A Literature Review of Coastal-Dwelling Birds on the East

Cape, New Zealand

Morgan Coleman

Landcare Research PO Box 40, Lincoln 7640 New Zealand

Landcare Research Contract Report: LC0910/068

PREPARED FOR:

Gisborne District Council 15 Fitzherbert Street Gisborne New Zealand

DATE: 20 January 2010



Reviewed by:

Approved for release by:

Phil Lyver Programme Leader Landcare Research Rob Allen Science Team Leader Ecosystem Processes

© Landcare Research New Zealand Ltd 2009

This information may be copied and distributed to others without limitation, provided Landcare Research and the source of the information is acknowledged. Under no circumstances may a charge be made for this information without the express permission of Landcare Research New Zealand Limited.

Contents

1.	Introduction	5	
2.	Methods	5	
3.	Coastal-Dwelling Birds in Gisborne Distr	ict7	
4.	Resident Bird Species		
	Black-winged petrel	Pterodroma nigripennis	9
	Cook's petrel	Pterodroma cookii	9
	Grey-faced petrel	Pterodroma macroptera	10
	Northern diving petrel	Pelecanoides urinatrix urinatrix	11
	Buller's shearwater	Puffinus bulleri	11
	Fluttering shearwater	Puffinus gavia	12
	Sooty shearwater	Puffinus griseus	13
	Australasian gannet	Morus serrator	14
	Black-billed gull	Larus bulleri	15
	Red-billed gull	Larus scopulinus	15
	Southern black-backed gull	Larus dominicanus	16
	Caspian tern	Sterna caspia	17
	White-fronted tern	Sterna striata	17
	Black shag	Phalacrocorax carbo novaehollandiae	18
	Little black shag	Phalacrocorax sulcirostris	18
	Little shag	Phalacrocorax melanoleucos	18
	Pied shag	Phalacrocorax varius	19
	Spotted shag	Strictocarbo punctatus	19
	Pied stilt	Himantopus himantopus leucophalus	20
	New Zealand pipit	Anthus novaeseelandiae novaeseelandiae	20
	Northern blue penguin	Eudyptula minor iredalei	21
	Variable oystercatcher		22
	Pied oystercatcher	Haematopus finschi	22
	Spur-winged plover	Vanellus miles novaehollandiae	23
	Wrybill	Anarhynchus frontalis	23
	Northern banded dotterel	Charadrius bicinctus bicinctus	24
	Northern New Zealand dotterel	Charadrius obscurus aquilonius	24
	Reef heron	Egretta sacra	25
	White-faced heron	Ardea novaehollandiae	25
	White heron	Ardea modesta	26
	Australasian bittern	Botaurus poiciloptilus	26
	Royal spoonbill	Platalea regia	26

	Marsh crake	Porzana pusilla affinis	27
	Welcome swallow	Hirundo tahitica neoxena	27
	Pukeko	Porphyrio porphyrio melanotus	27
	Grey teal	Anas gracilis	28
	New Zealand shoveler	Anas rhynchotis variegata	28
	Kingfisher	Halcyon sancta	28
5.	Migrant Bird Species		29
	Eastern little tern	Sterna albifrons sinensis	29
	Cattle egret	Bubulcus ibis coromandus	29
	Pacific golden plover	Pluvialis fulva	29
	Turnstone	Arenaria interpres	29
	Lesser knot	Calidris canutus rogersi	30
	Eastern bar-tailed godwit	Limosa lapponica baueri	30
6.	Recommendations		32
7.	Acknowledgements		32
8.	References		32

1. Introduction

The Gisborne District Council sought advice on what potential impacts coastal land use and development may have on coastal-dwelling birds in the area. A literature search was conducted by Landcare Research to determine the importance of particular feeding and breeding locations and migration routes of coastal-dwelling birds in the area to assist with council decision-making related to coastal development. In the majority of cases potential threats to the species were identified. The work was funded by a small-advice Envirolink grant from the Foundation for Research, Science and Technology and carried out in December 2009.

2. Methods

A catalogue of naturally occurring birds that utilise coastal waters, intertidal areas and estuaries managed by the council was compiled (Table 1). With one exception, this list only included species recorded as part of official Ornithological Society of New Zealand (OSNZ) field surveys, as published in *The Atlas of Bird Distribution in New Zealand* (Robertson et al. 2007). Wide-ranging pelagic species, such as members of the albatross family for example, may range throughout the oceans surrounding New Zealand; however, they were not observed in the area surveyed by OSNZ members, and so are not listed.

Coastal-dwelling birds on the list were divided into pelagic species (free-ranging petrels and shearwaters that feed entirely at sea), mainly coastal species such as gulls and shags, which occupy a mostly coastal or inland niche, and migrant species that visit the New Zealand coastline during the summer but do not breed there. While a number of species on the list may not occupy a truly marine niche, the coastal environment represents an important part of their habitat, and warrants their consideration, albeit briefly.

The conservation status of the listed species was determined. Less common endemic species such as banded dotterels clearly require more consideration in coastal development plans than abundant native birds such as black-backed gulls. Several classification systems exist for describing the risk of extinction for New Zealand species. These include, but are not limited to, the IUCN (International Union for Conservation of Nature) ranking system, and that of the OSNZ. Miskelly et al. (2008) conducted the most recent comprehensive assessment of the threat status of New Zealand birds during the period January–June 2008, and this classification system was chosen to describe the abundance of bird species in the area of concern to the Gisborne District Council.

Various literature sources were used to build up a profile of species previously identified as using the Gisborne to East Cape coastal area. For some species, confirmed breeding records were mapped. The maps are likely far from complete, but provide some information on respective species distribution. While quality foraging areas are obviously very important, breeding birds are often highly susceptible to human disturbance events. Eggs and young chicks are totally reliant on parent birds for survival. However, inquisitive people, uncontrolled dogs, and the inconsiderate use of 4WD vehicles and motorbikes around ground-nesting birds, in particular, threaten the survival of breeding colonies.

