



— LIVING WITH —
**MIGRATORY
SHOREBIRDS**
AT LEE POINT



CONTENTS

Introduction	4
History	5
Lee Point and the Defence of Darwin	7
Cruciform	8
Wildlife	9
Plants & animals of the area	11
Shorebirds, seabirds, and coastal birds	12
Monsoon forest birds	14
Mangrove birds and raptors	15
Best places to see the birds and wildlife generally	16
Today	18
Activities	21
References	32

INTRODUCTION

Migratory shorebirds that visit Australia are under threat from loss of habitat in many parts of the world.

Their coastal habitat is being built on or disturbed by people, all of which means that these birds are unable to make their long migrations to breed. Australia and other countries need to look after their migratory shorebird habitats if these birds are to survive.

Early in 2020 PLAN: The Planning Action Network in collaboration with BirdLife Top End received a \$20,000 Communities Environmental Program Grant. This project aims to engage with the local community close to the Casuarina Coastal Reserve (CCR) to improve the conservation outcomes of threatened migratory shorebirds. The project has three aims to:

1) raise awareness of the value of migratory shorebirds in the CCR within the local community,

2) establish feasibility study to ensure best practice environmental outcomes based on previous work, and

3) protect and maintain important conservation and historical military sites within the CCR through community stewardship.

As a part of this project volunteers aim to produce an easy to read, fun activity public awareness campaign to highlight the vulnerability of the Migratory Shorebirds adjacent to Casuarina Coastal Reserve.

The outcome is hopefully to engage diverse groups of people to become caring suburban citizens, become aware of migratory shorebirds, flora and fauna and advocate and support local community groups who work to protect the natural environment from unnecessary urban development. We hope you enjoy this celebration of a special location adjacent to our city.

HISTORY

Lee Point Peninsula is approximately 17 kilometres north of Darwin CBD and consists of 81 hectares.

The peninsula is a broad, low crest running in a north/east, south/west direction with a maximum elevation of 32m. There are relatively steep slopes on the northwest coastline, while the slopes are gentler south and east. The Beagle Gulf lies to the west and north and Buffalo Creek and Leanyer Swamp lies to the east. Lee Point encompasses Dariba Nunggalinya (Old Man Rock) and is on Larrakia country.

The Darwin area belongs to the Larrakia people. Tindale (1974:230) recorded that their land was from Fog Bay in the west to Gunn Point in the east and to an area north of Rum Jungle in the south.

Preferred camping areas were located near permanent water sources (Foelsche 1881) and sand ridges along the beaches. Resources used in the areas were fish, ducks geese, water lilies and wallabies often ambushed along well-used paths to water. Items of material culture likely to be preserved in the archaeological record include stone artefacts such as spearheads and stone axes, shell mounds, and 4 hearths made of stone or lumps of termite mounds (Foelsche 1881, Basedow 1907).

Foelsche (1881:5-6) recorded that the Larrakia buried their dead in shallow

Foelsche (1881) and Basedow (1907) both noted that the Larrakia people were heavily dependent on fish and shellfish.

The name 'Lee Point' appears on Goyder's 1869 Plan of Port Darwin and probably dates to Stokes' examination of the Harbour in 1839.



graves, presumably in sand deposits found in coastal areas.

The only items used to facilitate the subsistence activities described above that are likely to survive in the archaeological record are shellfish hooks, hearths containing cooking stone or termites nests and stone tools such as spear heads, axe heads, knives and, grindstones.

Other items used in the daily life of the Aboriginal people in the past that are unlikely to have survived are wooden spears, digging sticks and small bags and nets.



Image 2: The Bloodhound was a mid to high altitude Surface to Air missile, range 190km, max speed ~2700km/hr.

LEE POINT AND THE DEFENCE OF DARWIN



Lee Point played an important role in the defence of Darwin during World War II and Indonesian confrontation in the 1960s.

In early 1941 the area was used as a defensive position for the expected Japanese invasion. The beaches from Rapid Creek north were fortified by barbed wire and trenches, gun positions were constructed at Lee Point and Dripstone Caves, which also was the location for the No 31 RDF Station.

The weapon pits and machine gun posts were manned by the 23rd Australian Infantry Brigade on the beaches (Rayner 1995, Heritage Surveys 2001).

The Indonesian confrontation led to gun placements for sea and anti-aircraft defence, plus installation of (up to 8) Bloodhound missiles, at Lee Point.

In the early 1950s the Department of Defence acquired Block 4873 to establish a radar and receiving station (Heritage Surveys 2001) and by the 1960s there were numerous buildings surrounded by

earth and sand embankments.

These activities were related to the strengthening of the defensive forces in Darwin during the period of hostilities between Indonesia and Malaysia in 1963 (Alford 2004) and when the Indonesian Air Force violated Australian airspace.

These activities included the permanent detachment of No 30 Squadron RAAF between 1965 to 1968, a twelve gun battery which provided anti-aircraft and seaward defences, six Bofors guns, surrounded by several two gun weapon pits, and the placement of Bloodhound MK1 surface to air missiles (SAM).

No 121 LAA was specifically formed as part of the 16 Air Defence Regiment for the Defence of Darwin during the Indonesian incursions.

The radar station during this period was manned by the RAAF's 2CRU (Central and Reporting Unit). The site, until recently, was used as a radar facility by the Department of Defence. The existing buildings consist of workshops, two towers and the remains of aerials.



Image 4: Cruciform at Lee Point - Photo Friends of Lee Point



Image 5: Bunker at Lee Point - Photo Gillian Rose

CRUCIFORM

A heritage assessment, detailed investigation and excavation was made on one of the Bofors anti-aircraft gun emplacements located south of Block 4873 (Alford 2004, 2005, De la Rue 2004) before it was destroyed.

This site was considered to be notable because of its association with the tensions with Indonesia in the 1960s and the distinctive unusual shape.

The emplacement consisted of a hollow cruciform arrangement of earth filled 44-gallon drums which were banked around the outside by earth. De la Rue (2004) considered that this shape is most suitable for 40mm Bofors anti-aircraft L/60 anti-aircraft gun.

Lee Point ceased to be used for military purposes in the early 2000's.

