

PLEASE NOTE

This strategy contains valuable background material and is a very good source of information for prospective searches. However, please note that it is out of date and the Trust's direction has changed somewhat but the end goal remains the same.

SIKCT January 2017

Strategic plan for the conservation of the
South Island Kokako *Callaeascinerea*



Photo courtesy of The Nelson Provincial Museum

Prepared for the South Island Kokako Charitable Trust
By R&D Environmental Ltd., Nelson

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Foreword

New Zealand is birdland. Our native birds define the way we see ourselves – special and unique. We love them and identify with them so much that we put them on our money and stamps and beer. We marvel at stories of the size of the poor old moa. The song in our heart when we leave these shores is the whistle and croak of the tui. We call ourselves kiwis.

The possibility that we might be able to reclaim one of our long-lost species – the South Island kokako – is cause for excitement. The bird was written off as extinct. But numerous amateur sightings, and two verified sightings, has seen the bird’s status upgraded to “data deficient” – a fancy way of saying it may very well be out there.

It was definitely seen in 1967, at Mt Aspiring, and in 2007, at Rainy Creek near Reefton. Ruud Kleinpaste reckons he saw it once. All sorts of trampers and shooters reckon they’ve seen it. And now the South Island Kokako Charitable Trust has devised an expert strategic plan to once and for all verify without doubt that the bird exists. Using latest technology, and the resources of professionals, they want nothing less than to go out and discover it.

Such a discovery would be a media sensation. The takahe was once thought extinct; when it was discovered in 1948, near Lake Te Anau, the news went around the world, appearing in Time magazine. The discovery, or rediscovery, of the South Island kokako would be a great feel-good story.

The plan drawn up by the South Island Kokako Charitable Trust deserves every support. It wants to bring the South Island kokako back to life.



Steve Braunias

Staff writer, Metro magazine, and author of Civilisation: 20 Places at the Edge of the World, judged best book of non-fiction at the 2013 NZ Post National Book Awards

Summary

- The South Island kokako is an ancient component of New Zealand's native biota. It is a separate species within a family endemic to New Zealand and is thus globally significant.
- The Department of Conservation's (DOC) Threat Classification System ranks the South Island kokako as 'Data Deficient', a status conveying concern that so little is known of a species that its conservation status cannot be determined.
- The last two accepted sightings were in 1967 and 2007, in Mount Aspiring National Park and North Westland respectively.
- The South Island Kokako Charitable Trust (the Trust) has assembled compelling evidence that the South Island kokako has survived over the past 46 years.
- The Trust has developed an enhanced GIS-based system to encourage and receive new reports, and to prioritise these for verification.
- New, more cost-effective techniques now available will improve the chances of verifying the existence of the South Island kokako. These include remote sound and video recording.
- We propose a strategy for systematic survey by professionals across six priority sites, applying the improved techniques for discovery and systematic follow-up of any new sites.
- The Trust will work in partnership with DOC in the delivery of this strategy.

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1. Introduction

The South Island kokako is a New Zealand endemic bird that was once widespread and relatively abundant in forested areas of the South Island, but which has declined in numbers owing to habitat loss and predation. The last accepted sighting reported in peer-reviewed literature was in Mt Aspiring National Park in 1967 (McBride 1981). The Records Appraisal Committee (RAC) of the Ornithological Society of New Zealand (OSNZ) has recently accepted a report of a kokako seen and heard in the upper Inangahua River near Reefton in 2007. This and other recent reports changed the bird's threat ranking from 'Extinct' to 'Data Deficient' (Robertson et al. 2013).

We are a Charitable Trust leading a coherent, community-driven strategy to safeguard the South Island kokako from extinction. To achieve this, we will form a working partnership with the Department of Conservation, so that their expertise and skills are combined with ours to pursue the following objectives:

- obtain unequivocal evidence that South Island kokako are still extant;
- evaluate the current distribution and relative abundance of the species;
- learn enough of the species' biology and habits to make recovery a realistic prospect.

2. Background

2.1 Taxonomy

The South Island kokako belongs to the passerine family of wattlebirds Callaeidae which is endemic to New Zealand and one of the most ancient elements of the New Zealand avifauna. The family contains three monotypic genera: kokako (*Callaeas spp.*), saddleback (*Philesturnus carunculatus*) and huia (*Heteralocha acutirostris*). The most recent review of the avifauna (Gill et al. 2010; Holdaway et al. 2001) accepts the North Island and South Island kokako as separate species, *Callaeas wilsoni* and *Callaeas cinerea* respectively.