Many sea bird species around the world are in decline, often through reduction in available breeding grounds through urban expansion and coastal development, and New Zealand is no different. A significant number of birds that utilise the coast breed in areas that may be highly desirable for coastal development. Likewise, mounting pressure from commercial developers and industry to reclaim tidal mudflats clearly reduces the availability of quality foraging areas for coastal species. Indirectly, runoff from private dwellings and industry can degrade feeding grounds and ultimately affect the suitability of such habitat for native birds.

3. Coastal-Dwelling Birds in Gisborne District

Table 1 Birds known to occur along the Gisborne – East Cape coastline

Common name	Scientific name	Status	Conservation status (Miskelly et al. 2008)	Distribution
Black-winged petrel	Pterodroma nigripennis	Native	Not Threatened	Pelagic
Cooks petrel	Pterodroma cookii	Endemic	At Risk, Relict	Pelagic
Grey-faced petrel	Pterodroma macroptera	Native	Not threatened	Pelagic
Northern diving petrel	Pelecanoides urinatrix urinatrix	Native	At Risk, Relict	Pelagic
Bullers shearwater	Puffinus bulleri	Endemic	At Risk, Naturally Uncommon	Pelagic
Fluttering shearwater	Puffinus gavia	Endemic	At Risk, Relict	Pelagic
Sooty shearwater	Puffinus griseus	Native	At Risk, Declining	Pelagic
Australasian gannet	Morus serrator	Native	Not Threatened	Pelagic
Black-billed gull	Larus bulleri	Endemic	Threatened, Nationally Endangered	Coastal & Inland
Red-billed gull	Larus scopulinus	Endemic	Threatened, Nationally Vulnerable	Coastal
Southern black-backed gull	Larus dominicanus dominicanus	Native	Not Threatened	Coastal & Inland
Caspian tern	Sterna caspia	Native	Threatened, Nationally Vulnerable	Coastal & Inland
Eastern little tern	Sterna albifrons sinensis	Migrant	Migrant	Coastal
White-fronted tern	Sterna striata	Native	At Risk, Declining	Coastal
Black shag	Phalacrocorax carbo novaehollandiae	Native	At Risk, Naturally Uncommon	Coastal & Inland
Little black shag	Phalacrocorax sulcirostris	Native	At Risk, Naturally Uncommon	Coastal & Inland
Little shag	Phalacrocorax melanoleucos	Native	At Risk, Naturally Uncommon	Coastal & Inland
Pied shag	Phalacrocorax varius	Native	Threatened, Nationally Vulnerable	Coastal & Inland
Spotted shag	Stictocarbo punctatus	Endemic	Not Threatened	Coastal
Pied stilt	Himantopus himantopus leucophalus	Native	At Risk, Declining	Coastal & Inland
New Zealand pipit	Anthus novaeseelandiae novaeseelandiae	Native	At Risk, Declining	Coastal & Inland

Common name	Scientific name	Status	Conservation status (Miskelly et al. 2008)	Distribution
Northern blue penguin	Eudyptula minor iredalei	Native	At Risk, Declining	Coastal
Pied oystercatcher	Haematopus finschi	Endemic	At Risk, Declining	Coastal & Inland
Variable oystercatcher	Haematopus unicolor	Endemic	At Risk, Recovering	Coastal
Spur-winged plover	Vanellus miles novaehollandiae	Native	Not Threatened	Coastal & Inland
Wrybill	Anarrhychus frontalis	Endemic	Threatened, Nationally Vulnerable	Coastal & Inland
Northern banded dotterel	Charadrius bicinctus bicinctus	Endemic	Threatened, Nationally Vulnerable	Coastal
Northern New Zealand dotterel	Charadrius obscurus aquilonius	Endemic	Threatened, Nationally Vulnerable	Coastal
Reef heron	Egretta sacra	Native	Threatened, Nationally Vulnerable	Coastal
White-faced heron	Ardea novaehollandiae	Native	Not Threatened	Coastal & Inland
White heron	Ardea modesta	Native	Threatened, Nationally Critical	Coastal & Inland
Australasian bittern	Botaurus poiciloptilus	Native	Nationally Endangered	Coastal & Inland
Royal spoonbill	Platalea regia	Native	Naturally Uncommon	Coastal & Inland
Marsh crake	Porzana pusilla affinis	Native	At Risk, Relict	Coastal & Inland
Welcome swallow	Hirundo tahitica neoxena	Native	Not Threatened	Coastal & Inland
Pukeko	Porphyrio porphyrio melanotus	Native	Not Threatened	Coastal & Inland
Grey teal	Anas gracilis	Native	Not Threatened	Coastal & Inland
New Zealand shoveler	Anas rhynchotis variegata	Endemic	Not Threatened	Coastal & Inland
Kingfisher	Halcyon sancta	Native	Not Threatened	Coastal & Inland
Cattle egret	Bubulcus ibis coromandus	Migrant	Migrant	Coastal & Inland
Pacific golden plover	Pluvialis fulva	Migrant	Migrant	Coastal
Turnstone	Arenaria interpres	Migrant	Migrant	Coastal
Lesser knot	Calidris canutus rogersi	Migrant	Migrant	Coastal
Eastern bar-tailed godwit	Limosa lapponica baueri	Migrant	Migrant	Coastal

4. Resident Bird Species

Black-winged petrel



Pterodroma nigripennis

This petrel breeds around the South Pacific and on a number of New Zealand islands. The species is expanding its range, but other than a recently established breeding colony on East Island, blackwinged petrels are infrequently observed around the Gisborne coastline. In summer, birds roam the south-west Pacific and Tasman Sea, migrating north to warmer waters during winter, before returning to New Zealand in October. Black-winged petrels do not thrive in the presence of introduced predators or human activity. Very large colonies on Raoul and Norfolk islands were wiped out by feral cats and rats. However, on pest-free refuges, the species is thriving.