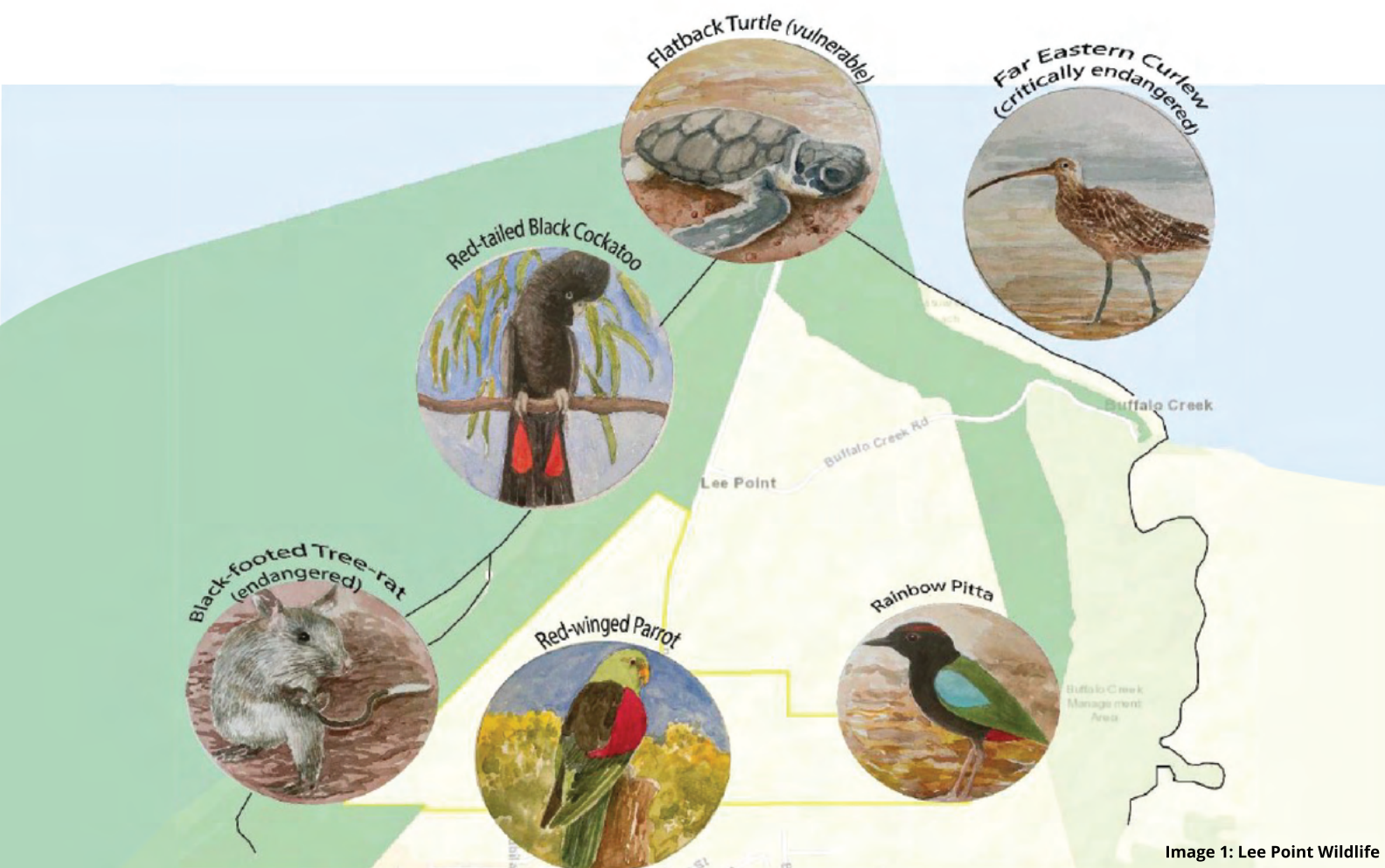


Image 1: Lee Point Wildlife

WILDLIFE

What follows is an article:

Birdwatching and wildlife-watching at Lee Point – Buffalo Creek, Darwin, Northern Territory.
Written by Dr Amanda Lilleyman

Lee Point – Buffalo Creek (-12.33, 130.90) is located approximately 20-kilometres from Darwin city in tropical northern Australia.

The Darwin region has a tropical climate, featuring a wet-dry cycle with an average annual rainfall of 1600 mm, most of which occurs during the wet season (December to March). The cyclone season begins in November and cyclones can occur up until April. Throughout most of the year the mean maximum temperature is 32°C, except during the monsoon season when temperatures drop and locals will tell you there is a chill to the air.

The Darwin coastal region is macrotidal, with a maximum tidal range of 8.1 m, with strong bi-directional velocities. The highest tides coincide with the austral summer and monsoon season.

There is minimal wave activity along Darwin coastlines, except during exceptional storm activity (during the monsoonal wet season). The tidal cycles in Darwin are semi-diurnal, usually with a high-tide in the morning and a high-tide in the evening. During low tides the intertidal zone is exposed which provides feeding zones for migratory shorebirds and other waterfowl.

Lee Point – Buffalo Creek beach makes up 222 hectares of the 1361 hectares of Casuarina Coastal Reserve and is managed by the Parks and Wildlife Commission of the Northern Territory (Parks and Wildlife Commission Northern Territory 2016).

Casuarina Coastal Reserve is the most highly visited park or reserve in the Northern Territory (Parks and Wildlife Commission Northern Territory 2016). The reserve has high recreational, cultural and environmental value (Power 1978, Chapman 1984). It is relatively easy to access this reserve and the places to see birds.

Buffalo Creek is a part of the Shoal Bay Important Bird Area due to the presence of listed threatened bird species, and range restricted species such as the Chestnut Rail (*Eulabeornis castaneoventris*). It's no surprise that this area is a popular spot for birdwatching and wildlife watching in general with such high diversity across the range of habitat. There have been 224 species of bird recorded in the Lee Point – Buffalo Creek area, with 71 of those on the beach, and the remaining found in the coastal monsoon forest and bordering mangrove forest.

INTERESTING GEOLOGICAL & SOCIAL HISTORY OF THE AREA

Lee Point – Buffalo Creek is a beach of calcareous sand with an underlying lateritic bed (Power 1978). It has an extensive dune system and mangrove-backed mudflats (Chatto 2003). The beach dunes back on to mangrove forest and a closed-monsoon forest (Power 1978). Adjacent to Lee Point is Casuarina beach and Buffalo Creek. The point at Lee Point has a rocky outcrop made up of laterite (Power 1978). These rocks provide roosting habitat for shorebirds and waterbirds during intermediate tides and are inundated during spring-high tides. This rocky outcrop is also a popular fishing spot during high tides. Lee Point – Buffalo Creek beach is part of a tidal wetland community with varying gradients of tidal inundation,

influencing the series of habitats from seawards to landwards.

The boat ramp at Buffalo Creek is a popular spot for fishing, crabbing and launching boats. The local Larrakia Indigenous people often collect shellfish from the nearby mangroves, or catch fish from the creek and cook these foods on an open fire along the sand dunes and forests.