From an international perspective, the South Island kokako is very significant as a separate species within an endemic family. Within the New Zealand avifauna, it is equivalent to a kiwi, rifleman or stitchbird – members of the other three endemic families. Taken together, these taxonomic features alone argue for a concerted effort by New Zealanders to conserve the bird and its priceless genetic inheritance.

2.2 Description of South Island kokako

The following is reproduced from Szabo (2013)¹.

The South Island kokako is a large blue-grey bird with a black facial mask, large dark eyes, and two orange fleshy wattles at the base of the short robust slightly curved black bill. The orange wattles are blue at the base, and held compressed under the throat. They have a long, rounded tail with blackish-tipped feathers and long dark bluish-grey legs. South Island kokako bound, hop and run from branch to branch and on the forest floor, interspersed with glides on short, rounded

¹ The tense in the text was changed here from past to present to reflect the change of status since it was written.

wings. They are described as being stronger flyers than North Island kokako, perhaps because their wings are slightly longer. The sexes are alike. Nestlings have rosy pink wattles that became orange with age, and a flesh coloured bill with a greenish tinge at the tip of the upper mandible.
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2.3 Behaviour and song

Our understanding of South Island kokako behaviour is gleaned primarily from historical records. These convey a picture of a unique and fascinating species, though one possessing attributes which may hinder efforts to find the bird and increase its numbers.

Several records indicate that the South Island kokako spent a lot of time on the ground:

We saw several yellow wattle crows. He also belongs to the ground bird in habit; is a beautiful deep slaty colour, with fleshy wattles of an orange hue springing from the angles of his mouth. These birds, according to Buchanan, have a singular habit of hopping along through the forest in Indian file fashion, crossing every stick and stone in exactly the same way. I have often observed the same habit when I met them in numbers behind Milford Sound.

Thos. McKenzie, 'West Coast Exploration' in Otago Daily Times, 1896.

On going from the Tableland down the Karamea River we sat down for a spell and just in front of us there were a pair of crows sitting. They were eating the leaves and shoots of the young Rarakau and singing a little kind of song at intervals.

H. P. Washbourn, 'Reminiscences of Early Days' (Lucas & Son) 1933.

I had stopped to listen ... when a Kokako appeared walking along a log which protruded from a thick patch of fern beside a patch of "ploughed" ground. I think it saw me immediately because it quickened its pace, flew from the end of the log to a sloping tree trunk a short distance below, and began to climb the trunk in a most peculiar way. With each rather ungainly step upwards, it appeared to hold on to the bark with its beak, look in my direction, take another step, hold, look, and so on until it reached the branches, when it hopped rapidly out of sight.

K. McBride, in Notornis 28 (4), 1981

Though some early observers recorded the South Island kokako as 'tame and confiding' (Hutton & Drummond 1904; Potts, 1882), other observers experienced cryptic behaviour.

During my research in 1884, at the West Coast, South Island, I did not find these birds so plentiful. ... They are very tame, but, when disturbed, are adepts in the art of hiding, either under a limb in the fork of a tree, or between thick leaves.

Reischek, Notes on the Habits of some New Zealand Birds, 1885.

Charlie Douglas was one of the most observant of the pioneer explorers on the South Island's wild West Coast. He had a particular passion for birds, and often wrote humorously about their habits. He said:

...[F]ew people are aware that the Crow is a song bird, as it is only in the depths of the forrest they can be heard to perfection. Their notes are very few, but the sweetest and most mellow toned I ever heard a bird produce. When singing, they cast their eyes upwards like a street musician expecting coppers from a fourth story window, and pour forth three or four notes, softer and sweeter than an Aeolian harp or a well toned clarionet. (from Pascoe 1957).

This apparent reluctance to sing is dissimilar to the North Island kokako which can produce long sequences of loud song, particularly early in the morning. Douglas's comments in the 1880s and 1890s suggest that on the West Coast kokako were then becoming rare except in more remote forests, and that where they were rare, the birds tended to be quiet and rarely sing.