Black-winged petrel breeding locations

Cook's petrel

Pterodroma cookii

A trans-equatorial pelagic species with just one major breeding colony, on Little Barrier Island, where a 1985 census estimated there were about 50,000 breeding pairs. The only confirmed observations of non-breeding birds on the Gisborne coastline come from near Tolaga Bay.

Cook's petrel once bred on both North and South islands. Weka predation in the middle of last century all but wiped out a colony on Whenua Hou. While numbers are now increasing both there and on Little Barrier Island following removal of feral cats and weka, Pacific rats may be slowing any population recovery. Human disturbance at breeding sites is also likely to be detrimental. The small colony on Great Barrier Island was noted in 1990 as heading towards extinction. Little is known about the population dynamics of Cook's petrel, especially in regard to the survival rates of chicks and adults, age at which the birds first breed, and age at which birds first return to the colony.

Pterodroma macroptera

This endemic petrel breeds on coastal headlands and islands around the northern half of the North Island, favouring steep vegetated slopes or coastal cliff edges. Apart from established

Grey-faced petrel

North Island, favouring steep vegetated slopes or coastal cliff edges. Apart from established breeding colonies on East Island and Waimahuru Bay, near Te Puia springs, grey-faced petrels are not common on the Gisborne coast. Current estimates suggest a New Zealand population of approximately 250,000 breeding pairs. Recent studies using back-mounted GPS



tracking equipment have shown that after the winter breeding season, birds disperse to rich breeding grounds as far west as Australia, and to the north-east as far as New Caledonia. They forage at sea, mainly on squid, fish and crustaceans.



Introduced mammal pests represent the most significant threat to grey-faced petrels. Grey-faced petrels rarely occur on islands where feral cats, mustelids or Norway rats are present. Feral pigs may dig up burrows and kill adults and chicks, while goats may potentially trample burrows. It was quite apparent on Moutohora Island that very few chicks survived to fledge until Norway rats were removed in 1987. Chicks are still legally harvested by local Māori from some areas. Burrows may be crushed by people moving around among dense colonies where the soil is often very friable.

Grey-faced petrel breeding locations

Northern diving petrel

This northern subspecies of diving petrel breeds on islands and small rocky outcrops around the North Island. The only confirmed observations of the species on the Gisborne coastline are from near Tolaga Bay.

Little is known about the distances that birds range to feed, but it is thought that most individuals remain close to their breeding grounds, and do not venture into deep water.

Pelecanoides urinatrix urinatrix



Estimates over the past 20 years suggest a stable population of 100,000–150,000 breeding pairs. Northern diving petrels are very vulnerable to introduced pests. They do not occur on islands where feral cats, mustelids, ship rats and Norway rats exist. Human disturbance around breeding sites can have serious consequences, as the burrows in which eggs are laid are short and easily damaged. Fire may also result in loss of chicks and eggs. This petrel is susceptible to occasional population-crash episodes, possibly due to starvation resulting from changes in sea temperature and ocean currents affecting food resources, or possibly from biotoxins released from algal blooms.

Buller's shearwater

Puffinus bulleri

Another trans-equatorial pelagic species, Buller's shearwater only breeds on the Poor Knights Islands. By 1936, the population on Aorangi, the southernmost of the two main islands making up the Poor Knights, had been dramatically reduced to about 100 pairs by feral pigs. Following removal of the pigs, which were absent on neighbouring Tawhiti Rahi, shearwater numbers increased rapidly, such that the census carried out in 1981 gave an estimate of about 2.5 million birds, with approximately 200,000 breeding pairs on Aorangi Island. Little is known about the population dynamics of this species. Non-breeding birds are common on East Island, and may also be found near Tolaga Bay, where they are susceptible to human disturbance.

Puffinus gavia

Fluttering shearwater

Once common on the North Island coastline, this endemic shearwater now breeds only on islands off the east coast of the North Island, north of about Gisborne. Established breeding colonies exist on East Island, and further south on Motuahiauru, Moturipa and Motuheka islands (Wragg 1985), while non-breeding populations are usually present scattered along the Gisborne coastline. Fluttering shearwater



Fluttering shearwater mainly forage over inshore waters and estuaries, targeting small fish and krill. Some birds migrate to Australia in winter, but most remain around the New Zealand coast, where at

do not breed in the presence of introduced mammal pests (with the exception of the Pacific rat on some islands). Fire and damage from people walking on the friable soil in which burrows are constructed may reduce breeding success.

least 100,000 birds reside.



Fluttering shearwater breeding locations

Sooty shearwater



Sooty shearwater breeding locations

Puffinus griseus

One of the most widely distributed seabirds, sooty shearwater can be found in most major oceans. On the Gisborne coast, sooty shearwaters are most common around East Cape, with lesser numbers near Tolaga Bay. They breed on selected offshore islands, including East Island, and at a couple of mainland sites in the South Island. The number of breeding pairs resident in New Zealand is likely to be approximately 5 million, or 15–30 million birds.

Prior to European settlement, large mainland nesting colonies were common. Introduced pests are the primary risk for sooty shearwater breeding colonies. In addition to direct predation on eggs and chicks by rats, feral cats and mustelids, rabbits may compete for burrow space, while livestock and human activity damage burrows on some islands. Weka take both eggs and chicks, and fire has resulted in losses during breeding. Finally, some chicks are legally commercially harvested by Rakiura Māori.

