



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

Defence Housing Australia



4 elements

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4 Elements Consulting
169-171 Aumuller Street
Bungalow, QLD 4870

www.4elementsconsulting.com.au

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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 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 February survey captures their ongoing presence during the non-breeding stopover on Darwin's northern beaches.

This report presents the findings from the February 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 18th to 20th of February 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 (°C) | Rainfall (mm) | Wind Speed (km/h)/ Direction | Survey Period |
|------------|----------------|----------------------|----------------|---------------|------------------|---------------|------------------------------|---------------|
| 18/02/2026 | East Point | 6.7 | 06:41 | Mostly cloudy | 28 | 9.6 | 19 W | 06:30-08:30 |
| 18/02/2026 | Spot on Marine | 6.7 | 06:41 | Mostly cloudy | 28 | 9.6 | 19 W | 06:30-08:30 |
| 19/02/2026 | Lee Point | 7.0 | 07:19 | Showers | 26 | 16.8 | 11 WNW | 07:00-09:00 |
| 19/02/2029 | Sandy Creek | 7.0 | 07:19 | Showers | 26 | 16.8 | 11 WNW | 07:00-09:00 |
| 20/02/2026 | Nightcliff | 7.2 | 07:56 | Showers | 28 | 2.0 | 6 W | 07:30-09:30 |

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

Fourteen species of migratory shorebird were observed during the survey period – red knot (*Calidris canutus*), great knot (*Calidris tenuirostris*), sanderling (*Calidris alba*), 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*), Terek sandpiper (*Xenus cinereus*), common greenshank (*Tringa nebularia*), 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 February 19th 2026. Nine species of migratory shorebirds were recorded (**Table 2**), as well as 6 species of non-migratory waterbirds. Two disturbances were recorded during the survey period (**Table 3**).

Table 2 Bird Observations at Lee Point

| Time | Species | No. Individuals | Direction from Surveyor | Distance from Observer (m) | Height (m) | Behaviour |
|-------|----------------------|-----------------|-------------------------|----------------------------|------------|-----------|
| 07:00 | Great knot | 2500 | N | 100 | 0 | Roosting |
| 07:00 | Red knot | 2 | N | 100 | 0 | Roosting |
| 07:00 | Bar-tailed godwit | 1 | N | 100 | 0 | Roosting |
| 07:00 | Pied oystercatcher | 2 | N | 100 | 0 | Roosting |
| 07:00 | Siberian sand plover | 3 | N | 100 | 0 | Roosting |
| 07:00 | Greater sand plover | 11 | N | 100 | 0 | Roosting |
| 07:00 | Greater crested tern | 73 | N | 100 | 0 | Roosting |
| 07:34 | Common sandpiper | 1 | N | 100 | 5 | Flying |
| 07:38 | Red-capped plover | 4 | N | 100 | 0 | Foraging |
| 07:55 | Bar-tailed godwit | 5 | N | 100 | 0 | Roosting |
| 07:55 | Caspian tern | 2 | N | 100 | 0 | Roosting |
| 07:55 | Little tern | 110 | N | 100 | 0 | Roosting |
| 07:55 | White-winged tern | 1 | N | 100 | 0 | Roosting |
| 08:05 | Bar-tailed godwit | 7 | N | 100 | 0 | Roosting |
| 08:05 | Sanderling | 2 | N | 100 | 0 | Roosting |
| 08:05 | Eastern curlew | 2 | N | 100 | 0 | Roosting |
| 08:05 | Grey plover | 1 | N | 100 | 0 | Roosting |
| 08:27 | Eastern curlew | 1 | N | 100 | 5 | Flying |

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 |
|-------|--------------|----------------|--------------------|--|-----------------|--|--------------------------------------|--|
| 07:50 | Bird of prey | 2 | Flushed | Great knot, bar-tailed godwit, greater sand plover | 2502 | No | NA | An unidentified bird of prey ambushed and caught an unknown prey item. Shorebirds flushed and quickly re-settled at the roost. |
| 08:28 | Bird of prey | 2 | Flushed | - | 4 | No | NA | Whistling kite fly-over. No response elicited |

Sandy Creek

Sandy Creek was surveyed concurrently with Lee Point on February 19th 2026. Three migratory shorebird species and six non-migratory shorebird species were recorded during the survey period (**Table 4**). No disturbance or potential disturbance was recorded during the survey period.