There is an old pill bunker from World War II along the edge of the monsoon forest between Lee Point and Buffalo Creek, close to the bird hide and walking paths. This was used as an observation post, which formed part of the 'stop line' used against invasion by the sea during World War II.

PLANTS & ANIMALS OF THE AREA

Lee Point – Buffalo Creek has an extensive coastal monsoon forest that borders the coastline. It is primarily made up of monsoon vine thicket and bordered by open woodland beyond the forest.

There is a mangrove forest that lines Buffalo Creek and this extends up behind the sand dunes of Lee Point beach. The number of mangrove seedlings in this small creek is increasing every year and it is not uncommon to see mangrove seedlings attempting to attach to the tideline of the beach.

Casuarina trees back the sand dunes of Lee Point beach and their range across the beach has extended eastwards along the beach in an eight-year period. It is thought that their expansion along the beach is forcing migratory shorebirds to roost further east to keep away from tall forested areas.

Flatback Turtles (*Natator depressus*) nest along Sandy Creek beach, to the south-west of Lee Point and there have also been records of turtle tracks on Lee Point beach. Hatchlings are removed from the



Image 2: Bat Plant Flower taken in the woodland.

nest and released in large groups with the local Darwin community.

There are Saltwater Crocodiles (*Crocodylus porosus*) in Buffalo Creek and occasionally they can be spotted swimming along the coast. Crocodiles can kill people and Parks and Wildlife Northern Territory advise against entering the water.

The forested area behind Lee Point and Buffalo Creek is a good place to go spotlighting at night for mammals such as the Northern Brown Bandicoot (*Isodon macrourus*).



Image 3: Black Cockatoos clean up after a fire.

SHOREBIRDS, SEABIRDS, AND COASTAL BIRDS

The stretch of beach from Lee Point to Buffalo Creek is classified as a no-dog zone under the Parks and Wildlife Commission Northern Territory, due to the presence of shorebirds in nationally and internationally important numbers.

The reserve supports up to 10,000 shorebirds from over 25 species, and the beach has at times provided habitat for vagrant birds. Over the years there has been Black-headed Gull (*Chroicocephalus ridibundus*), Franklin's Gull (*Leucophaeus pipixcan*), Lesser Black-backed Gull (*Larus fuscus*), Black-tailed Gull (*Larus crassirostris*), Kentish Plover (*Charadrius alexandrinus*), Christmas Island Frigatebird (*Fregata andrewsi*) and others that were not supported through photographs or an adequate description to be accepted by

the BirdLife Australia Rarities Committee (<https://birdlife.org.au/conservation/science/rarities-committee>). Nevertheless, this coastal stretch of habitat faces north towards the Timor Sea and there is no doubt that many other rare birds may be using this beach and may even go unnoticed.

During the monsoon season when intense storms and low-pressure systems are common across the Timor and Arafura Seas, there is a high chance of seabirds turning up on this beach. It is not uncommon to see Brown Boobies (*Sula leucogaster*), Common Noddies (*Anous stolidus*), Bridled Terns (*Onychoprion anaethetus*), and Shearwaters (*Puffinus* sp.) turn up on the beach exhausted and in need of a rest. There was even an Abbott's Booby (*Papasula abbotti*) that was found exhausted and taken in to care, but later



Image 4: Large-tailed Nighthawk roosting near the Lee Point.

died. Fortunately, not all seabirds that turn up in Darwin are in dire straits, with many frigatebirds flying over Lee Point beach during the monsoon season. Lesser Frigatebird (*Fregata ariel*) is the more common species flying over the coast, but it is good practice to inspect the plumage markings of all frigatebirds.

But for people that visit Darwin at any time of the year, the one spot that should be on everyone's list is Lee Point, firstly because of the shorebirds, and secondly for the abundance of other species you can see in surrounding habitats. The shorebirds attract tourists from other parts of Australia and the world. It is the best place to bump into local Darwin birdwatchers when the tide is high.

The best tide to visit this beach if you are specifically looking for shorebirds is any spring tide >6.5 m, as this is when birds will be roosting and they are much easier to see huddled together pushed up by the tide. Most shorebirds roost halfway along Lee Point beach as you walk towards Buffalo Creek. It is a good idea to keep some distance from the birds to avoid disturbing them. From September through

until about March you can see up to 25 species of migratory shorebird on this beach. The most abundant species is Great Knot (*Calidris tenuirostris*), with records of up to 9000 birds roosting during high tide. During tides above 7 m during the monsoon season, there is very little beach left and the birds may depart the site to look for suitable roosting habitat elsewhere.

The timing of high tides also coincides with optimal beach-walking and dog-walking times, and this poses a threat to shorebirds roosting on the beach. Despite the zoning regulation of Lee Point – Buffalo Creek beach, many people still walk their dogs there causing shorebirds to take off and use energy stores that would otherwise be used for migration (Lilleyman et al. 2016). Because of this there has been a push to increase the awareness of these birds that call Lee Point home. You can view beautifully made shorebird statues on the grassy patch before you enter the beach at Lee Point. These art installations were commissioned by Parks and Wildlife and designed by local installation artist Aly de Groot.

MONSOON FOREST BIRDS

There is a great walking trail that goes from the woodland and beach area of Lee Point (access is from the northern Lee Point car park), along the back from the sand dunes, through mangrove forest, and then through the monsoon forest.

This walk takes you through a good variety of environments and gives you access through an otherwise almost impenetrable forest. If you are not up for a long walk, then you can bird your way along the monsoon forest by travelling along Buffalo Creek Road.

If you go early in the morning you can often hear Large-tailed Nightjar (*Caprimulgus macrurus*) calling, but once the day has begun, it is time for Rainbow Pitta (*Pitta iris*), Rose-crowned Fruit-dove (*Ptilinopus regina*), Emerald Dove (*Chalcophaps indica*) to start calling.

Also listen out for Green-backed Gerygone (*Gerygone chloronotus*), Grey Whistler (*Pachycephala simplex*), Arafura Fantail (*Rhipidura dryas*) calling on the outskirts of the forest.



Image 5: Rainbow Bee-eater emerging from it's nest after feeding young.

MANGROVE BIRDS AND RAPTORS

There is no doubt that the bird that everyone looks for in Darwin mangroves is the Chestnut Rail. This species can be found in mangroves and fringing habitat such as mudflats along the coastline of northern Australia.

Look across the creek from the boat ramp for Chestnut Rail, but if it is busy then it's best to go further along through the mangroves on falling tides of approximately 5m.

There is a well-established path through the mangroves that you can follow until you get to the first bend in the creek. This is a good spot to look for Chestnut Rail and occasionally Great-billed Heron (*Ardea sumatrana*). Listen out for the calls of Azure Kingfisher (*Alcedo azurea*) and Shining Flycatcher (*Myiagra Alecto*).

