Endangered Species Foundation

Protecting New Zealand's rarest of the rare

Black-billed gull

Larus bulleri

Tarāpuka

The risk taker

Black-billed gull. DOC

Quickfacts

Nationally Critical conservation status

Most endangered of the wold's gull species

Breeds in colonies, mostly on braided rivers in the South Island of New Zealand

Threatened by modifications of their nesting habitat, flooding, predation and disturbances from aerial and terrestrial predators

Conservation Status: Nationally Critical

Life on the 'braids'

The meandering waters ofNew Zealand's braided rivers flow across wide gravel floodplains branching and re-joining to create a network of many temporary islands amongst the river's channels. These sparsely vegetated gravel islands appear and disappear, being swallowed by floods, re-joining the mainland, or being created by gravel deposits carried there by the river's flow. There are many ground nesting bird species that call the South Island's braided river habitat their home, but one, the long-lived black-billed gull (*Larus bulleri*), is particularly daring. Black-billed gulls breed together in colonies on sand-spits, shell-banks and lake edges, and the banks and islands braided rivers are the most common sites for breeding colonies. Most colonies are now in Southland, but a few are in Canterbury, Tasman and Marlborough and a few small colonies exist in the North Island. Unlike the commoner, sedentary, red-billed gulls (*Larus novaehollandiae*), black-billed gulls undertake a long-distance migration from their breeding habitat to the coast.

Breeding grounds are usually occupied as early as August until as late as March, then abandoned at the end of the breeding season,

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with birds moving to coastal areas over winter. Nests are shallow depressions in the gravel, lined with a few sticks and vegetation. For no obvious reasons they sometimes abandon breeding sites, and these abandoned areas may never be revisited. This fickle breeding site selection may have evolved in response to the highly dynamic nature of braided rivers, where good open spaces are continually created and washed away by the river breeding habitats and the location of good food sources frequently changes. Breeding ground abandonment however, is poorly understood.

Even though current estimates of black-billed gulls are of more than 30,000 pairs, this number has declined by over 70% over the last 30 years and this led to their sudden classification as a Nationally Critical endangered species. They are now the rarest of the world's gull species. The reason(s) for the dramatic decline in numbers of black-billed gulls are poorly understood, with many possible causes.

Early land-use practices in the 1950's onwards are thought to have been beneficial for breeding black-billed gulls; so much so that birds would not leave their inland breeding sites for the coast in winter due to the plentiful food in the nearby farmland. Ploughing and land-preparation for crops that turn over the soil brought a feast of worms and invertebrates to the surface. These areas would be so popular that flocks of hundreds of black-billed gulls would follow ploughing equipment feeding on the disturbed invertebrates. Increasingly intensive land-use practices, chemical use, and dairy farming however, have reduced the attractiveness of farmed areas to black-billed gulls.

Water extraction for irrigation and damming of rivers for hydroelectric power generation have led to reduced water flows in some braided rivers. When water levels drop below one cubic metre of water per second (1 cumec) the riverbed islands become more accessible to predators from the river banks and weeds flourish, covering breeding areas and hiding predators. Colonies are often large, conspicuous, noisy and smelly, which advertises their location to nearby predators. Nests on river banks often fail, likely due to poor quality habitat, predation or disturbance. Feral cats (*Felis catus*) and mustelids (*Mustela* species) have been caught red-pawed on cameras, with visits to breeding colonies of longer than 20 minutes recorded. These exotic terrestrial predators prey on nests and disturb the nesting birds. While the noise and dive-bombing of angry nesting birds in the larger colonies may drive predators away, the disturbed adults can abandon nests and lose chicks and eggs, reducing that colonies productivity. Not only are black-billed gulls threatened by terrestrial predators, they are also threatened from the sky, with aerial predation from the native black-backed gulls (*Larus dominicanus*). Like mammalian predators, black-backed gulls are highly adaptable, using human-modified land for breeding and feeding which has inflated the normal number of black-backed gulls and resulting in increased harassment and predation pressure of the smaller black-billed gull. Trapping of terrestrial predators around black-billed gull nesting sites and pricking of black-backed gull eggs if they nest too close offers the black-billed gull provides some sanctuary from these predators.

Fortunately, low levels of gravel extraction from river beds have been found to promote black-billed gull breeding habitat by keeping the density of weeds low. Excessive gravel extraction however, destroys the braided river islands and the breeding habitat. Four-wheel drive vehicles driven through breeding colonies (deliberately or accidentally) disturb breeding birds, causing nest failure. To increase the amount of breeding habitat, weeds on braided river banks and islands can be killed using herbicides, but there is a risk that birds may nest elsewhere from wherte the weeds were cleared. Luring black-billed gulls to safe nesting sites using dummy birds and broadcasting of the sounds of a nesting colony has been proposed.