Table 4 Bird Observations at Sandy Creek

| Time | Species | No. Individuals | Direction from Surveyor | Distance from Observer (m) | Height (m) | Behaviour |
|-------|----------------------|-----------------|-------------------------|----------------------------|------------|-----------|
| 07:00 | Eastern curlew | 12 | NW | 100 | 0 | Roosting |
| 07:00 | Grey plover | 1 | NW | 100 | 0 | Roosting |
| 07:00 | Greater crested tern | 4 | NW | 100 | 0 | Roosting |
| 07:00 | Silver gull | 2 | NW | 100 | 0 | Roosting |
| 07:00 | Greater crested tern | 2 | NW | 100 | 0 | Roosting |
| 07:38 | Greater crested tern | 3 | NW | 100 | 0 | Roosting |
| 07:51 | Sanderling | 10 | NW | 110 | 5 | Flying |
| 07:54 | Sanderling | 5 | NW | 100 | 0 | Roosting |
| 08:00 | Grey plover | 1 | NW | 100 | 0 | Roosting |
| 08:00 | Beach stone-curlew | 3 | NW | 110 | 7 | Flying |
| 08:16 | Masked lapwing | 2 | NW | 100 | 0 | Roosting |
| 08:20 | Greater crested tern | 9 | NW | 100 | 0 | Roosting |
| 08:20 | Lesser crested tern | 2 | NW | 100 | 0 | Roosting |

| | | | | | | |
|-------|----------------------|----|----|-----|----|----------|
| 08:45 | Jabiru | 1 | NW | 200 | 30 | Flying |
| 08:55 | Greater crested tern | 10 | NW | 100 | 0 | Roosting |

Nightcliff Rocks

Seven species of migratory shorebirds and seven species of non-migratory waterbird were observed at Nightcliff Rocks during the survey period (**Table 5**). Two disturbances were recorded during the survey period (**Table 6**).

Table 5 Bird Observations at Nightcliff Rocks

| Time | Species | No. Individuals | Direction from Surveyor | Distance from Observer (m) | Height (m) | Behaviour |
|-------|----------------------|-----------------|-------------------------|----------------------------|------------|-----------|
| 07:55 | Pacific reef heron | 2 | W | 10 | 0 | Foraging |
| 08:08 | Common sandpiper | 2 | W | 40 | 0 | Foraging |
| 08:09 | Greater crested tern | 37 | W | 100 | 0 | Roosting |
| 08:27 | Whimbrel | 1 | SW | 70 | 5 | Flying |
| 08:33 | Masked lapwing | 4 | S | 25 | 0 | Roosting |
| 08:48 | Great knot | 50 | NW | 100 | 0 | Roosting |
| 08:48 | Ruddy turnstone | 2 | NW | 100 | 0 | Roosting |
| 08:58 | Common sandpiper | 5 | W | 40 | 0 | Roosting |
| 09:04 | Lesser crested tern | 1 | W | 100 | 0 | Roosting |
| 09:09 | Grey-tailed tattler | 2 | W | 45 | 0 | Roosting |
| 09:09 | Whimbrel | 3 | W | 100 | 0 | Roosting |
| 09:09 | Great knot | 350 | W | 100 | 0 | Roosting |
| 09:09 | Greater sand plover | 140 | W | 100 | 0 | Roosting |
| 09:09 | Siberian sand plover | 20 | W | 100 | 0 | Roosting |
| 09:09 | Ruddy turnstone | 9 | W | 100 | 0 | Roosting |
| 09:20 | Silver gull | 3 | W | 50 | 0 | Roosting |
| 09:22 | Striated heron | 1 | W | 30 | 0 | Foraging |
| 09:22 | Whimbrel | 2 | SW | 100 | 0 | Roosting |
| 09:25 | Terek sandpiper | 25 | E | 45 | 0 | Roosting |

