Point	6.62	10:24	Clear	27	0	26 ESE	09:30-11:30
23/04/2026	Sandy Creek	6.62	10:24	Clear	27	0	26 ESE	09:30-11:30
24/04/2026	Nightcliff	6.09	11:23	Clear	27	0	26 ESE	10:00-12:00

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

A total of 12 species of migratory shorebirds were observed during the survey period, including great knot (*Calidris tenuirostris*), sanderling (*Calidris alba*), 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*), 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 April 23rd, 2026. Six (6) species of migratory shorebirds were recorded (**Table 2**), as well as eight (8) species of non-migratory waterbirds. One potential disturbance was recorded during the survey period (Error! Reference source not found.).

Table 2 Bird Observations at Lee Point

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
09:30	Eastern curlew	4	W	150	0	Roosting
09:30	Sooty oystercatcher	3	W	150	0	Roosting
09:30	Caspian tern	3	N	100	0	Roosting
09:30	Greater crested tern	38	N	100	0	Roosting
09:30	Lesser crested tern	11	N	100	0	Roosting
09:30	Little tern	23	N	100	0	Roosting
09:30	Australian tern	18	N	100	0	Roosting
09:30	Australian pelican	1	N	100	0	Roosting
09:30	Great knot	17	N	100	0	Roosting
09:30	Ruddy turnstone	2	N	100	0	Roosting
09:30	Red-capped plover	4	W	50	0	Foraging
09:45	Sanderling	20	N	100	0	Roosting
10:00	Whimbrel	42	W	110	10	Flying
10:12	Whimbrel	12	NE	120	0	Roosting
10:12	Eastern curlew	22	NE	120	0	Roosting
10:28	Greater sand plover	40	W	150	0	Roosting

Table 3 Disturbance Observations at Lee Point

Time	Type	Duration (min)	Shorebird Response	Species	Number Affected	Did the Affected Birds Leave the Site?	Entry and Exit Points of Disturbance	Notes
10:30	Human	30	None	NA	NA	No	Present at the commencement of the survey; exited via the walking track connecting the beach to Buffalo Creek Road.	Two people were fishing at Buffalo Creek, >200 m from roosting shorebirds. Potential disturbance.

Sandy Creek

Sandy Creek was surveyed concurrently with Lee Point on April 23rd, 2026. No migratory shorebirds and two non-migratory species were recorded during the survey period (Error! Not a valid bookmark self-reference.). Two disturbances were recorded during the survey period (**Table 5**).

Table 4 Bird Observations at Sandy Creek

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
09:30	White-faced heron	1	NE	100	0	Foraging
09:30	Beach stone-curlew	3	NE	80	0	Roosting

Table 5 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
10:10	Human	5	Flushed	White-faced heron	1	Yes	Entered and exited along the beach from the south-west.	Person walked along the beach from south-west to north-east, turned around at the creek, and exited from the same direction.

10:17	Human	10	None	NA	NA	No	Entered and exited along the beach from the south-west.	Two people walked along the beach to the creek, paused briefly, and then exited in the same direction.
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Spot on Marine

Spot on Marine was surveyed on April 22nd, 2026. Five (5) species of migratory shorebirds and four (4) species of non-migratory shorebird were recorded during the survey period (Error! Not a valid bookmark self-reference.). No disturbances were recorded during the survey period.

Table 6 Bird Observations at Spot on Marine

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
08:30	Whimbrel	8	S	100	0	Foraging
08:30	Eastern curlew	2	S	100	0	Foraging
08:30	Pied oystercatcher	2	S	100	0	Foraging
08:30	Bar-tailed godwit	15	S	100	0	Foraging
08:30	Pied stilt	10	S	100	0	Foraging
08:30	Grey plover	2	S	100	0	Foraging
08:30	Grey-tailed tattler	1	S	100	0	Roosting
08:30	Beach stone-curlew	3	W	50	0	Roosting
08:30	Great egret	1	SE	120	0	Foraging

East Point

East Point was surveyed on April 22nd, 2026. Eight (8) species of migratory shorebirds and four (4) species of non-migratory waterbirds were recorded during the survey period (**Table 7**). One disturbance was recorded during the survey period (**Table 8**).