Black Butcherbird (*Cracticus quoyi*) often calls low from thick mangroves, and you can occasionally hear Little Shrike-thrush (*Colluricincla megarhyncha*) and Mangrove Grey Fantail (*Rhipidura*

phasiana) calling as you work your way through the mangroves. Red-headed Honeyeater (*Myzomela erythrocephala*) moves along the tops of mangrove trees as it feeds on flowering blossom.

Just before dusk you will often see small parties of Red-winged Parrot (*Aprosmictus erythropterus*) flying in to the mangroves from the west. These birds roost communally in the mangroves. Most probably to remain safe from predators. Birds of prey also use the mangrove forest and can be seen flying high overhead or swooping down for prey along the creek or tidal flat. Brahminy Kite (*Haliastur indus*), Black Kite (*Milvus migrans*), Whistling Kite (*Haliastur sphenurus*) and White-bellied Sea-eagle (*Haliaeetus leucogaster*) are common.



BEST PLACES TO SEE THE BIRDS AND WILDLIFE GENERALLY

If you are visiting for a short period and want to get to see a good variety of birds, then it is a good idea to park at the first car park at the bend of Buffalo Creek and walk along the road so you have monsoon forest on one side of you and woodland on the other side.

You often hear Varied Triller (*Lalage leucomela*) and Spangled Drongo (*Dicrurus bracteatus*) calling from high up in the forest, and where there is more open woodland listen out for Forest Kingfisher (*Todiramphus macleayii*). A short walk along the edges of the mangrove forest and woodland will also produce some nice birds.

But for the best birding at Lee Point – Buffalo Creek it is recommended to visit the beach on an early high tide to watch migratory shorebirds, terns and waterbirds, and then spend some time listening for forest birds, before attempting a walk through the mangroves for mangrove-specialist birds.

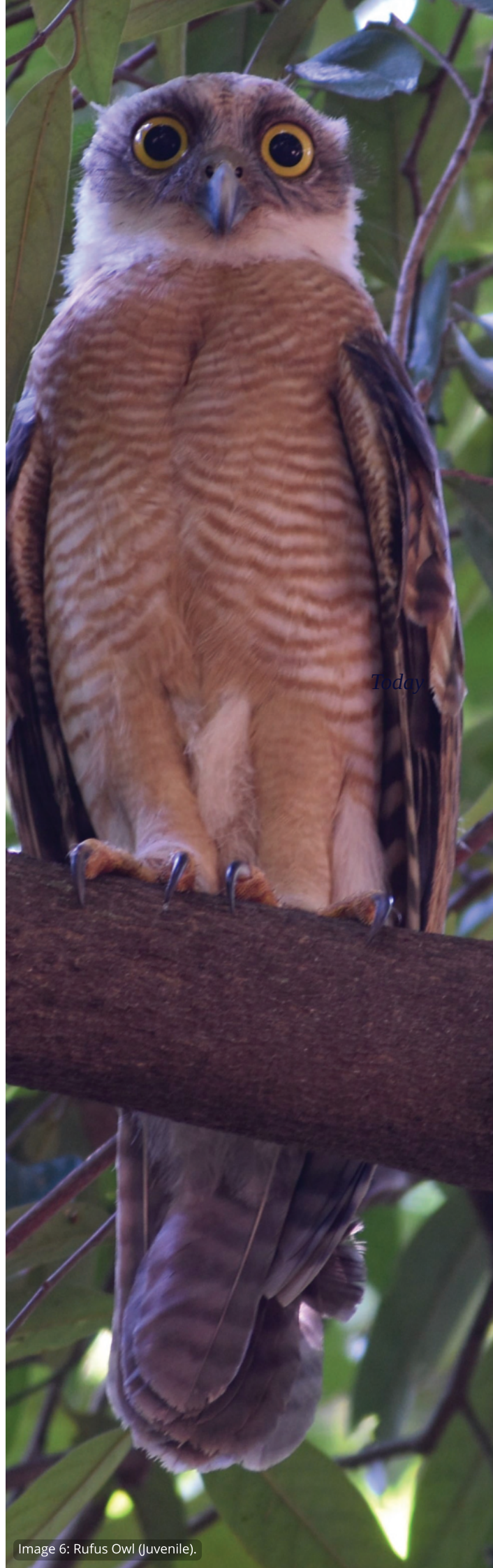


Image 6: Rufus Owl (Juvenile).

CONCLUSION

Lee Point – Buffalo Creek is a birding hot spot situated only 20 km from Darwin’s CBD.

It is a short drive from Darwin International Airport and easily accessible for all levels of fitness. The variety of habitat types provides rich bird diversity for all birdwatchers and people to enjoy.

The area can sometimes have lots of mosquitoes and midgies and it is

recommended that visitors cover their skin to avoid itching bites.

It is also advisable for visitors to travel with full sun protection and stay well hydrated as this part of the sunny Top End is very hot, especially on humid days when the air is thick but the prospect of a Chestnut Rail along the mangrove creek is too tantalising to head back to the car for more water! Happy birding!



ACKNOWLEDGEMENTS

I acknowledge Darwin Harbour’s Traditional Owners, the Larrakia people and their elders past and present. Thanks to the rangers and management team from Parks and Wildlife Northern Territory for supporting research work at Lee Point over the years.

Thanks also go to the local Darwin people that have accompanied me to this site to go birdwatching, and to the Northern Territory Field Naturalists’ Club for their love for the area and for hosting field trips to this site.

This article is by Birdwatching and wildlife-watching at Lee Point – Buffalo Creek, Darwin, Northern Territory.

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TODAY

This project has engaged with the local community about migratory shorebirds in the Casuarina Coastal Reserve, establishing steps to protect shorebirds into the future, and by raising the value of these threatened birds within the local area through the installation of signs and statues.

The installed signs and statues of migratory shorebirds at Lee Point and Sandy Creek in the Casuarina Coastal Reserve raise awareness and increase the value of shorebirds in the reserve. These signs and statues were a collaborative

artistic project between two Larrakia Indigenous artists, the Larrakia Nation Land and Sea Rangers, Northern Territory Parks and Wildlife Commission, BirdLife Top End and Plan.

Migratory shorebirds are a group of highly threatened birds that spend the summer season in Australia where they can be found on beaches and coastal areas. In Darwin, Northern Territory, there is a population of approximately 10000 – 15000 shorebirds using coastal areas surrounding the central business district.



