



**Threatened  
Species  
Recovery  
Hub**

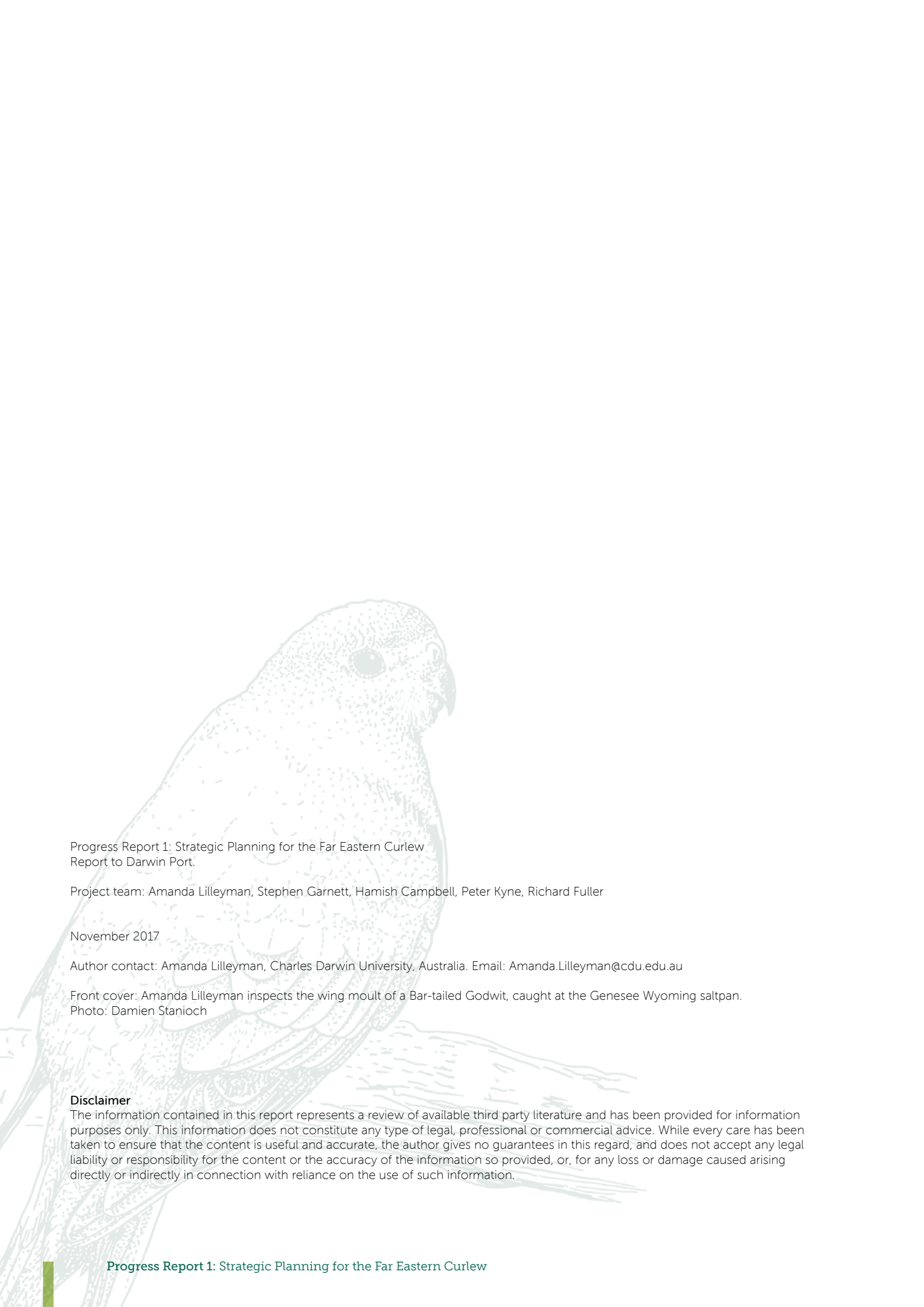
National Environmental Science Programme



# Progress Report 1:

## Strategic Planning for the Far Eastern Curlew

November 2017



Progress Report 1: Strategic Planning for the Far Eastern Curlew  
Report to Darwin Port.

