

## Middle Arm Industrial Precinct Senate Inquiry – Migratory Shorebirds

By Dr Amanda Lilleyman, 11 April 2024

### Introduction and background

My name is Amanda Lilleyman and I am a Darwin resident and homeowner. I have lived in Darwin for over 12 years and have a deep love and connection to this city and Darwin Harbour. I want this city and the rest of the Northern Territory to be liveable into the future.

I am a shorebird expert. I have over a decade of research experience in shorebird ecology in Darwin Harbour through honours, PhD, and as a post-doctoral researcher where I specialised on threatened species. I have contracted to consultancies and government on shorebird projects across northern Australia, and have many published papers, reports, and presentations on shorebirds.

I was previously contracted to do the shorebird offset plan for the Middle Arm Industrial Precinct, but I withdrew from the contract with EcOz (an environmental consultancy agency) and 2rog as I did not want to contribute to this project going ahead for the reasons I will explain.

I will speak to the Committee today about the importance of migratory shorebirds, their conservation status and how the Middle Arm Industrial Precinct will threaten their habitat in Darwin Harbour.

### Summary

There are 15 shorebirds listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) – meaning they are considered threatened species. Of those, 14 occur in the Darwin Harbour region. Migratory shorebirds face a range of threats throughout their migration flyway across hemispheres, and they require safe and good quality habitat while in Australia. It is my expert opinion that, the Middle Arm Industrial Precinct development directly threatens shorebirds and their population numbers through the removal of roosting and feeding habitat. The development will destroy intertidal mudflats through the construction of wharves and jetties and by reclaiming mangrove forests that border nationally significant habitat to build on.

Shorebirds use a network of sites in a region on the non-breeding grounds in Australia, and it is vital that multiple sites are protected to ensure that populations remain viable and that birds keep coming back to Australia year-after-year. **There are too many unknowns about shorebirds in Darwin Harbour and how threatened shorebirds will persist globally, when local populations continue facing such pressures.**

### Conservation status

As mentioned, 14 of Australia's 15 endangered shorebirds live in Darwin Harbour. There has been significant loss of coastal intertidal areas across shorebird flyways, which has contributed to the dramatic population declines observed over several decades. Because of this and the other pressures and threats that shorebirds face, Australia has implemented a number of

measures domestically and with international partners that help to support shorebird populations and their habitats. Most threatened migratory shorebird populations are not yet stabilising.

## **Darwin**

Darwin Harbour supports internationally important populations of shorebirds and several sites are further classified as nationally important based on numbers and species diversity. As migratory shorebird species continue to decline globally, preserving key roosting, and feeding habitat, like Darwin Harbour is highly important. **What happens locally affects populations globally.**

Within Darwin Harbour, shorebirds are broadly distributed throughout the intertidal zone at low tide and then they concentrate at roosts at high tide where they can rest. My research has shown that shorebirds depend on saltpans (muddy areas with saltmarsh vegetation) and mangroves for resting and feeding. The Middle Arm Industrial Precinct will directly remove roosting and feeding habitat for shorebirds. One way to mitigate that impact to the environment, is to offset for the environmental disruption. However, there is **no** evidence to show that offsets for feeding habitat for shorebirds can be successfully done. It is well known that the **single most important management action to conserve migratory shorebirds on the non-breeding grounds is to conserve key habitat.**

Saltpans on the Middle Arm peninsula have consistently supported nationally important numbers of the Critically Endangered Far Eastern Curlew. This is the largest shorebird in the world and a *priority species* under the Labor Government's Threatened Species Action Plan. These saltpans will be constructed on as part of Product and Service Corridors. Other important saltpans for shorebirds within the development area of Middle Arm will be either lost or damaged.

## **Gaps in knowledge**

There are many unknowns about migratory shorebirds in Darwin Harbour, relating to understanding the ecological requirements of a range of species and how changes to the environment through industrial activity and climate change will affect threatened shorebirds.

## **Threats to shorebirds in Darwin**

The greatest threat to migratory shorebirds in Darwin Harbour is anthropogenic disturbance. This manifests with: habitat modification and coastal development, lack of coordinated management across stakeholder groups, lack of resourcing for management and monitoring.

## **Climate change impacts**

The Middle Arm Industrial Precinct is an expansion of the fossil fuel industry and is set to increase greenhouse gas emissions that are harmful to a safe and liveable climate. Migratory shorebirds are already affected by a changing climate, with sea level rise impacting environments across shorebirds' lifecycles. Research suggests that shorebirds' body sizes and weights have changed over several decades, and this has been linked to a warming climate.

These effects have influenced success of feeding and building body reserves which are vital for migration.

### **Lack of management**

There is no strategic management of migratory shorebirds in Darwin Harbour. All population monitoring of shorebirds is conducted by volunteers. Recommendations based on past research have not been taken up by government, council, or other authorities.

### **Concerns around regulation**

Further to this, there is a lack of regulation on coastal activities that impact migratory shorebirds in Darwin Harbour. Threats to habitats used by shorebirds, changes to the environment, and disturbances to shorebirds have gone unchecked for several decades. This is despite community members and scientists raising these concerns with politicians and governments.

### **Conclusion**

Migratory shorebirds are globally significant and Australia has a duty to protect shorebirds and their habitats.

Darwin Harbour supports 14 threatened migratory shorebirds and habitat loss is the main driver of population declines. It is my expert opinion that the proposed Middle Arm Industrial Precinct will destroy intertidal mudflats and mangroves that these shorebirds depend on. This will reduce feeding and roosting habitat for shorebirds, increase competition between individuals, increase anthropogenic disturbance to birds, and exacerbate the effects of climate change to shorebirds.

If Australia continues on this path of destroying coastal intertidal zones, we will not recover any threatened shorebirds. If we lose migratory shorebird species, it will show future generations that we did not care enough when the alarm was raised that shorebirds were threatened with extinction. We cannot lose the Far Eastern Curlew; we must put it and other threatened shorebirds on a path to population recovery.