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 |
|-------|-------|----------------|--------------------|---------|-----------------|--|---|---|
| 07:40 | Human | 5 | None | NA | NA | No | Staircase in front of bird viewing area | Three children briefly wandered down onto start of rocks before |

| | | | | | | | | |
|-------|-------|---|------|----|----|----|---|---|
| | | | | | | | | returning to sunset park. |
| 08:36 | Human | 2 | None | NA | NA | No | Paddling along shoreline from north to south then back again. | Kayaker paddling past approximately 50 m offshore from north to south and returning 30 min later. |

Spot on Marine

Five species of migratory shorebirds and one species of non-migratory shorebird were recorded at Spot on Marine during the survey period (**Table 7**). 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 |
|-------|--------------------|-----------------|-------------------------|----------------------------|------------|-----------|
| 07:05 | Whimbrel | 44 | S | 100 | 0 | Roosting |
| 07:05 | Eastern curlew | 8 | S | 100 | 0 | Roosting |
| 07:05 | Common greenshank | 1 | SW | 100 | 0 | Roosting |
| 07:05 | Pied oystercatcher | 2 | S | 100 | 0 | Roosting |
| 07:05 | Grey plover | 13 | S | 100 | 0 | Roosting |
| 07:22 | Common sandpiper | 1 | S | 120 | 0 | Roosting |
| 08:19 | Eastern curlew | 1 | S | 80 | 0 | Roosting |
| 08:24 | Eastern curlew | 1 | S | 60 | 0 | Roosting |
| 08:26 | Eastern curlew | 1 | S | 80 | 50 | Roosting |

East Point

Three species of migratory shorebirds and four species of non-migratory waterbirds were recorded at East Point during the survey period (**Table 8**). One potential disturbance was recorded during the survey period (**Table 9**).

Table 8 Bird Observations at East Point

| Time | Species | No. Individuals | Direction from Surveyor | Distance from Observer (m) | Height (m) | Behaviour |
|-------|----------------|-----------------|-------------------------|----------------------------|------------|-----------|
| 06:30 | Masked lapwing | 2 | W | 100 | 0 | Roosting |

| | | | | | | |
|-------|----------------------|----|---|--------|---|-------------------|
| 06:30 | Greater crested tern | 22 | W | 100 | 0 | Roosting |
| 06:30 | Lesser crested tern | 3 | W | 100 | 0 | Roosting |
| 06:30 | Whimbrel | 1 | W | 100 | 0 | Roosting |
| 06:30 | Grey-tailed tattler | 2 | W | 100 | 0 | Roosting |
| 06:30 | Common sandpiper | 9 | W | 60-100 | 0 | Roosting/Foraging |
| 06:30 | Sooty oystercatcher | 1 | W | 100 | 0 | Roosting |

Table 9 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 |
|-------|-------|----------------|--------------------|---------|-----------------|--|--|---|
| 07:20 | Human | 15 | None | NA | NA | No | Entered and exited via walking track connecting car park to beach. | Group of four people walked out on rocks north of mangroves >100 m away from roosting birds. Potential disturbance. |

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 February survey, a total of 14 migratory shorebird species were recorded across the five survey sites, with the highest abundance and species richness observed at Lee Point. Shorebird abundance decreased compared to earlier summer survey periods, declining from 5,472 in January to 3,262 in February across all sites. This pattern is consistent with the February 2025 survey, which recorded 3,067 migratory shorebirds, suggesting that many species begin departing the region at this time.

Few disturbances were recorded during this survey period, likely due to inclement weather, which generally reduces human activity along the northern beaches.

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

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