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Front cover: Amanda Lilleyman inspects the wing moult of a Bar-tailed Godwit, caught at the Genesee Wyoming saltpan.  
Photo: Damien Stanioch

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Stephen Garnett inspects the wing moult of a Whimbrel, caught at the Genesee Wyoming saltpan.  
Photo: Damien Stanioch

## Project overview

The Far Eastern Curlew (FEC) is the largest migratory shorebird in the world. It is listed as Critically Endangered in Australia with numbers rapidly declining. Recent research has highlighted the importance of high quality non-breeding habitat to migratory shorebirds, but it is difficult to provide strategic guidance to developers and decision-makers because too little is known regarding the ecological requirements of the bird. Currently little is known about their exact feeding and roosting habitat needs. While coastal development can negatively impact populations, they are known to use some artificial habitat for roosting. This project will provide the knowledge needed to develop strategic guidelines for Far Eastern Curlew conservation.

## Progress to date

### Survey

The project team performed an aerial survey of Darwin Harbour in January 2017 to assess the distribution and abundance of Far Eastern Curlew throughout the area. We took this opportunity to survey all shorebirds and waterbirds present, and we included the Darwin Port East Arm Wharf (EAW) roost in this harbour assessment. We surveyed the intertidal zone at low tide and counted all shorebirds and waterbirds present, and then surveyed all salt pans and potential roosting areas at high tide on the same day. There were 724 birds of 19 species recorded during the low tide survey and 789 birds from 13 species recorded during the high tide survey (total of 24 species for the day). We found a total of 329 Far Eastern Curlew during the high tide survey, which is an increase in the Darwin Harbour maximum previously recorded. Our previous maximum count of FEC was 264 birds counted at East Arm Wharf in November 2016.

We have submitted the results of this survey for publication in the Northern Territory Naturalist and it has been accepted and will be published this year.

In addition to this aerial survey, we have performed a boat survey of Darwin Harbour during a neap tide cycle and discovered that during a low neap tide there is not sufficient mudflat available for shorebirds to forage outside the mangroves. During this low tide we found that most migratory shorebirds were roosting on rocky outcrops or on a newly-discovered sandbar roost near Wickham Point.

### Fitting of transmitters

Earlier this year we performed a pilot study to test the harness design used to fit GPS transmitters to Far Eastern Curlew. There are no FEC in captivity so we selected a similar bird species – the Beach Stone-Curlew (*Esacus magnirostris*) that is housed at the Territory Wildlife Park. We tested three harness attachment methods on this bird and assessed each style before deciding on the final method that will be used on FEC. The best and final method was the 'basic leg-loop + elastic weak link' as it stayed on the bird until it was removed and held the tag in a good position on the bird's back. The elastic will act as a weak link and disintegrate over time meaning that the tag will eventually fall off, whereas the basic leg-loop harness has the potential to stay on the bird indefinitely.

The harness attachment designs were:

1. Basic leg-loop harness: two loops slip over the legs of the bird and the GPS tag sits on the back of the bird. Two leg loops must be under enough tension to keep tag in place on back.
2. Basic leg-loop + elastic weak link: two loops slip over the legs of the bird and the GPS tag sits on the back of the bird. An elastic link sits at the base of the bird's belly and hold leg loops under tension and keeps tag in place.
3. Advanced leg-loop, criss-cross at front of bird: two loops are woven through the inner of the bird's legs and criss-crossed at the chest of the bird, the loops slip over the 'shoulder' (bend of wing) and join at the top of the tag.

As part of our animal ethics approval, we produced a standard tagging protocol for attaching the GPS and harness to a bird.



## Catching attempts

We have had eight catching attempts at two sites since we first started attempting to capture FEC in August 2017. The catching team has been made up of twelve people, most of which are volunteers on the project and are happy to dedicate their time to help catch shorebirds. We have two sites where we go shorebird catching: 1) Genesee Wyoming Australia (GWA) Berrimah Freight Terminal saltpan and 2) ConocoPhillips saltpan (near Wickham Point). These sites were selected for catching as they are known to support good numbers of FEC and other shorebirds, and the GWA site is only a short distance from the Darwin Port EAW roost site and we have observed birds moving between these two sites as the tide comes in.