Morus serrator

Australasian gannet

Australasian gannets are common around the New Zealand coastline, including the east coast of the North Island, and on many offshore islands. On the Gisborne coast, a breeding colony is present on Moutara Rock in Tolaga Bay. They are a true marine bird, feeding mainly on small fish and squid. An estimated 46,000 resident breeding pairs were thought to be present in New Zealand in 1980– 81. It was once thought that



gannets breed for life, but recent research from the Cape Kidnappers colony has demonstrated that this is often not the case. Most juvenile gannets migrate to Australia, where they remain until old enough to breed (about 5 years of age).



Australasian gannet breeding locations

Disturbance by people and dogs represents the biggest threat to mainland breeding colonies, as birds nest on the ground, building their nest with seaweed. Gannets have become quite tolerant of humans, as witnessed by significant numbers of tourists visiting well-known colonies such as Cape Kidnappers, as long as people do not move about within the colony. When they do, birds may flee en masse, often crushing eggs and knocking small chicks out of their nests. Rodents seemingly have no impact on gannet breeding success, while any impacts of feral cats and mustelids are poorly understood. The species appears to be increasing in number quite rapidly, possibly aided by the active protection of breeding colonies. However, gannets are another seabird subject to occasional large population crashes, possibly due to the die-off of pilchards and other fish prey.

Black-billed gull

Larus bulleri

This endemic gull breeds predominantly on South Island braided riverbeds, with lesser numbers utilising sand spits, lake margins and river flats in the North Island. After breeding, most birds gather in shallow estuarine environments. The species may have previously benefited from European settlement utilising arable land in close proximity to favoured South Island riverbed breeding sites. However, while a 1984 census put the number of breeding pairs at 100,000 to 1 million, more recent estimates by OSNZ suggest less than 50,000 pairs remain. While there has been some expansion in the range of black-billed gulls in the North Island (they are frequently observed along the east coast of the North Island), the main South Island populations are rapidly declining, and a number of rivers that previously were important breeding sites are no longer used.

While introduced predators, and to a lesser extent Australasian harrier hawks, are significant threats to eggs and chicks, human disturbance of nesting colonies may be having an impact. Key potential breeding sites are put at risk when riverbeds are modified through removal of water for farm irrigation, gravel extraction for roading, hydroelectric development, and the straightening of channels and building of stop banks to protect adjacent farms. People using riverbeds and coastal areas for recreation – in 4WD driving and uncontrolled dogs – are also a threat to breeding success. Additionally, the spread of weed species such as Russell lupin, hastened by public access, may severely limit the availability of breeding sites.

Red-billed gull

Red-billed gulls may nest alongside, but rarely hybridise with their more threatened black-billed cousin. However, red-billed gulls are essentially a coastal bird, and are found inland less frequently. They are common throughout New Zealand in harbours, estuaries, open coastlines and freshly ploughed farmland and sports fields. They may form large breeding colonies on coastal mainland sites and offshore

Larus scopulinus



islands around New Zealand, including the East Cape region, and favour sand spits, gravel beaches, rocky headlands and boulder banks.

Red-billed gull populations have benefited from European settlement, through the abundance of winter feed derived from fish processing plants, fishing boats, rubbish tips and meat works. Despite this, however, this gull may currently be on the decline. A 1984 population census that estimated 100,000 to 1 million breeding pairs of red-billed gulls appears too high. The species tends to be tolerant of human presence, and flocks to public areas such as parks and rubbish tips to obtain food scraps. This habit creates the illusion that the species is abundant when in actual fact this is not the case. Mustelids, rats, feral cats and possibly hedgehogs reduce breeding success, while blackbacked gulls commonly take chicks from nests. The increasing public use of coastal areas for recreation, especially 4WD driving, and uncontrolled dogs are also detrimental. Some birds are also killed by recreational fishing activities, through swallowing hooks or becoming entangled in fishing lines.

Southern black-backed gull

Larus dominicanus

This commonly observed gull breeds throughout the New Zealand mainland and on various offshore islands. There are thought to be at least one million resident breeding pairs. Such gulls generally form large colonies, often several thousand strong, on coastal dunes, sand bars, gravel beaches, rocky outcrops, boulder banks and riverbeds. They may also nest solitarily along the coast in buildings, and in the mountains



up to 1500 m a.s.l. Black-backed gulls forage in a variety of habitats, from estuaries, harbours and open coastlines (often following fishing boats out to sea) to freshwater locales such as freshly ploughed paddocks and damp pasture, rubbish tips and city parks. They eat offal, carrion, invertebrates, fish, eggs, shellfish, lizards, frogs, small mammals and birds, and even some plant matter.



Black-backed gulls are the largest gull in New Zealand. They have previously benefited from human settlement for the same reasons as red-billed gulls, namely, a ready supply of food scraps from various meat and fish processing plants, fishing boats and sewage outlets. However, as factories become more efficient, and improved waste management practices are implemented, less waste is now available for opportunistic gulls, and their numbers are declining in some locations.

Black-backed gulls are the only unprotected native bird in New Zealand. Many colonies may be controlled where birds are known to have an adverse effect on other native species, or due to the risk of bird strikes near airports. Introduced pests such as feral cats, mustelids (particularly ferrets and stoats), Norway rats, and even hedgehogs consume eggs and chicks. Uncontrolled dogs and human disturbance, especially through use of motorbikes and 4WD vehicles result in breeding failure.

Breeding location for ALL recorded gull species

Caspian tern

Sterna caspia

Caspian terns breed in large colonies of up to 100 birds on coastal sand spits, shingle banks and some offshore islands, and occasionally inland on riverbeds and lake edges. Nests consist of shallow unlined scrapes on the ground, and both males and females incubate the eggs. While often recorded on beaches north of Gisborne, they do not appear to breed in the area. Birds generally feed alone, on a diet predominantly of small surface swimming fish.