Other early observers also noted the quiet and shy habits of South Island kokako. Fulton (1907) said the South Island kokako was *...quiet and shy in its habits....* and Washbourn (1933) indicated *...their song is a curiously small, quiet one for the size of the bird.*

Guthrie-Smith (1925), well-known early naturalist and photographer, described the difficulty of finding South Island kokako near Pegasus Harbour in southern Stewart Island, where they were reported to be common earlier that century. His comments are particularly important as he had a passion for photographing birds and made several unsuccessful attempts to photograph nesting South Island kokako on Stewart Island.

This was our fourth season of search for the species. During two previous expeditions I had seen the bird; during each I had failed to find the nest. Now at Pegasus on all hands we heard of it. Indeed it was principally because of the Crow we had fixed our headquarters there... We were certain, therefore, that it bred in that part of Stewart Island, and by every open way searched for the elusive bird... In vain, trembling with hope and fear, we trudged the forest from daylight to dark; in vain we climbed the Remarkables (Gog and Magog); in vain we beat through the seaside scrub. We never heard or saw the crow. We never did get the nest.

If Guthrie-Smith had difficulty finding South Island kokako at a time when they may have been relatively common locally, then finding them almost a century later will be very challenging.

Sir Robert Falla saw and heard kokako on Stewart Island. Based on his experiences with North Island kokako, Falla noted that:

They not only have a very limited home range per pair, but they spend hours lurking in dense shade (like moreporks diurnally), and do not flush readily. Furthermore their seasons and times of calling are intermittent and few. Against that, they sometimes emerge briefly, apparently out of curiosity. (In correspondence with Peter Child: dated 1970, on behalf of the Nature Conservation Council).

Buckingham suggests that cryptic behaviour when the birds were still present in good numbers is likely to have become exaggerated as numbers declined, for a number of reasons:

- Predation pressure may have selected for the more cryptic individuals (that is, those less visible to new mammalian predators because they were retiring, quieter and spent less time on the ground)
- Kokako would benefit by calling less often or communicating mainly by soft calls if, as lone birds or small groups, they could avoid mobbing by tui. Mobbing is a phenomenon observed in the North Island and on one occasion within the territory of a presumed single South Island kokako (Glenroy River).
- Fragmentation of populations would reduce contact between individuals of neighbouring territories. This could lead to reduction in calling and conspicuousness.
- Lone kokako lacking the stimulus provided by neighbouring birds of their own kind would likely develop song dialect resembling that of other songbirds around them, thus becoming more vocally inconspicuous.

Annex A1.1. conveys further information on the calls of presumed South Island kokako.

2.4 Moss grubbing sign

Moss grubbing is the term used to describe pieces of moss that have been detached from the forest floor, fallen logs and tree trunks, sometimes over a significant area. Unusual moss grubbing sign was first described on Stewart Island by Martin (1951) who thought the moss had become detached by possums or another cause. Since then, the same kind of sign has been found at a variety of sites on Stewart Island and elsewhere where kokako-like calls and sighted silhouettes of putative kokako have been reported (R Buckingham, pers. comm.). This correlation is sufficiently strong, and the sign so different from that made by other animals, that finding it is considered indicative evidence of South Island kokako activity.

Annex A1.2 describes the sign and its locations in more detail including two observations of possible kokako removing moss.

2.5 Breeding

Szabo (2013) summarises the limited information available.

Courtship displays begin in October, eggs are laid in December/January followed by c. 18 days of incubation by the female. Nestlings are present in January/February and young fully grown by May though they appear to remain with their parents until the following breeding season.

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It appears that the birds form strong pair-bonds.

Male and female are inseparable; the male utters a very sweet whistle, consisting of six notes, as "te, to, ta, tu, tu, tu"; the call of the female is composed of five, as "te, a, tu, tu, tu." ... I shot a crow, and then concealed myself until its mate appeared, which it did in a very short time; and, to my astonishment, instead of flying away when it saw me, the poor thing went to its dead companion, hopping around and calling, evidently in a great state of agitation. I felt so much for this bird, that I was very sorry I had shot its mate, and let it go.

Reischek 1885. Notes on the Habits of some New Zealand Birds.

There are several historic records of nests, of which the following provides a detailed description:

The late Mr. T.H. Potts, when exploring at Milford Sound in 1873, found five nests of the orange-wattled crow at a height varying from ten to seventeen feet from the ground. One was placed on an extended limb of a totara tree that overhung a deep ferny gully... (T)he foundation, which was sixteen inches across, was made of twigs and moss, firmly interlaced, smoothly lined with leaves of soft grass. The other four nests were found in damp situations in a small patch of bush at Freshwater Basin, close to the Lady Bowen waterfall.