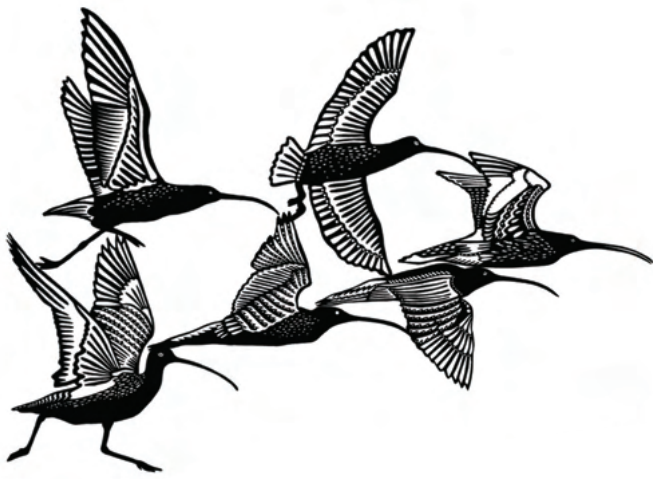


Image 2: Original Art work for the Statues

Because of the close proximity of the local human population to the coastal area, there is pressure from people on the shorebirds and the beaches.

When it is high tide, shorebirds spend time resting on beaches and this is also a time when many people use coastal areas for recreational purposes causing disturbances to birds when people get too close to them.

This has been an ongoing management issue for the last decade and our local community group has had limited success protecting birds from disturbances.

Our collaborative project set aims to protect and conserve the shorebirds at a popular area in Darwin – the Casuarina Coastal Reserve – using positive communication and engagement to increase the value and raise awareness of these birds. Through our community engagement events and products that we have created, we have raised awareness of the birds, increased education about responsible beach-use and dog-walking in sensitive areas.



Image 3: Curlew sign at Sandy Creek



Image 4: Great Knot sign at Lee Point



Image 6 & 7: The Statues at Lee Point and Sandy Creek



Image 5: Community members at an awareness gathering.

ACTIVITIES

Migratory shorebirds are a group of birds that spend much of their time in coastal areas and wetlands.

They travel huge distances each year to move between where they feed in the Southern Hemisphere and where they raise their chicks in the Northern Hemisphere. This is called migration.

They breed in the northern summer in the Arctic tundra of Russia, Siberia, Alaska and other northern hemisphere locations such as Mongolia and North Eastern

Asia. When the young are just six weeks old, most of the parents leave on their journey to the southern hemisphere. The chicks must feed and grow quickly so they can fly south when they are about eight weeks old, to avoid freezing as the snow and icy Arctic winds set in.

There are some shorebirds that are not considered migratory. They have all they need to feed and raise chicks where they already live. These are called resident shorebirds.



Image 1: Shorebirds feeding. Photo by Gayle Laidlaw.

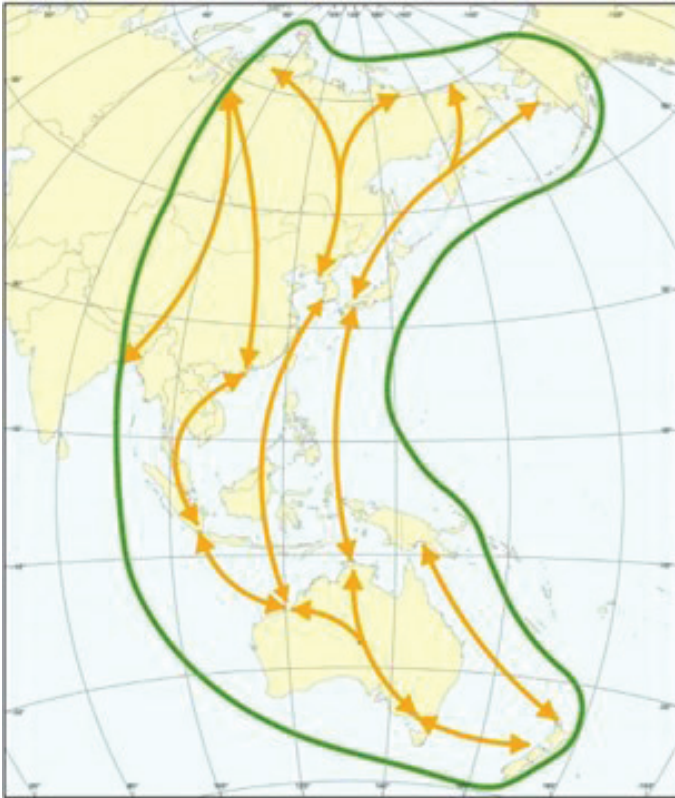


Image 2: The East-Asian Australasian Flyway (EAAF).

Migratory shorebirds are particularly special because they can travel 20,000km each year to their breeding grounds and back. They travel along the route called the East Asian-Australasian Flyway (EAAF).

This is like a highway that all the birds from Australia use to make their journey north to raise chicks or south to their feeding grounds. Once they set off on their six to eight-week journey to their non-breeding areas in Indonesia, Papua New Guinea, Australia and New Zealand, the migratory shorebirds fly nonstop for days at a time before landing to rest.

At the halfway point most need to stop to put on more fat to fuel their journey. It is important that they have large areas of suitable habitat, such as food-rich intertidal flats to stop at along the way and on their return journey.

ACTIVITY ONE: Shorebird Food

Tick the food shorebirds would like to eat. (Do you think they would eat KFC?).

Pizza



Cookie



Pipis



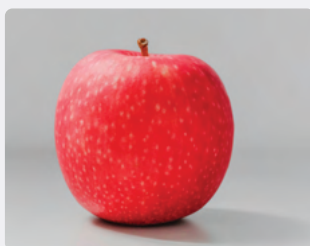
Shrimp



Worm



Apple



Ice Cream



Algae

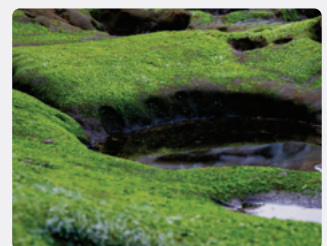


Image 3: Possible foods for Shorebirds.

ACTIVITY TWO: How far?

All these visit Darwin (but only two land at Lee Point).
Which can fly the longest non-stop?

Far Eastern Curlew



Bar Tailed Godwit



Boeing 787-8



Image 4: Which can fly the longest non-stop?

ACTIVITY THREE: Migration Path

You are a migratory shorebird and are going to embark on your own migration along the EAAF. You will leave Lee Point, Darwin around April. Using the map below, mark and name some of the places you will visit and the path you will take.



Image 5: Map of the world.

ACTIVITY FOUR: Countries on the Migration Path

Pretend you are a migratory shorebird. Write a postcard for a friend or family member from one of the countries you have visited on your migration journey. On the flip side draw and colour an image of you at this place. For example:



Image 6: Postcard to a friend.