We have not been successful in catching FEC at either of these sites as the birds are incredibly smart and wary and respond to changes in the environment (such as nets set up in the saltpan). We have made five attempts to catch at the GWA site and have been successful in catching shorebirds on three occasions. We have not had any success in shorebird catching at the ConocoPhillips site.

We have captured 56 migratory shorebirds, putting individually identifiable leg flags on 43 birds (10 species in total, Red-necked Stint not shown in table; Table 1) as well as a metal band following the Australian Bird and Bat Banding Scheme. The yellow and blue leg-flags are unique to Darwin, Northern Territory. This colour scheme follows the East Asian-Australasian Flyway colour flagging protocol.

Table 1. Catching summary of shorebird species by age category.  
1 = juvenile/first-year birds. 2, 2+, 3+ = adult birds. U = undetermined.

Species	1	2	2+	3+	U	Total
Bar-tailed Godwit			6	1		7
Common Greenshank	2	2	2	1		7
Great Knot		1	3			4
Greater Sand Plover		1	1		1	3
Grey-tailed Tattler	1	1	12			14
Red Knot		1				1
Sharp-tailed Sandpiper	1		1			2
Terek Sandpiper			3			3
Whimbrel	1			1		2
<b>Total</b>	<b>5</b>	<b>6</b>	<b>28</b>	<b>3</b>	<b>1</b>	<b>43</b>

## Write up of results from previous work

The results from research conducted under shorebird contract (D13-0379 Darwin EAW Port Project) are being analysed and written up. The results are connected to this project on strategic planning and in the overall management of migratory shorebirds in Darwin Harbour.



*The shorebird catching team (Amanda Lilleyman, Stephen Garnett and Gavin O'Brien) at the banding station processing shorebirds. Photo: Damien Stanioch*

## Plans for future

### Further catching attempts

There will be four more catching attempts in November and December this year. We will continue to follow the same methods to catch FEC at the catching sites but may have to try something new such as call playback to attract birds to the nets. We have considered other catching methods, such as net guns and cannon nets, but we think mist netting will work the best in this saltpan setting. We may need to try cannon netting in the future.

### Risk spreading by sending transmitters to other sites

As we have not yet been successful in catching FEC in Darwin, we plan on sending GPS transmitters to our colleagues at the Australasian Wader Studies Group and Victorian Wader Studies Group in Victoria and north-Western Australia as the teams in these locations have successfully captured FEC in the past and have the capacity to catch and attach transmitters to birds at these sites.

While we do not expect the birds from these sites to be present in Darwin Harbour, we expect that we will learn about the home range/territory size of individual birds, and how far birds are willing to commute each day from feeding to roosting grounds, and what their migration paths are. We can then use this information to help guide the project in Darwin Harbour and to make comparisons between Darwin and other important sites on the non-breeding grounds. These kinds of intra-continental comparisons are important when managing migratory shorebirds on the non-breeding grounds as different populations of shorebirds can exhibit different migration strategies and behaviours, and understanding this will help to manage them at a local scale.

### Feeding observations in collaboration with Larrakia Nation Indigenous Rangers

We plan on conducting five boat trips this season to collect information on foraging FEC, including where the birds forage and what they feed on. We have an idea of their preferred prey as this has been documented in Queensland, but this may vary across different habitat types so it is essential to the management of FEC that we fully investigate what the species is feeding on in Darwin Harbour. During these boat trips we will observe individual birds and film birds for detailed foraging analysis.



Stephen Garnett inspects the wing moult of a Greater Sand Plover, caught at the Genesee Wyoming saltpan.

Photo: Amanda Lilleyman



*Amanda Lilleyman attaches the GPS and harness to a Beach Stone-curlew with volunteer Damien Stanioch at the Territory Wildlife Park. Photo: taken on Amanda Lilleyman's phone.*



**Further information:**

<http://www.nespthreatenedspecies.edu.au/>

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