A.T. Pycroft, Auckland Star, 1928

2.6 Feeding

Szabo (2013) summarises the limited information available.

South Island kokako diet consists mainly of leaves and fruits including karamu, Coprosma species, New Zealand sow thistle, konini and tutu, and, less often, flowers, moss, buds, nectar and small insects and invertebrates.

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2.7 History of decline

Early explorers such as Buller, Reischek and Douglas found the South Island kokako patchily distributed though common at certain localities up to the 1870s. But by the end of the 19th century, the clearance of forest habitat had obviously reduced kokako numbers (Potts 1873). Its decline would have accelerated after the introduction of unfamiliar mammalian predators. It is presumed that the South Island kokako spent more time on the ground than its North Island congener, thus increasing its exposure to predators.

Although the evidence indicates that a few individuals remain (perhaps as singles or isolated small groups at most), kokako are not expected to persist for much longer.

2.8 Current Conservation Status

The IUCN Red List, based on internationally accepted threat criteria, classifies the South Island kokako as possibly extinct (www.iucnredlist.org)². Nonetheless, the recent DOC change of status of South Island kokako to 'Data Deficient' (Robertson et al. 2013) may eventually influence the IUCN classification.

'Data Deficient' applies to "taxa that are suspected to be threatened, or in some instances, possibly extinct but are not definitely known to belong to any particular category due to a lack of current information about their distribution and abundance. It is hoped that listing such taxa will stimulate research to find out the true category" (Robertson et al. 2013).

Annex 2 summarises previous threat status changes in New Zealand and the findings of several workshops on the species.

3. Evidence to support the persistence of South Island kokako

3.1 Summary of evidence

No definitive proof has been obtained in the last decade that South Island kokako still survive (i.e. no feathers, DNA or captured birds) and finding that proof is the key purpose of this strategy. However one sighting in 2007 at Rainy Creek, in the Upper Inangahua Valley, Reefton was accepted as kokako by a majority of the RAC Committee members. On this occasion an observer heard a wailing call that he did not recognise and soon afterwards saw an unusual bird perched only 10-15 metres away. This he described as: "plumage steely grey with a bluish tinge; distinct

² Interestingly, the IUCN Red List (dated February 2014) does not distinguish North Island and South Island kokako as separate species, despite current accepted taxonomic status (Gill et al 2010).

wattles on the sides of its bill, their base a deep matt blue and the remainder (the larger part) ochre (fleshy orange-brown)". The bird was viewed for about 30 seconds before it glided away with some heavy dull wing flapping and the observer noted the rounded edge of the wings in flight, and described the flight as clumsy. The following day he and a colleague with experience of North Island kokako re-visited the site and heard distinctive kokako-like heavy wing beats about 60m away then saw a bird in silhouette "leaping up a rimu trunk before gliding off " which the latter identified as a kokako. An extensive area of fresh moss grubbing was seen along the forest floor and extending up tree trunks. The same area was the subject of earlier reports. Two other reports submitted at the same time as the Rainy Creek one, at Lake Matiri and Parapara Ridge, Golden Bay were assessed as 'probable' South Island kokako.

Individual reports are carefully assessed and observers interviewed by Trust members. A reported sighting is considered in its entirety including how well or closely a bird was observed, how it moved, and other forms of behaviour exhibited.

One or more of three types of sign are taken to be evidence of kokako: detailed sightings and silhouettes; kokako-like calls; and moss grubbing. Some observers have referred to the species' distinctive orange wattles but undue weight is not placed on these as mistakes can be made, particularly by inexperienced observers. For example, at certain times of year when flax and other plants are flowering, the orange colour of pollen can be mistaken as wattles around the bills of birds such as kaka, tui or bellbird. More rarely, exotic birds straying as vagrants to New Zealand (such as the red wattlebird of Australia and New Guinea) might be mistaken for kokako.

South Island kokako make a variety of calls (Annex A1.1). Observers familiar with the calls of North Island birds are likely to interpret the South Island bird's call more accurately. Vocal evidence is stronger if birds respond to kokako calls played back to them on tape. Moss grubbing is not considered strong evidence on its own but strengthens a report if it is observed together with other signs.