Scientists know that shorebirds travel from Australia to Russia and return to Australia because a bright flag with a set of letters or numbers is placed by researchers on the shorebirds leg.

The flag works like a name tag. The researcher watching the birds through their telescope or binoculars can tell exactly which individual shorebird it is, without having to catch the bird.

Every state in Australia has its own flag colour for its shorebirds. If we saw a plain yellow flag and blue flag applied to the right leg, we know it must have been caught in a researcher's net in Darwin. If other researchers see this bird with its colours we know where it has been.

Different countries have their own set of flags too. The list below shows the countries for the East-Asian-Australasian Flyway.



Image 7: Whimbrels.



Image 8: Wader study

ACTIVITY FIVE: Identifying Shorebirds

Using the Flagging guide below, under each bird write the country they have been flagged in.

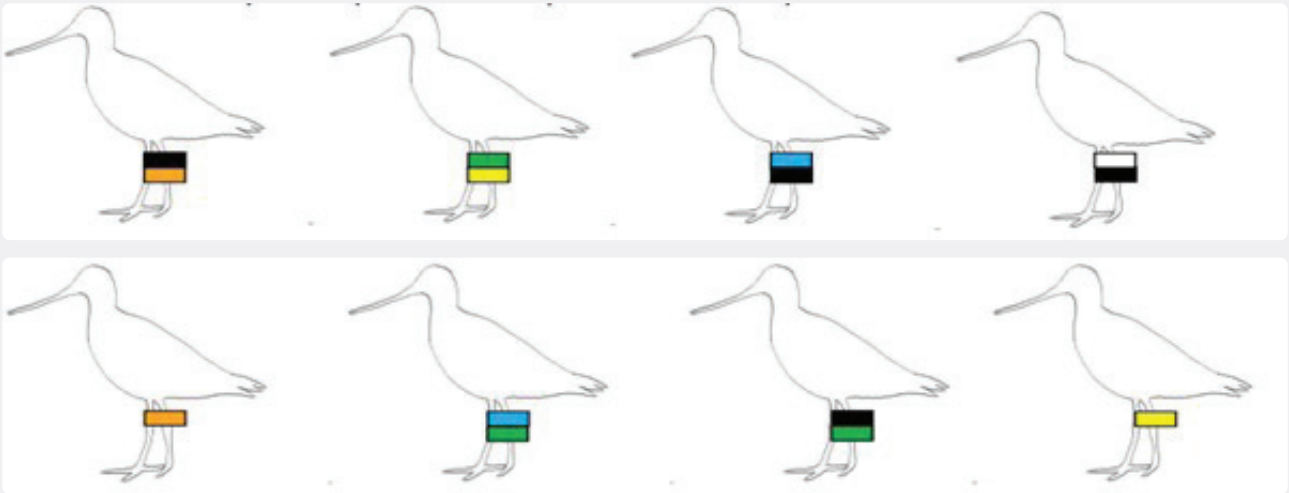


Image 9: Flagging guide question.

Shorebird Color Flagging Protocol on the EAAF (by country)

Upper flag	Lower flag	Country	Location
Green	Yellow	AUSTRALIA	Gulf of Carpentaria
Green	no flag	AUSTRALIA	Queensland
Orange	Blue	AUSTRALIA	Tasmania
Orange	Green	AUSTRALIA	New South Wales
Orange	Yellow	AUSTRALIA	South Australia
Orange	no flag	AUSTRALIA	Victoria
Yellow	Blue	AUSTRALIA	Northern Territory
Yellow	Orange	AUSTRALIA	SW Western Australia
Yellow	no flag	AUSTRALIA	N Western Australia
Green	Black	CAMBODIA	
Black	White	CHINA	Chongming Island
Blue	Black	CHINA	Hainan-Guangxi
Blue	Yellow	CHINA	Bohai Bay
Green	Blue	CHINA	Jiangsu
Green	Orange	CHINA	Yalujiang
White	Black	CHINA	Chongming Island (old)
White	Blue	CHINA	Taiwan
White	Yellow	CHINA	Hong Kong
Black	Orange	INDONESIA	Java & Bali
Orange	Black	INDONESIA	Sumatra
Blue	Blue	JAPAN	Lake Komuke, Northern Hokkaido
Blue	Orange	JAPAN	Kyushu
Blue	White	JAPAN	Tokyo Bay
Blue	no flag	JAPAN	Shunkunitai, Eastern Hokkaido
Black	Yellow	MALAYSIA	(proposed)
Blue	Green	MONGOLIA	
Black	Black	MYANMAR	
White	Green	NEW ZEALAND	South Island
White	no flag	NEW ZEALAND	North Island
Black	Blue	PHILIPPINES	Philippines
Yellow	Black	RUSSIA	Kamchatka
Yellow	White	RUSSIA	Sakhalin Island
Green	White	SINGAPORE	Singapore
Orange	White	SOUTH KOREA	Eastern Yellow Sea (old)
White	Orange	SOUTH KOREA	Eastern Yellow Sea
Black	Green	THAILAND	Thailand Peninsular & Gulf of Thailand
Yellow	Green	VIETNAM	

Image 10: Flagging guide.



Image 11: Far Eastern Curlew.



Image 12: Far Eastern Curlew in flight.

The Far Eastern Curlew is the world's largest migratory shorebird and has an extremely long bill, up to 20 cm in length. It uses it to probe for food (invertebrates), such as small crabs and molluscs.

Foraging by day and night, it is slow and deliberate, stalking slowly on sandy and muddy flats, picking from the surface or probing deep with its long bill.

It may feed in solitary, but it generally congregates in large flocks to migrate or roost. Its call is a sharp, clear whistle, cuuue-reee, often repeated.

The Far Eastern Curlew spends its breeding season in the northern hemisphere, north-eastern Asia, including Siberia and Mongolia. The nest is a shallow depression lined with grass. Its breeding habitat is composed of marshy and swampy wetlands and lakeshores.



Image 13: Far Eastern Curlew with map.

Most of them spend just over half their time (Aug – March) in coastal Australia where there are lots of invertebrates, at estuaries, beaches, and salt marshes. During its migration the Far Eastern Curlew commonly passes the Yellow Sea.

Darwin has just over 1% of the world's population of the Far Eastern Curlew. In Australia its status under the Environment Protection and Biodiversity Conservation Act is "critically endangered".