There are thought to be approximately 50,000 pairs of the species worldwide, but in New Zealand the most recent census in 1992 gave an estimate of 1000 pairs. They may in fact be a relatively recent colonist to New Zealand from Australia, as the species was very scarce up until the 1930s, but became increasingly common over the next 50 years. Since the 1970s, however, populations in New Zealand appear to have declined, largely due to increased public activity around a number of significant breeding colonies, dune stabilisation programmes and coastal forestry plantings. Caspian terns do not tolerate nest disturbance, particularly at an early stage. Southern black-backed gulls and introduced predators also have significant impacts on breeding colonies.

White-fronted tern

Sterna striata

White-fronted terns are common around the entire New Zealand coastline, breeding on offshore islands and at various mainland locations, including East Cape. Some colonies may be several thousand strong, though most consist of 50–200 pairs. However, the 1984 census that indicated 100,000 to1 million breeding pairs may have been a considerable overestimate, or the species has suffered a major decline since. The results of an OSNZ survey conducted between 1995 and 1997 suggest a breeding population of 12,000–15,000 pairs.



Mainland breeding sites include braided riverbeds, sand spits, beaches and rocky headlands. Unlike many species, such as gannets, which return to the same colony year after year to breed, white-fronted tern breeding colonies are very temporary. Birds typically establish new, tightly packed breeding colonies each season. This trait needs to be addressed when coastal development plans are being formulated.

Breeding colonies are threatened to a large extent by the same factors that impact on other groundnesting birds, namely introduced predators and human disturbance, especially 4WD vehicles and motorbikes disturbing dune-nesting birds. Whitefronted terns readily desert their nest if disturbed at an early stage.

White-fronted tern breeding locations

Phalacrocorax carbo novaehollandiae

Black shags breed widely across both the North and South islands, and are known to breed at East Cape. Birds occupy a variety of habitats from coastal waters to inland freshwater lakes. The most reliable estimate suggests 5,000–10,000 pairs presently occur in New Zealand. In the past, many were shot by fishermen who suspected, incorrectly, that the birds ate large numbers of trout. In fact, they eat mostly small native fish and invertebrates, and are generally solitary feeders.

Black shags also nest above ground in trees or scrub, often overhanging water or cliff edges, so nests are safe from most introduced predators, although the impacts of mustelids, rats and possums is less certain. They are sensitive to disturbance from people, and will not hesitate to desert the nest if approached closely, often to return a short time later. Young birds may disperse widely, and have been known to cross the Tasman Sea.

Little black shag

Phalacrocorax sulcirostris

The only New Zealand breeding populations of this shag exist in the North Island, where about 2,000–4,000 birds exist, mostly breeding around the central North Island lakes. Birds feed mainly on small fish and invertebrates around lakes and rivers, but they also frequent shallow coastal estuaries and bays. Small numbers of birds are scattered around the Gisborne coastline. They typically nest in large colonies, often in association with other shags, and often in very inaccessible sites, such as in trees overhanging fresh water, or on islands in lakes. They are sensitive to disturbance from people, and will not hesitate to desert the nest if approached closely, often to return a short time later. Young birds may disperse widely in the autumn.

Little shag

Phalacrocorax melanoleucos

Little shags breed only in New Zealand, and total less than 10,000 birds. They feed mainly on small fish and invertebrates around lakes and rivers, but also frequent shallow coastal estuaries and bays, and are found throughout the Gisborne area. They typically nest in large colonies, often in association with other shags, and often in very inaccessible sites, such as in trees overhanging fresh water, or on islands in lakes. They are sensitive to disturbance from people, and will not hesitate to desert the nest if approached closely, often to return a short time later.

Black shag

Pied shag

Pied shags breed on offshore islands and at various mainland locations around the New Zealand coastline. In the North Island, they are most common north of Mahia Peninsula. There are also a small number of breeding colonies located around freshwater lakes a short distance from the coast. The 1984 census indicated a declining nationwide population of 5,000–10,000 pairs.

Pied shags typically nest in tall trees, so unlike other vulnerable seabird species that nest on the ground, feral cats, dogs and pigs probably pose no risk to their breeding success. The impacts of mustelids, rats, and possums are less certain. The species' nesting behaviour means that, while birds may be sensitive to disturbance, their nests are usually protected from human disturbance. However, the felling of mature tall trees along cliff edges reduces potential pied shag nesting habitat.



Spotted shag

Strictocarbo punctatus

Spotted shags breed only in New Zealand, and are most common in the South Island, where most of the estimated 30,000 breeding pairs exist. They feed on small fish and invertebrates primarily at sea, and are found very infrequently in estuarine or freshwater habitats. Spotted shags build nests in colonies on coastal cliff edges and rocky outcrops, where they are protected from most predators and human interference. On the Gisborne coastline, the only recorded populations are to be found around East Cape. Spotted shags do not usually nest alongside other shags.

Breeding locations for ALL recorded shag species

20

Pied stilt

Himantopus himantopus leucophalus

This subspecies probably only arrived in the early 1800s, but now breeds in considerable numbers around New Zealand, including at several coastal sites north of Gisborne. It has likely benefited from the development of lowland swamp forest into wet farmland. Pied stilts are usually found close to water, both in marine environments (estuaries, sandy beaches and mudflats) and freshwater lakes and swamps, where they feed on various invertebrates. They appear to tolerate low-level human disturbance.

Pied stilt breeding locations

New Zealand pipit

Anthus novaeseelandiae novaeseelandiae

One of four subspecies of New Zealand pipit, A. novaeseelandiae is locally common throughout much of New Zealand, including the Gisborne District, and on some islands. It prefers rough open areas, such as tussock country and sandy beaches and dunes. Pipits may have benefited from forest clearance and the creation of large open areas. However, with the increasing use of pesticides and introduction of magpies and mammalian predators, pipits have disappeared from some sites where they were previously common.