To determine the numbers of black-billed gulls, searches are made for nesting colonies and the number of nesting birds in the colony are counted. Counting black-billed gulls is not an easy task, however. Estimates of colony size can vary as birds leave and return to the colony to feed or if the weather changes. Colony size estimated by counting birds on high resolution photographs during aerial surveys has proved the best method of counting black-billed gulls. While aerial surveys coupled with photography can cover considerable space quickly, very occasionally, ground surveys have found colonies missed by the aerial survey. Unfortunately, determining the number of breeding birds (an important measure for assessing conservation status) versus non-breeding birds in a photograph is difficult. A combination of ground survey nest counts with aerial photography is the current preferred method for estimating the number of breeding birds. Marking nests to aid researchers in following a nest's fate is hampered by the unhygienic nature of black-billed gulls when nesting. Unlike other gull species, black-billed gulls will not move far from the nest to poo, rapidly covering any marks researchers may have made to identify a nest. In the instances when red-billed and black-billed gulls nest together, identifications and counts from photographs become particularly difficult. Hybridisation between these two species has very occasionally occurred, and can produce fertile offspring.

A changing climate poses challenges to this species. More variable weather patterns and oceanic-warming may be changing their source of marine food (e.g. likely krill) at coastal sites occupied during the non-breeding season. Greater rainfall as a result of climate change will potentially increase flood risk at breeding grounds leading to more frequent habitat loss and failed breeding colonies.

Black-billed gull biology

Black-billed gulls are part of the Laridae seagull family. Molecular evidence has confirmed their Australasian status within the masked gull lineage, despite their white heads. Their white plumage and silver-grey back and wings is a contrast to their relatively long slender black bills and legs. Despite a normal clutch size of two eggs, a stone is sometimes used as a third egg to match their brooding patches (areas without

feathers on the belly of nesting birds) and incubating three eggs reduces movement during incubating. Parents start 'mew' calling to their unhatched chicks, and continue to do this after the chick hatches to enable parental recognition. Chicks are highly mobile 3-4 days after hatching, and form a crèche with other chicks in the colony when about 2 weeks of age.

What next?

The threats to the survival of the black-billed gull are:

1. Predation from terrestrial and aerial predators (mostly hedgehogs, stoats, rats, ferrets and black-backed gulls).
2. Changes in farming practices reducing food availability and breeding habitat.
3. Climate change increasing flood risk of braided-river breeding habitat and reducing food in their non-breeding coastal habitat.

Successfully protecting the black-billed gull from these threats must be achieved in order for the conservation programme to succeed. Ideally, this should be done by:

1. Keeping the braided river islands and breeding habitat free of pests and weeds.

The encroachment of predators and weeds to black-billed breeding sites is devastating. Wide-scale river restoration projects (e.g. Project River Recovery) are beneficial to black-billed gulls and other braided river dwellers. Identification of breeding sites and targeted predator control will aid breeding colonies. Black-backed gull control, when needed, is also beneficial, as is controlling weeds at breeding sites to reduce cover for predators. Artificially creating suitable islands for breeding could be worth attempting and luring birds to artificial sites should be attempted.

2. Advocate for responsible use of braided riverbeds.

Promoting gravel extraction methods that result in sites suitable for nesting by braided river birds and advocating with four wheel drivers the need to avoid bird colonies when driving in riverbeds would be two useful advocacy approaches.

3. Further research into movements and species biology and the effect of climate change.

Movement patterns and breeding site selection and abandonment of black-billed gulls are currently poorly understood. Further research would help to understand why sites are selected for breeding so those can be managed appropriately. Additionally, research into the influence of climate change, especially oceanic warming on food sources during the non-breeding season will potentially increase survival prior to breeding.

More information

Website: BRaid – braided river aid. Link
Website: Landcare Research – Braided Riverbeds. Link
Website: New Zealand Birds Online – Black-billed gull. Link
Website: DOC – Black-billed gull/tarapuka. Link
Website: DOC – Project River Recovery. Link
Unpublished PhD thesis: The ecology and management of Southland's black-billed gulls. By Rachel K McClellan, Dunedin, 2009. Link
Report: Canterbury black-billed gull (*Larus bulleri*) aerial survey 2015-2016. By Claudia Mischler and Mike Bell. Unpublished technical report. Wildlife Management International Limited to Environment Canterbury, Canterbury, 2016. PDF
Scientific paper: Clutch size and incubation behaviour in Black-billed Gulls (*Larus bulleri*). By C. G. Beer. The Auk, No. 82, American Ornithologists' Union, 1965. Link
Scientific paper: Parental recognition and the "mew call" in Black-billed gulls (*Larus bulleri*). Rodger M. Evans. The Auk, No. 87, American Ornithologists' Union, 1970. PDF

Photos

Fitting colour rings to leg of young black-billed gull to aid identification. DOC

This webpage represents the views of the Endangered Species Foundation of New Zealand and not necessarily those of other individuals or organisations involved in the conservation of this species.

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