

Kakerori Fact Sheet 2016

Background: The Rarotonga Flycatcher or Kakerori (*Pomarea dimidiata*) is a small (19-23g) forest-dwelling bird endemic to Rarotonga in the Cook Islands, where it is found mainly in the moister south-eastern section of that island, particularly in what is now the 155ha Takitumu Conservation Area (TCA). Recently, it has been translocated also to the Ship Rat-free island of Atiu close by, to form an insurance population.

Long-lived (mean expectancy 12y*), non-migratory, and territorial all year round, the Kakerori has a feisty attitude to intruders, especially during the start and end to its September to December breeding season. From elegant nests 3-15m above ground, each pair nests until they are successful, and then stop; they produce a maximum of 2 fledglings per season. Kakerori live on insects and other small invertebrates gleaned from trees, and rarely hawk prey from mid-air in the way many other flycatchers do.

History: Although a few knowledgeable local Maori people always knew its whereabouts, the Kakerori was thought by scientists to have become extinct around the 1880's. Reports in 1973 led by 1983 to English ornithologist David Todd finding a breeding population, in the area now occupied by the TCA.

Recovery Plan: After careful preparation over the next few years by the CI Conservation Service (CICS, later CI Environment Services), by 1987 a Kakerori Recovery Plan (KRP) was in place and started, in partnership with NZ DSIR Ecology Division (which later became a part of DoC). The plan identified the main predators (rats, cats) and other threats to the bird, and what was to be done about them ('research by management': mostly, regular, methodical poisoning validated by trapping and rigorous measures of bird productivity and annual bird censuses). With updates and amendments, this plan remains in place today, although, as their numbers increased, its name was changed to Kakerori Management Plan in 2002. After the Maori landowners agreed to put their land aside temporarily for the Kakerori in 1994, in 1996 the TCA was formed and took over responsibility for running the KRP from CI Conservation Service, and continues to do so today.

In 1987, the first thorough census of the breeding area and its environs yielded 38 birds, which led to the species receiving an IUCN rating of Critically Endangered, the highest level of threat. In 2002, when bird numbers had passed 200, that threat rating was lowered to Endangered. In 2012, with over 500 birds, it was lowered again to Vulnerable, the lowest level of threat. (The latest census on Rarotonga in 2015 was 414+, down from 441+ in 2013, possibly because of emigration out of the TCA coupled with the difficulty of finding many birds in a relatively short census.)

However, this did not mean 'Game Over', as the bird still needs continuing conservation support: the 500 was made up of 400+ on Rarotonga, and 100+ on Atiu. Rarotonga is the transport hub for the whole Cook Islands group, and thus its bird populations are much more likely to experience some imported alien disaster (predator or disease) than those on Atiu, so we have to keep up major control efforts on Rarotonga at least until Kakerori numbers on Atiu build up to 250. Then, if necessary, the Atiu population should be strong enough to support taking young birds from it for repatriation should the worst happen in Rarotonga.

However, if Atiu experienced a Category 5 cyclone in 2 consecutive years we might well have to boost its Kakerori population from Rarotonga again. (The worst scenario would be if both islands experienced such consecutive cyclones at the same times.)

*Recent lower values for Mean Life Expectancy are thought to be an artefact of emigration to nest sites outside the TCA, and of the difficulties of finding all individuals in a much increased population.

Insurance Population: As soon as numbers on Rarotonga had increased enough to allow it, each year from 2001 to 2003 we took 10 young, non territory-holding birds to Atiu, as the basis of an insurance population should some alien disaster occur on Rarotonga. In 2011, we took a further 10 to bolster their genetic diversity there. As yet, Atiu has no Ship Rats, identified as Enemy No.1 in the TCA, where enormous efforts must be made every year to control them. The new Atiu population has been censused most years since introduction.

After a slow start to breed, these naïve birds finally selected raised limestone *makatea* as their preferred habitat. (We had expected them to opt for upland gullies, as they do on Rarotonga, and so released most of them in gullies. Though many bred there initially, over the years pairs from gullies kept slipping away, to reappear in the *makatea*.)

By 2011-2012 they had grown to over 100 in number, and to 156 (including 39 fledglings) in 2015. We estimated then it would take 3-5 years after 2015 to reach the desired 250 Kakerori on Atiu. But puzzlingly, in 2016, coinciding with the final eradication of Common Mynas, we found the birds were marking time: 155 birds, including 37 fledglings. (Over the last few years, we had seen increased interaction with Chattering Kingfishers, which culminated in 2016 with our seeing a Kakerori beating a kingfisher on the ground, in an area which formerly held 3 pairs but now held only one.) Thus, we can make no time to 250 estimates now, but must keep counting annually to find out what is happening...

Predators: Rarotonga has many alien invasive and domesticated species which could prey on the Kakerori, and one naturally occurring species that does. Of the aliens, three species prey upon it: the Ship Rat *Rattus rattus*, the Pacific Rat *Rattus exulans*, and the Feral Cat *Felis catus*; the natural predator is the Karavia or Long-tailed Cuckoo *Eudynamis taitensis*.

The arrival of the Ship Rat in the mid 1800's coincides closely with the apparent disappearance of Kakerori, which had already coped with the much smaller Pacific Rat for some hundreds of years; these rats prey upon the nest contents and the bird sitting on it, which, however, normally can repulse the smaller rat. Feral Cats have been known to catch a few Kakerori away from the nest by stalking; inquisitive new fledglings would be caught easily by them.

The Long-tailed Cuckoo winters in the Pacific Islands and goes to NZ from September to December each year to mate and lay its eggs in other birds' nests, where it abandons them. When it returns to Rarotonga in mid-December, it preys upon and destroys all Kakerori nests it can find, and harries mercilessly any Kakerori pairs still with fledglings not yet independent of them. Fortunately, in some years very few cuckoos return to Rarotonga, presumably because they arrive at other islands. As naturally occurring predators, we have never attempted to control them.

Breeding Biology: It is no coincidence that the effective Kakerori breeding season is from early September to mid-December, when cuckoos are absent; if none were ever present, the breeding season might well extend from August until May, as unsuccessful Kakerori will keep on trying to breed long after mid-December – and about once every 5-10 years we have found an obviously new downy fledgling in April or May to prove it.

Kakerori pairs can accomplish a nesting cycle very quickly: from no nest to independent fledglings in 28 days is the quickest recorded (3d building, 10d incubating, 10d feeding chicks, 5d teaching fledglings) but normally the process takes a week or two longer. Successful pairs do not re breed in any one breeding season, although abnormally broody females may sit on the nest for some weeks after the fledglings have become independent.

Conclusions. Our success has stood as a shining example to other bird/habitat conservation efforts in the Pacific, in particular in French Polynesia. After nearly three decades, it has been a hard slog, but worth every minute of it!