Table 7 Bird Observations at East Point

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
08:30	Siberian sand plover	16	NE	100	0	Roosting
08:30	Greater sand plover	12	NE	100	0	Roosting
08:30	Grey-tailed tattler	10	NE	100	0	Roosting
08:30	Masked lapwing	4	NE	100	0	Roosting

08:30	Great knot	7	NE	100	0	Roosting
08:30	Ruddy turnstone	2	NE	100	0	Roosting
08:30	Pacific golden plover	4	NE	100	0	Roosting
08:30	Bar-tailed godwit	5	NE	100	0	Roosting
08:30	Black-tailed godwit	8	NE	100	0	Roosting
09:55	Greater crested tern	7	NE	100	0	Roosting
09:55	Common tern	16	NE	100	0	Roosting
10:06	Pacific reef heron	1	NE	100	0	Foraging

Table 8 Disturbance observations at East Point

Time	Type	Duration (min)	Shorebird Response	Species	Number Affected	Did the Affected Birds Leave the Site?	Entry and Exit Points of Disturbance	Notes
10:08	Human	20	Flushed	Siberian sand plover, greater sand plover, grey-tailed tattler, masked lapwing, great knot, ruddy turnstone, greater-crested tern, white-winged tern, pacific golden plover, white-faced heron	79	Yes	Entered the rock platform from the beach.	Two fishermen entered the rock platform directly adjacent to the roost, resulting in birds flushing.

Nightcliff Rocks

Nightcliff Rocks was surveyed on April 24th, 2026. Six (6) species of migratory shorebirds and five (5) species of non-migratory waterbird were observed during the survey period (**Table 9**). No disturbances were recorded during the survey period.

Table 9 Bird Observations at Nightcliff Rocks

Time	Species	No. Individuals	Direction from Surveyor	Distance from Observer (m)	Height (m)	Behaviour
10:00	Bar-tailed godwit	5	W	100	0	Roosting

10:00	Pied oystercatcher	2	W	100	0	Roosting
10:00	Greater sand plover	40	W	100	0	Roosting
10:00	Siberian sand plover	2	W	100	0	Roosting
10:00	Grey plover	1	W	100	0	Roosting
10:00	Great knot	20	W	100	0	Roosting
10:00	Whimbrel	3	W	100	0	Roosting
10:00	Greater crested tern	26	W	100	0	Roosting
10:00	Lesser crested tern	7	W	100	0	Roosting
10:00	Whiskered tern	2	W	100	0	Roosting
10:00	Common tern	2	W	100	0	Roosting

4.0 Conclusion

This survey aimed to quantify the species richness and abundance of shorebirds on Darwin's northern beaches during the late austral summer period, and to document levels of anthropogenic disturbance at five key foraging and roosting locations. Monitoring was undertaken in accordance with the *Shorebird Monitoring Plan: Lee Point, Darwin, Northern Territory* (Ecology and Heritage Partners 2023).

During the April survey, 12 migratory shorebird species were recorded across the five survey sites. The highest abundance was observed at East Point, while the highest species richness was recorded at Lee Point. Overall abundance was notably lower than earlier surveys undertaken during the 2025/26 summer period, which is consistent with the seasonal departure of migratory shorebirds as they commence northward migration. In April 2025, 2,579 migratory shorebirds were recorded; counts in April 2026 were substantially lower, suggesting an earlier departure this year. Inter-annual variation in migration timing can be influenced by multiple factors (e.g., prevailing weather and environmental conditions, food availability, and habitat characteristics). Based on the monitoring data collected to date, there have been no obvious changes in habitat availability or a marked increase in recorded disturbance that would account for the earlier departure.

This survey concludes the 2025/26 austral summer monitoring period. Several of the remaining migratory shorebirds observed during the survey displayed breeding plumage, indicating imminent northward migration to northern hemisphere breeding grounds. Monitoring will continue with a winter survey in July 2026 to document overwintering shorebird numbers on Darwin's northern beaches, with summer surveys scheduled to resume in September.

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.

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