

Records of waterbirds and other water-associated birds from the 2014/15 migratory season in the Darwin region

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Abstract

Records of waterbirds, waterfowl, terns, gulls, egrets and herons, raptors, and resident shorebirds in the Darwin region, Northern Territory, were collected during fortnightly migratory shorebird monitoring. Eight study sites were monitored from August 2014 through to April 2015, which is considered the migratory season for most non-passerine birds in the Top End. Species abundance across the sites, breeding records, and new information on habitat use at an artificial habitat (East Arm Wharf) are presented. Across the eight study sites there were 39 species recorded, representing 15 taxonomic families.

Darwin Harbour in the Northern Territory has a rich coastal waterbird assemblage, owing to its diverse range of habitats. The coastal region supports resident and nomadic Australian waterbirds, waterfowl, resident and migratory terns and gulls and various raptors that inhabit coastlines (McCrie & Watson 2003). A number of terns that breed in the northern hemisphere visit northern Australian coastlines during the austral summer where they feed over the ocean and along tide lines and then roost at beaches, rocky reefs, dykes and on floating buoys. The macro-tidal nature of tides in the Darwin region creates extensive mud and sand flats, available for foraging birds. Mangroves, salt pans and saltmarsh provide roosts during high tides.

Studies of waterbirds in the Top End have mainly focused on freshwater wetlands and floodplains in the Fogg Dam and Alligator River regions, east of Darwin (see Crawford 1979; Morton *et al.* 1993). The waterbirds in Darwin Harbour prefer coastal saline habitats, including fringing mangroves, brackish waste water ponds and dredge ponds nearby, and creeks and rivers. Extensive aerial and ground surveys along the Northern Territory coastline indicate that the region supports a variety of waterbirds (Chatto 2006).

During regular monitoring of migratory shorebirds I collected count data for all birds across eight study sites from August 2014 through to April 2015, which is when most migratory shorebirds and other water-associated migrant birds visit Australian shores. Birds were surveyed at each site most fortnights during spring tides, which were selected

to target when migratory shorebirds would be roosting. There were 184 surveys performed over the nine survey months. The sites were East Arm Wharf, Lee Point-Buffalo Creek, Ludmilla Bay, Spot On Marine boat yard, Nightcliff Rocks, East Point, Sandy Creek and East Arm Wharf Railway Mud, all within the Darwin region. This note summarises the results of all birds present at the study sites, excluding migratory shorebirds. Thirty-nine species of birds were recorded within the study period, including 5 species of heron and egret, 2 gull, 8 tern, 3 raptor, 8 resident shorebird, 8 waterbird and 5 waterfowl species. The maximum count for each species and the corresponding site and date are shown in Table 1.

Table 1. Results from waterbird monitoring in the Darwin region from August 2014–April 2015. Bird species are grouped and presented in taxonomic order following Christidis & Boles (2008).

Family and grouping	Common name	Scientific name	Max. count	Site of max. count	Site co-ordinates	Date of max. count
Waterfowl						
Anatidae	Wandering Whistling Duck	<i>Dendrocygna arcuata</i>	149	East Arm Wharf	12.5325°S, 131.0639°E	4 Jan 2015
Anatidae	Radjah Shelduck	<i>Tadorna radjah</i>	200	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	21 Nov 2014
Anatidae	Pacific Black Duck	<i>Anas superciliosa</i>	17	East Arm Wharf	12.5325°S, 131.0639°E	23 Dec 2014
Anatidae	Hardhead	<i>Aythya australis</i>	12	East Arm Wharf	12.5325°S, 131.0639°E	6 Apr 2015
Podicipedidae	Australasian Grebe	<i>Tachybaptus novaehollandiae</i>	12	East Arm Wharf	12.5325°S, 131.0639°E	20 Apr 2015
Waterbirds						
Anhingidae	Australasian Darter	<i>Anhinga novaehollandiae</i>	1	East Arm Wharf	12.5325°S, 131.0639°E	7 Sep 2014
Phalacrocoracidae	Little Pied Cormorant	<i>Microcarbo melanoleucos</i>	17	East Arm Wharf	12.5325°S, 131.0639°E	21 Jan 2015
Phalacrocoracidae	Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	5	East Arm Wharf Railway Mud	12.6819°S, 130.9800°E	7 Oct 2014
Phalacrocoracidae	Pied Cormorant	<i>Phalacrocorax varius</i>	3	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	21 Nov 2014
Pelecanidae	Australian Pelican	<i>Pelecanus conspicillatus</i>	44	East Arm Wharf	12.5325°S, 131.0639°E	4 Jan 2015
Ciconiidae	Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	2	East Arm Wharf	12.5325°S, 131.0639°E	23 Dec 2014
Egrets and Herons						
Ardeidae	Great Egret	<i>Ardea modesta</i>	11	East Arm Wharf Railway Mud	12.6819°S, 130.9800°E	7 Oct 2014
Ardeidae	Striated Heron	<i>Butorides striata</i>	5	East Arm Wharf Railway Mud	12.6819°S, 130.9800°E	7 Oct 2014
Ardeidae	Pied Heron	<i>Egretta picata</i>	1	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	18 Mar 2015
Ardeidae	Little Egret	<i>Egretta garzetta</i>	10	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	12 Aug 2014
Ardeidae	Eastern Reef Egret	<i>Egretta sacra</i>	12	East Arm Wharf Railway Mud	12.6819°S, 130.9800°E	7 Oct 2014
Waterbirds						
Threskiornithidae	Australian White Ibis	<i>Threskiornis molucca</i>	11	East Arm Wharf Railway Mud	12.6819°S, 130.9800°E	7 Oct 2014