ACTIVITY SIX: 12 Months as a Far Eastern Curlew

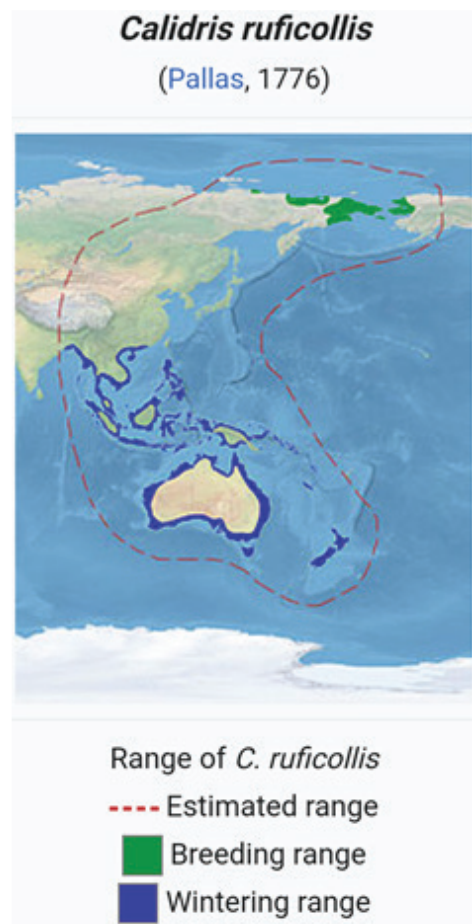
Write a short story from the Far Eastern Curlews point of view that conveys a 12-month period. It can be as a diary, large picture book or narrative.



The Red-necked Stint (*Calidris ruficollis*) breeds in north-eastern Siberia and Arctic regions. The nest is a shallow depression lined with grass or leaves on moist moss-lichen tundra. Both parents care for their young.

When they leave their breeding grounds, they follow the East Asian-Australasian Flyway to spend the southern summer months in Australia. On the way they stop off on the muddy shores of the Yellow Sea, China, to refuel, before continuing on to Northern Australia. Some stay at Lee Point while others fly across the harsh interior until they reach the southern coastline. They are found widely across Australia, even in inland swamps.

Red-necked Stints like to return to exactly the same place year after year. Some other migratory waders are not so fussy. These stints are highly social and will form dense flocks, feeding or roosting,



with other small shorebirds, in their non-breeding areas (like Lee Point, Darwin).

Red-necked Stints forage in wet grasslands and soft mud. They are omnivorous, taking seeds, insects, small vertebrates, plants in saltmarshes, molluscs, gastropods and crustaceans.

Stints can only forage for worms at shallow depths because of the shape and length of their beak.

More information on the Red-necked Stint: <https://wingthreads.com/meettheshorebirds/red-necked-stint/>

ACTIVITY SEVEN: Why Red-necked Stints like Lee Point

Make a poster to welcome the Red-necked Stint to Lee Point.
Tell us what is good about staying here.



Image 17: Red-necked Stint

Being small doesn't mean you can't go a long way. One of the smallest shorebirds you will see on a Lee Point beach is a Red-necked Stint.

The Red-necked Stint is a very small sandpiper. It measures 13–17 cm in length, 28 – 37cm in wingspan, and weighs about 21–51 g (one AA alkaline battery weights 23 g). It lives approximately 20 years.



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Image 18: Red-necked Stint weight.

ACTIVITY EIGHT: Distance Flown

How far is the Red-necked Stint expected to fly in its lifetime?

1. Darwin to London
2. Around the world twice
3. Further than the moon

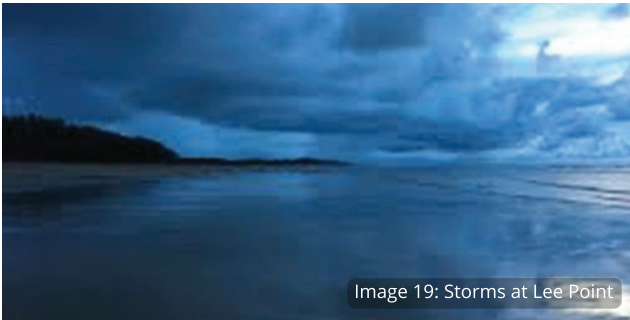


Image 19: Storms at Lee Point

A good picture story for younger people about shorebirds: <https://www.youtube.com/watch?v=wkD7IRzaPsw>

OTHER QUESTIONS AND ACTIVITIES

1. Make a list of different ways that humans can protect migratory shorebird's habitat.
2. Make a flock of different shorebirds from cardboard and a bamboo skewer and paint.
3. Create a poster that promotes the shorebird's habitat as a great tourist destination.

ANSWERS

Activity One

Seaweed, Shrimp, Pipis & Worms.

Activity Two

Bar-tailed Godwit

The Bar-tailed Godwit flew non-stop 12,000km from Alaska to New Zealand in 11 days (tracked by GPS). The record-setting godwit is among 20 birds that were caught and tagged in late 2019 by the Pukorokoro Miranda Shorebird Centre southeast of Auckland.

The Jetstar Boeing 787-8 Dreamliner range with full payload for is 10,186km.

The Far Eastern Curlew was documented flying 3–5 days between eastern Australia and China, a distance of approximately 6500 km with an overwater leg of approximately 4500 km.

Activity Three

Places within the East-Asian Australasian Flyway (EAAF) are appropriate. See Image 2.

Activity Four

Author's choice

Activity Five

INDONESIA	AUSTRALIA	CHINA	CHINA
Java / Bali	Gulf of Carpentaria	Hainan - Guangxi	Chongining Island (old)
AUSTRALIA	MONGOLIA	THAILAND	AUSTRALIA
Victoria		Thailand Peninsular & Gulf of Thailand	North Western Australia

Activity Six

The story should include the breeding grounds and feeding grounds.

Activity Seven

Some points to include in the poster are: lots of other shorebirds to be friendly with; a vast range of food to get your strength back;

Activity Eight

Further than the moon.

The Red-necked Stint can fly 20,000km a year and live up to 20 years, The moon is 200,000km away, round the world is 40,000km, and Darwin to London is 14,000km.

Factsheet Activities

- Read the Migratory shorebird fact sheet. <https://birdlife.org.au/documents/Shorebirds-FactSheet.pdf>
- What do the shorebirds need to do when they arrive at Lee Point?
- List the problems / challenges / threats they face when the shorebirds arrive at Lee Point, Darwin.
- Check other internet sites such as:
 - <https://www.dha.gov.au/development/residential/lee-point>
 - <https://www.abc.net.au/news/2019-07-11/dog-owners-ignore-protected-birdlife-signs-at-darwin-beach/11299254>
 - <https://www.abc.net.au/news/2019-12-01/feral-cats-targeted-by-darwin-council-rangerswith0cat0traps/11746160#:~:text=In%20the%2F19%20financialrehomed%2C%20and%20362%20were%20euthanasised>
- Create a poster, or a series of posters, to help campaign for better conditions for shorebirds. Your audience are people your age who do not have an understanding of what these shorebirds go through. You may relate it to human activities and images can be presented as stylised or cartoon format.
- Write a poem from the shorebird's point of view about the challenges they have on arriving Darwin. You may also refer to times of travel from the breeding grounds.
- Design a wall mural to show the community the joys of shorebirds but also the challenges they have when they arrive in Darwin.