Eudyptula minor iredalei

Northern blue penguin

This subspecies of blue penguin is found around the New Zealand coastline north of about Mahia Peninsula. On the Gisborne coast, the species is only found in the East Cape region. They feed primarily in shallow coastal waters on small fish, but may range further offshore. Blue penguins still breed commonly on the mainland coast, and on many islands. They tend to nest in rocky cavities or under driftwood in small colonies near

the shore, but many birds travel several hundred metres inland to do so.

Northern blue penguin breeding locations

A 1984 population estimate suggested there were 5,000–10,000 birds. Blue penguin populations often crash for reasons that are not always clear, but may be related to periods of bad weather and/or starvation, when many dead birds may wash up on the beach. This must be a concern considering the relatively small estimated total population. In addition, introduced pests, such as mustelids, and cats, rats and dogs in areas close to towns are the major threat to mainland breeding populations. Possums and rabbits may compete for burrows and feral pigs make dig up burrows and kill penguins on the nest. Out at sea, blue penguins are regularly found tangled in inshore set nets.

Haematopus unicolor

Variable oystercatcher

This species is found at coastal locations around the New Zealand mainland, and on offshore islands, where it feeds mainly on molluscs, worms, crabs and other invertebrates. Large populations exist on many sandy beaches on the east coast, north of about Mahia Peninsula, and birds have been recorded breeding just north of Gisborne. There are three different colour morphs of variable oystercatcher: black, pied and intermediate.

A recent census gave an estimate of about 4,000 birds, including 250 on the Gisborne coast. In the early part of last century the species was in serious decline due to hunting. However, since official protection was afforded it in 1940, and breeding colonies have been actively protected from introduced predators and human disturbance, numbers have recovered significantly. The total population has more than doubled since 1970.

Pied oystercatcher

Haematopus finschi

Found around the world, in New Zealand the pied oystercatcher breeds predominantly on South Island braided riverbeds, farmland, lake margins and subalpine wetland areas generally east of the Main Divide. Notably, a small number of birds have bred on the Ngaruroro River, Hawke's Bay. Both parents, which pair for life, incubate the eggs. After breeding, from December to early March, birds flock to sandy beaches and estuaries on the North and South islands, where they feed primarily on molluscs, worms and insect larvae. They have been observed overwintering in Poverty Bay, but elsewhere are scarce in the Gisborne District.

Pied oystercatchers number about 85,000 birds. While most breeding pairs return to South Island breeding grounds in July and August, approximately 15,000 (18% of the total population), mostly young non-breeding birds, remain behind on overwintering coastal sites. Most birds do not start breeding until 4 or 5 years of age.

During the latter part of the 19th century, the species was in decline due to hunting. However, since becoming officially protected in 1940, and with the conversion of rough tussock country into pasture, pied oystercatcher populations have increased very quickly.

Spur-winged plover

A recent arrival to New Zealand from Australia, this spur-winged plover subspecies bred for the first time in New Zealand in 1932 at Invercargill Airport. They are now abundant in large areas of open land countrywide, and continue to increase their range. They may in fact provide direct benefits for farmers by eating large numbers of pest invertebrates such as grass grubs and porina larvae. Spur-winged plovers are also common in the tidal zone around parts of the coastline, where they feed primarily on molluscs and crustacean. They nest on open ground, and can be quite aggressive in defence of their nest, including against human interference.

Wrybill

Anarhynchus frontalis

This endemic plover breeds on inland eastern South Island river beds, usually selecting gravel banks near water, and often produces two clutches in a breeding season. After breeding has finished, in December or January, most birds flock to estuaries and tidal harbours in the North Island where they forage for invertebrates and small crustaceans. Small flocks have been observed during the winter at Muriwai Lagoon, south of Gisborne, but are seldom seen elsewhere in the region. By August, birds begin returning to their south island breeding grounds, however 5–10 % remain in the north over winter.

The population was estimated to be 4,100–4,200 in 2001. However, wrybill numbers are thought to be declining. Chicks and eggs on the ground are vulnerable to introduced pests, while the rivers where birds breed are subject to water removal for farm irrigation and hydroelectricity schemes. Additionally, birds prefer gravel banks devoid of any vegetation to scrape out their nests. Prominent weeds such as Russell lupin, gorse and willow are reducing the amount of quality breeding grounds.

Northern banded dotterel

Northern banded dotterel are patchily distributed throughout mainland New Zealand, including the Gisborne coastal region, and various islands. They nest around sandy coastlines and stream mouths much like New Zealand dotterel, but are more concentrated on riverbeds in the South Island, and parts of the North Island. In the North Island, most birds begin arriving at breeding sites in July, and have recently been recorded breeding on the coast in Poverty Bay. While banded dotterels may form small overwintering flocks, they are solitary nesters. Nests consist

Charadrius bicinctus bicinctus

of a basic scrape in the ground, made by the male, and sometimes lined with vegetation.

Published population estimates suggest a population of about 50,000 birds. Eggs and chicks are at risk from introduced predators, though the nests are very well camouflaged. Additionally, hydroelectric development and irrigation schemes can result in loss of prime breeding habitat.

Northern New Zealand dotterel Charadrius obscurus aquilonius

The northern subspecies of New Zealand dotterel is found only on the North Island, and some offshore islands. It is most common north of the Bay of Plenty, though New Zealand dotterel can occur scattered around the Gisborne coastline. Observations of breeding birds have recently been recorded in Poverty Bay. Birds feed mostly on invertebrates gathered from estuarine and sandy beach locations. Today, possibly just 1,350 birds survive, where they nest mainly on beaches, at stream mouths and among sand dunes.

Most breeding populations require active protection from introduced predators and human disturbance; however, their habitat continues to shrink due to demand for housing, the planting of coastal pine forests, and planting for dune stabilisation. Blackbacked gulls also take chicks and eggs.