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Family and grouping	Common name	Scientific name	Max. count	Site of max. count	Site co-ordinates	Date of max. count
Threskiornithidae	Royal Spoonbill	<i>Platalea regia</i>	13	East Arm Wharf	12.5325°S, 131.0639°E	22 Nov 2014
Birds of Prey						
Accipitridae	White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	4	East Arm Wharf	12.5325°S, 131.0639°E	23 Dec 2014
Accipitridae	Whistling Kite	<i>Haliastur sphenurus</i>	1	East Arm Wharf	12.5325°S, 131.0639°E	20 Apr 2015
Accipitridae	Brahminy Kite	<i>Haliastur indus</i>	2	East Arm Wharf	12.5325°S, 131.0639°E	23 Dec 2014
Resident shorebirds						
Burhinidae	Beach Stone-curlew	<i>Esacus magnirostris</i>	3	Sandy Creek	12.4944°S, 130.8906°E	23 Mar 2015
Haematopodidae	Australian Pied Oystercatcher	<i>Haematopus longirostris</i>	5	East Arm Wharf	12.5325°S, 131.0639°E	13 Aug 2014
Haematopodidae	Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	5	East Point	12.4117°S, 131.0592°E	4 Feb 2015
Recurvirostridae	Black-winged Stilt	<i>Himantopus himantopus</i>	74	East Arm Wharf	12.5325°S, 131.0639°E	20 Apr 2015
Charadriidae	Red-capped Plover	<i>Charadrius ruficapillus</i>	16	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	19 Dec 2014
Charadriidae	Red-kneed Dotterel	<i>Erythronyx cinctus</i>	2	East Arm Wharf	12.5325°S, 131.0639°E	20 Apr 2015
Charadriidae	Masked Lapwing	<i>Vanellus miles</i>	20	Spot On Marine	12.6411°S, 130.8864°E	8 Mar 2015
Glaucolidae	Australian Pratincole	<i>Stilia isabella</i>	2	East Arm Wharf	12.5325°S, 131.0639°E	20 Apr 2015
Terns and Gulls						
Laridae	Little Tern	<i>Sternula albifrons</i>	29	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	24 Mar 2015
Laridae	Gull-billed Tern (<i>macrotarsa</i>) ¹	<i>Gelochelidon nilotica macrotarsa</i>	234	East Arm Wharf	12.5325°S, 131.0639°E	7 Sep 2014
Laridae	Gull-billed Tern (<i>affinis</i>) ¹	<i>Gelochelidon nilotica affinis</i>	6	East Arm Wharf	12.5325°S, 131.0639°E	2 Nov 2014
Laridae	Caspian Tern	<i>Hydroprogne caspia</i>	6	Sandy Creek	12.4944°S, 130.8906°E	23 Mar 2015
Laridae	Whiskered Tern	<i>Chlidonias hybrida</i>	351	East Arm Wharf	12.5325°S, 131.0639°E	23/12/2014
Laridae	White-winged Black Tern	<i>Chlidonias leucopterus</i>	274	East Arm Wharf	12.5325°S, 131.0639°E	23/12/2014
Laridae	Common Tern	<i>Sterna hirundo</i>	1	East Point	12.4117°S, 131.0592°E	12/10/2014
Laridae	Lesser Crested Tern	<i>Thalasseus bengalensis</i>	35	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	23/11/2014
Laridae	Crested Tern	<i>Thalasseus bergii</i>	192	Nightcliff Rocks	12.5981°S, 130.9531°E	9/11/2014
Laridae	Franklin's Gull	<i>Lencophaeus pipixcan</i>	1	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	18 Mar 2015
Laridae	Silver Gull	<i>Chroicocephalus novaebollandiae</i>	480	Lee Point-Buffalo Creek	12.3453°S, 130.9825°E	18 Mar 2015

¹Two subspecies of Gull-billed Tern occur in northern Australia, *affinis* being a migrant that visits Australia during the summer season. These subspecies can be separated in the field using morphological features; see Lilleyman and Hensen (2014).