REFERENCES

Front Cover

Cover Image: As if One Bird from video of the same name directed by Cathryn Vasseleu

Inside Cover: Shorebirds disturbed

History

Image 1: Map of Larrakia country - <http://larrakia.com/about/the-larrakia-people/>

Image 2: The Bloodhound was a mid to high altitude Surface to Air missile, range 190km, max speed ~2700km/hr.

Image 4: Cruciform at Lee Point - Photo Friends of Lee Point

Image 5: Bunker at Lee Point - Photo Gillian Rose

Text

The Darwin area belongs to the Larrakia people, Heritage and Archaeological Investigations over Block 4873 Lee Point Road Darwin - http://epbcnotices.environment.gov.au/_entity/annotation/c0e2658d-2a7d-e511-a947-005056ba00a8/a71d58ad-4cba-48b6-8dab-f3091fc31cd5?t=1534464000353http://www.frli.gov.au/ComLaw/Legislation/ActCompilation1.nsf/0/9A8645F9CEFE8EFBCA25730400834D6B?OpenDocument

Lee Point and defence of Darwin - Sid Mitchell, Aviation Spotters,

Mangroves - David Percival, Glenn Wightman - Mangrove Plant Identikit of the

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Lee Point and defence of Darwin - Sid Mitchell, Aviation Spotters,

Mangroves - David Percival, Glenn Wightman - Mangrove Plant Identikit of the

Wildlife

Image 1: Lee Point Wildlife - David Percival

Image 2: Bat Plant Flower taken in the woodland - Peter Brown

Image 3: Black Cockatoos clean up after a fire - Gayle Laidlaw

Image 4: Large-tailed Nightjar roosting near the Lee Point - Peter Brown

Image 5: Rainbow Bee-eater emerging from its nest after feeding young - Peter Brown

Image 6: Rufus Owl (Juvenile) - Peter Brown

Text

Chapman, B. M. 1984. Cost benefit analysis of Dripstone Park and Lee Point and some aspects of leisure activities at these areas of Casuarina Coastal Reserve, Darwin, Northern Territory of Australia.

Chatto, R. 2003. The distribution and status of shorebirds around the coast and coastal wetlands of the Northern Territory, Technical Report 73 in Parks and Wildlife Commission of the Northern Territory, editor. Northern Territory Government, Darwin.

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Power, S. M. 1978. Vestey's/Mindil Beach, Casuarina/Lee Point Beach, Darwin: environmental planning and coastal management study.

Today

Image 1: Development encroaches on Lee Point - Arial photo by Teresa Laird.

Image 2: Original Art work for the Statues – Jason Lee, Mim Cole

Image 3: Curlew sign at Sandy Creek – Andrew Mullen

Image 4: Great Knot sign at Lee Point – Andrew Mullen

Image 5: Community members at an awareness gathering – Dr Amanda Lilleyman

Image 6: The Statues at Lee Point and Sandy Creek - Andrew Mullen

Activities

Image 1: Shorebirds feeding. Photo by Gayle Laidlaw.

Image 2: THE EAST-ASIAN AUSTRALASIAN FLYWAY (EAAF)

Image 3: Possible foods for Shorebirds. - <https://unsplash.com/license>

Image 4: Which can fly the longest non-stop? - https://en.wikipedia.org/wiki/Far_Eastern_curlew#/media/File:Eastern_curlew_inskip.JPG, <https://ebird.org/species/batgod> ,

<https://airlinesfleet.com/jetstar-fleet-boeing-787-8-dreamliner-details-and-pictures/>

Image 5: Map of the world. - <https://www.onestopmap.com/world-maps/world-mercator-asia-australia-centered-221/>

Image 6: Postcard to a friend. Image: Gayle Laidlaw. Adapted from Wing Threads by Milly Formby.

Image 7: Whimbrels. - <https://wingthreads.com/whimbrel-update-7/>

Image 8: Wader study. - <https://finia.org.au/tag/queensland-wader-study-group/>

Image 9: Flagging guide question. - <https://static1.squarespace.com/static/5722d9faf85082b93efd60dc/t/5ec8d95802f4af1d18427095/1590221206701/Home+School+Lesson+Plan+Migratory+Shorebirds.pdf>

Image 10: Flagging guide.

- <https://static1.squarespace.com/static/5722d9faf85082b93efd60dc/t/5ec8d95802f4af1d18427095/1590221206701/Home+School+Lesson+Plan+Migratory+Shorebirds.pdf>

Image 11: Far Eastern Curlew - <https://ebird.org/species/faecur>

Image 12: Far Eastern Curlew in flight. - <https://wingthreads.com/meettheshorebirds/far-eastern-curlew/>

Image 13: Far Eastern Curlew with map. - <https://www.birdlife.org.au/bird-profile/eastern-curlew>

Image 14: Appearance in Australia (non-breeding grounds). - <https://singaporebirds.com/species/red-necked-stint/>

Image 15: Appearance in breeding grounds. - <https://ebird.org/species/rensti>

Image 16: Range of Red-necked Stint. - https://en.wikipedia.org/wiki/Red-necked_stint

Image 17: Red-necked Stint

Image 18: Red-necked Stint weight. -

<https://core-electronics.com.au/aa-batteries.html> ,
https://www.birdlife.org.au/documents/Shorebird_ID_Booklet_V3.pdf

Image 19: Storms at Lee Point - <https://www.pinterest.ch/pin/623467142134007534/>

Image 21: Linocut - <https://anneemayimpressions.blogspot.com/2018/03/seagull-linocut.html>

Text

Curlews

https://en.wikipedia.org/wiki/Far_Eastern_curlew
<https://www.birdlife.org.au/bird-profile/eastern-curlew>

Inside Back Cover

Image 1: Dr Amanda Lilleyman holding a tagged Far Eastern Curlew in Darwin - Strategic planning for the Far Eastern Curlew, Final Report, December 2020



Dr Amanda Lilleyman holding a tagged Far Eastern Curlew

This project received grant funding from the Australian Government's Communities Environment Program. Our thanks go to the tireless members of the Darwin Community who cherish and care for our wildlife and environment.