Breeding locations for BOTH recorded dotterel species

Reef heron

Egretta sacra

This bird has a white form (seen just once in New Zealand) and a dark phase, which occurs in moderate numbers around selected rocky shorelines, estuaries and tidal creeks. The species occurs sporadically from Gisborne to East Cape. It nests among rocks, small caves and plants clinging to cliffs, and feeds mainly on small fish and crustaceans in nearby rock pools. A species nervous by nature, it is less common today largely because of rising human disturbance, especially pleasure boating, around its coastal breeding habitat.

White-faced heron

Ardea novaehollandiae

White-faced herons are self-introduced from Australia. They appeared first in the 1860s, but from the time breeding was first observed in Otago in 1941, their population increased dramatically, such that today they are our most common heron, and are abundant in the Gisborne District. They have benefited from large-scale forest clearance, and because they forage in such a wide variety of habitats, from open freshwater swamps and lake shores to estuaries, harbours, rocky and sandy beaches. They feed on frogs, invertebrates and mice. White-faced heron form small breeding colonies, or nest on their own, high up in trees, out of reach of most introduced predators, and away from human activity.

White heron

Ardea modesta

The only breeding colony of this species in New Zealand is at Okarito, Westland. After the breeding season, white herons disperse to estuaries, shallow freshwater lakes, swamps and damp pasture throughout New Zealand where they feed principally on small fish and aquatic insects. They have been recorded in small numbers near Gisborne and East Cape. One recent census estimates the population at just 150–200 birds. As such, any disturbance by humans is unacceptable.

Australasian bittern

Australian bittern breeding locations

Royal spoonbill

Platalea regia

This bird has a history that is in many ways similar to the white-faced heron. It was first recorded in the 1860s, but bred for the first time in 1949 in tall kahikatea adjacent to the white heron colony at Okarito. Most breeding colonies are now located in the South Island, often on the ground associated with black-backed gulls, or atop low-growing scrub near shag colonies. However, several North Island coastal locations, including the Poverty Bay area, appear to be important overwintering sites. A census in 2000 counted 956 birds, and the population has been increasing over the last 30 years. Royal spoonbills feed predominantly by day or by night on tidal mudflats or shallow lake margins, targeting fish, frogs and small invertebrates. Their low numbers argues against any human disturbance being acceptable.

Botaurus poiciloptilus

Related to herons and egrets, Australasian bitterns are solitary birds found in wetland areas around New Zealand, but predominantly north of Waikato. They feed on fish, frogs and tadpoles, insects and occasionally small birds and mice. This large bittern has been recorded in brackish, densely vegetated raupo swamps scattered along the Gisborne coast, and is known to breed near East Cape. The increased draining of coastal wetlands for farming and urban development has had a major impact on this very sedentary species, and in 1980, there were estimated to be just 580–725 birds remaining in New Zealand. While this figure is likely to be an underestimate due to their shy nature, nocturnal habit and generally cryptic appearance, Australasian bitterns clearly require consideration in council land-use plans if populations are to remain viable in the region.

Marsh crake

Porzana pusilla affinis

This subspecies of marsh crake is the smallest of the New Zealand rails, and is found in small, isolated populations in freshwater and brackish wetland habitats around New Zealand. They are very secretive by nature and not brightly coloured, so the species may be more common than records suggest. However, the draining of wetlands for land reclamation has clearly had a big impact on marsh crakes. Introduced mammalian pests such as feral cats have also contributed to their decline. They are uncommon in Gisborne, the sole confirmed record being a small breeding population near Hicks Bay.

Marsh crake breeding locations

Welcome swallow

Hirundo tahitica neoxena

Welcome swallows are another recent immigrant from Australia. They were first recorded breeding near Kaitaia in 1958, although vagrants had been observed in the preceding 40 years. Their population has exploded, such that they are now common in open low-altitude farm and wetland country in most of the North and South islands. Birds tend to move to sheltered coasts, harbours and estuaries in winter where the invertebrates that make up their diet are more common. They rarely rest on the ground, and often nest on the undersides of man-made structures, where nest predation is unlikely. Disturbance by humans does not seem to be important.

Pukeko

Porphyrio porphyrio melanotus

Pukeko have probably been in New Zealand for less than 1000 years, and only become abundant throughout the North Island in particular as large areas of forest were converted to farmland. They favour wetlands and estuarine environments for foraging and breeding, and any draining of such sites reduces their suitability to pukeko.

Grey teal Anas gracilis

Grey teal is self-introduced from Australia, and the birds have only become common throughout New Zealand in the last 50 years. In 2005, the population was believed to be at least 50,000 birds. While they prefer shallow freshwater areas for breeding, they subsequently flock to estuaries to forage on exposed mudflats. Grey teal populations exist scattered along the Gisborne coast south of East Cape.

New Zealand shoveler Anas rhynchotis variegata

The New Zealand subspecies prefers shallow freshwater wetlands and estuaries, and is patchily distributed along the Gisborne coastline. A 1980s census estimated approximately 150,000 resident birds. While natural wetlands environments are diminishing, New Zealand shoveler has benefited from the development of settling ponds, farm dams and fertiliser runoff increasing the fertility of many lowland lakes. The species is partially protected; about 30,000 are harvested annually in the duck-shooting season.

Kingfisher

Halcyon sancta

Common around much of the New Zealand mainland, especially in the North Island, kingfishers generally prefer coastal forest patches, tidal estuaries and low-altitude farmland retaining a scattering of trees. On mudflats they feed mainly on small crabs, while further from the shore they have a varied diet. The planting of willows and poplars along lake edges and rivers and the fragmentation of forests have provided improved breeding areas. Artificial features such as power poles and power lines make excellent raised perches to hunt from. They have very keen eyesight.

Most kingfishers shift inland to breed, where they use their strong beak to hollow out nest chambers in rotten tree trunks, riverbanks or slip faces.