East Arm Wharf, an artificial site made up of dredge ponds, situated within Darwin Harbour, consistently supported the most species of all the sites. The site attracts a diverse range of species because the ponds represent a mixture of freshwater and

marine/saline habitats, with input from the harbour. The ponds are in open terrain with good visibility for birds to detect predators, and situated next to the coastline. The site is also protected from human disturbance as public access is restricted, and the site excludes feral terrestrial predators like dogs and cats through trapping and fencing. East Arm Wharf supported the most species (18) of water-associated bird compared to the other sites during the monitoring period. Sixteen species were recorded at the



Fig. 1. Franklin's Gull (right) and Silver Gull (left) in a dredge pond at East Arm Wharf in Darwin, 20 April 2015. (Amanda Lilleyman)

East Arm Wharf Railway Mud (adjacent to the dredge ponds at East Arm Wharf), but the assemblages between these two close sites varied. Twelve species of waterbird were recorded at Lee Point-Buffalo Creek during the monitoring period.

Across the sites, the month of November had the highest total count of birds, mostly weighted by terns, followed by March and then December, both weighted by gulls and terns. A vagrant gull, Franklin's Gull (*Leucophaeus pipixcan*) (Fig. 1), distinguished from the more common Silver Gull (*Choicephalus novaehollandiae*) by its black head markings or prominent hood and dark grey back and upperwings contrasting with white underparts, was recorded in March, initially at Buffalo Creek, and subsequently at Stokes Hill Wharf (Mark de Kretser, pers. comm. 18 April 2015), and lastly at East Arm Wharf (by AL). This species breeds in North America and spends the non-breeding season in South America (*Handbook of the Birds of the World Alive* 2015). This is the 19th record for Australia and the second time the species has been recorded in the Northern Territory (BirdLife Australia 2015). The first arrival and last departure records for migratory terns and one vagrant gull are shown in Table 2.

Crawford (1980) reported mean counts for Whiskered Terns (*Chlidonias hybrida*) with peaks in September at Fogg Dam and in Darwin (100 and 50 individuals, respectively) and Lesser Crested Terns (*Thalasseus bengalensis*) (40 individuals) along the coastline of Darwin, but noted in January for the highest mean counts of Crested Terns (*Thalasseus bergii*) (100 individuals). The maximum count of Crested Terns from the current study was 192 individuals in November from Nightcliff, which was a site not surveyed in the Crawford (1980) paper. The maximum count of Whiskered Terns from the current study is certainly an increase from the mean counts recorded by (Crawford 1980).

Outside the monitoring period, in June, July and August there were up to 10 Red-necked Avocets (*Recurvirostra novaehollandiae*) using the freshwater dredge ponds at East Arm Wharf. Records from eBird and a local online forum (NT Birds Yahoo group) show this species is recorded in the Top End every year or so, but mostly further south and east of Darwin city (i.e. South Alligator River, Mamukala, Shark Billabong, Adelaide River). This record at East Arm Wharf is the first record close to Darwin since 20 August 2013, when the species was recorded at Leanyer Sewage Treatment Ponds. Resident shorebirds were recorded nesting and raising young at East Arm Wharf, including Black-winged Stilts (*Himantopus himantopus*), with a maximum count of 74 individuals in April, after the nesting period. Red-capped Plovers (*Charadrius ruficapillus*), Masked Lapwings (*Vanellus*

Table 2. First arrival and last departure records for migratory terns and one vagrant gull. Bird species are presented by their first arrival month.

Species	First arrival	Last departure
Gull-billed Tern (<i>affinis</i>)	early October	February
Common Tern	mid-October	March
White-winged Black Tern	late October	late April
Little Tern	late December	early April
Franklin's Gull	March	April



Fig. 2. Red-necked Avocets in a dredge pond at East Arm Wharf in Darwin, 19 July 2015. (Amanda Lilleyman)

miles) and Pied Oystercatchers (*Haematopus longirostris*) were also recorded breeding along the muddy edge of one of the dredge ponds. Red-capped Plover also regularly breeds along the sandy beach at Lee Point.

Other localities around Darwin provide quality habitat for waterbirds, shorebirds and other water-associated birds, including Holmes Jungle, Knuckey Lagoon, McMinns Lagoon, Leanyer and Palmerston Sewage Treatment Ponds. These sites were not surveyed in the study period as they were not included in the migratory shorebird monitoring program; however, future monitoring of these sites would improve our knowledge of birds in the region.

The Darwin region coastline and associated freshwater ponds support a diverse range of water-associated bird species and high abundances throughout the austral summer season. Of the sites surveyed for this study, East Arm Wharf is the most important site (based on species diversity and number of individuals recorded) for a range of waterbirds, terns and gulls, waterfowl and breeding resident shorebirds.

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