5. Migrant Bird Species

Eastern little ternSterna albifrons sinensis

This subspecies breeds from south-eastern Asia to Australia. A small number (150–200 birds) reach the New Zealand coastline in October and November each year, taking on their breeding plumage before leaving in February or April. In the Gisborne District, they have only been recorded in Poverty Bay. They form small flocks around selected estuaries and tidal lagoons, often in association with other waders such as bar-tailed godwits and knots. A few overwinter in New Zealand. Like all migrant waders (including the following species), terns are dependent on healthy coastal habitats to recover from and prepare for their return migration. Any biological degradation of their habitat places their populations at risk.

Cattle egret

Bubulcus ibis coromandus

Cattle egrets were first positively identified in New Zealand as late as 1963. Since then, they have been annual visitors to both the North and South islands. In 1986, at least 3,000 birds reached our shores, though this number has since declined to less than 1000 in the mid-1990s. Small numbers of cattle egrets have been observed between Tolaga Bay and East Cape. Birds usually arrive in April or May and feed on the coast for a short period before moving inland to open farm habitats. There they form flocks of up to 100 birds, feeding on below- and above-ground invertebrates, often among cattle and other livestock.

Pacific golden plover Pluvialis fulva

This species breeds in Arctic and subarctic regions, but migrates south to Asia, Australasia and many Pacific islands. The fourth most common Arctic migrant to New Zealand, they number from 300 to 1200 birds during the summer, with a handful overwintering here. They rarely venture far inland, and feed in small flocks of 10–50 birds, on molluscs, small crustaceans and marine birds on tidal mud flats or various invertebrates on nearby farms. Pacific golden plover are regularly sighted at Muriwai Lagoon, and other sites on the Gisborne coast.

Turnstone

Arenaria interpres

Two subspecies of turnstone (*interpres* and *morinella*) that breed in Arctic and subarctic regions respectively visit New Zealand, arriving around September or October and leaving in March or April. Generally 4,000–7,000 birds make landfall each year in both the North and South islands, making the turnstone our third most plentiful Arctic wader. However, in the Gisborne District, they have only been recorded from Muriwai Lagoon. Small flocks forage for molluscs and barnacles around rocky coastlines or reefs, or in association with banded dotterels on coastal farmland. Approximately 100–1500 birds overwinter in New Zealand.

Lesser knot

Of the 4–5 subspecies of lesser knot, *rogersi*, which breeds on the Chukutski Peninsula in eastern Siberia, is the only one that reaches Australasia. Flocks of up to 10,000 birds may be found at selected sites around the New Zealand coastline, often alongside bar-tailed godwits, feeding mainly on molluscs gathered from mudflats. Poverty Bay supports the only recorded Gisborne population of lesser knots. Of the 45,000–70,000 birds that arrive in September and October (making the lesser knot the second most common Arctic wader to reach our shores), 4,000 - 8,000 overwinter here.

Eastern bar-tailed godwit Limosa lapponica baueri

Bar-tailed godwits are the most abundant Arctic wader in New Zealand estuarine habitats, with flocks of 85,000–110,000 birds arriving each summer. The majority (about 70%) reside in the North Island, and they are not an uncommon sight along much of the Gisborne coastline. Recent research using satellite transmitters has shown that many adult birds fly at least 11,000 km non-stop over a 5–6-day period from breeding areas in Alaska to New Zealand. This represents the longest non-stop migratory flight of any bird in the world. Most young birds are believed to reach our coastline via Asia and Australia, thereby covering an additional 3,500 km. Godwits leave for their breeding grounds in March or early April, returning via northern Australia, Asia and the Kamchatka Peninsula of eastern Russia; however, between 8,000 and 18,000, mostly young birds overwinter here.

6. Recommendations

- Community surveys of coastal regions along the East Coast are conducted to improve knowledge about breeding locations and foraging sites of coastal dwelling birds;
- Efforts to reduce predation (by rats, mustelids, feral cats and dogs) and disturbance by humans at breeding and foraging sites of threatened and nationally vulnerable coastal dwelling birds on council lands are increased;
- Mātauranga (traditional knowledge) interviews are conducted with local East Coast iwi and hapū to establish current and historical sites of importance for coastal dwelling birds. These interviews could also be used to determine which coastal dwelling birds are considered species of significance for iwi;
- Where development occurs, developers are required to contribute towards the restoration of coastal ecosystems and breeding sites of coastal dwelling birds affected by development or are threatened or endangered.

7. Acknowledgements

All photographs taken by the author. I thank Hayley Lawrence (Landcare Research, Auckland), Graeme Taylor (Department of Conservation, Wellington) and Hal Hovell (Department of Conservation, Te Araroa) for their advice on bird populations and distribution. I also appreciate editorial review by Phil Lyver, Rob Allen and Christine Bezar. This work was funded by an Envirolink small-advice grant to Gisborne District Council (829-GSDC69) from the Foundation for Research, Science and Technology.

8. References

Heather B, Robertson H 2005. The field guide to the birds of New Zealand. Rev. ed. Auckland, Viking. 440 p.

Miskelly CM, Dowding JE, Elliot GP, Hitchmough RA, Powlesland RG, Robertson HA, Sagar PM, Scofield RP, Taylor GA 2008. Conservation status of New Zealand birds. Notornis 55: 117–135.

Moon G 1988. New Zealand birds in focus. NSW 2067, Australia, Weldon New Zealand. 288 p.

Robertson CJR, Hyvonen P, Fraser MJ, Pickard CR 2007. Atlas of bird distribution in New Zealand . The Ornithological Society of New Zealand, Inc.

Taylor GA 2000. Action plan for seabird conservation in New Zealand. Wellington, Department of Conservation, Biodiversity Recovery Unit.

Wragg G 1985. The comparative biology of Fluttering Shearwater and Huttons Shearwater and their relationship to other shearwater species. Unpublished MApplSc thesis, Lincoln College, University of Canterbury, Lincoln, New Zealand.