Compelling evidence suggested that South Island kokako still existed at several sites in the 1980s and 1990s (Buckingham 1987, 1996a, 1996b). Section 3.2 below summarises over 300 reports collated in a database by the Trust since 1990 from over 50 different areas from Stewart Island to the Marlborough Sounds. Independent observers provided more than 75 of these reports. The Trust followed up on many of these through surveys of its own. The database contains 15 reports from 2010/11 suggesting that the species continues to survive.

Annexes A4.1 and A4.2 describe 17 sites from which multiple, credible reports have been received. Particularly compelling evidence comes from the Waiatoto coastal forest where three ornithologists experienced with North Island kokako heard or saw presumed kokako independently at the same location ($\pm 300\text{m}$) at different times between 2003-2007. Other strong cumulative evidence was obtained at Louis Creek and Howard Saddle (Nelson Lakes), Glenroy River (Murchison area), Oparara Valley (Karamea), Tiropahi Valley (Charleston, West Coast), Lake Moeraki (South Westland) and at Rainy Creek (Upper Inangahua Valley)).

Section 4.5.2 identifies six priority sites where further surveys are clearly justified.

For more detailed evidence, see the following unpublished reports obtainable from the Trust: Buckingham 1986; 1996a, b; 1997a, b; Buckingham and Nilsson 2011; Buckingham and Macalister 2001; Buckingham, Rudolf and Turner 2007.

3.2 Location and chronology of South Island kokako reports

The Trust has collated reports of South Island kokako from multiple sources. At the time of writing, 313 reports have been committed to a flat-file database managed by the Trust.

Each report in the database is assigned identifiers by which it can be sorted: a region (e.g. South Westland), a general location (e.g. Whataroa River), a specific location (e.g. Abuts Head), and a unique number referring to its year and chronological order (e.g. 200802 indicates that it was the second report received in 2008).

All reports are compiled by region and general location (Table 1) so that they can be tracked over time at a specific location. Geographical sorting reveals the locations from which numerous reports have been received. These become the focus of search efforts, especially if sightings at the site are independent.

The greatest report activity was over the period 1995-2000 (Table 2). The number of reports has increased again since 2007 (possibly because of publicity) indicating that a further major survey effort is justified.

Reports have ceased at several sites of significant activity historically (shaded in Table 2), suggesting in some cases that the bird(s) have perished. In other cases, surveys were discontinued for a variety of reasons.

Database collations have permitted the Trust to select priority sites for attention objectively. Follow-up surveys have produced encouraging results, therefore supporting this approach to site selection (see Section 4.5.2).

Table 1 Summary of South Island kokako reports by location, 1990-2008. Numbers refer to the year in which the sighting was made and its chronological order (i.e. 200802 refers to the second report received in 2008). Shaded numbers denote **reports received from independent observers**.

Regions & Number of Reports

| Stewart Island | Fiordland | 'Other' Southland | SE Otago | NW Otago | S Westland | N Westland | Canterbury | Buller | NW Nelson | Nelson Lakes | NE Nelson | Marlborough |
|----------------|-----------|-------------------|----------|----------|------------|------------|------------|--------|-----------|--------------|-----------|-------------|
| 9 | 19 | 1 | 2 | 5 | 30 | 33 | 10 | 5 | 18 | 11 | 2 | 3 |

General Locations & Individual Reports

| Rakeahua R | Waitutu & Wairaurahiri | Waimahaka Bush | Fleming R | Greenstone R | Whataroa R | Grey R | Hurunui R | Buller R | Aorere R | Howard R | Rai Saddle | Waikawa Str |
|---------------------|------------------------|----------------|-----------|--------------|-------------|---------------|-------------|-----------|------------|----------|------------|-------------|
| 199004 | 199503 | 200910 | 199002 | 199003 | 199103 | 199405 | 199302 | 199706 | 199506 | 199001 | 199904 | 199704 |
| 199005 | 200002 | | 199607 | 199803 | 199603 | 199406 | 199602 | | 199901 | 199103 | 200701 | 199711 |
| 199006 | 200303 | | | | 199702 | 199509 | 199701 | Glenroy R | 200908 | 199104 | | |
| | 200901 | | | Routeburn | 199703 | 199511 | 199713 | 200003 | | 199303 | | Kekerengu |
| Deceit Peaks | 201001 | | | 199516 | 199709 | 199512 | 199802 | | Burgoo Str | 199304 | | 200004 |
| 199102 | 201003 | | Caples R | 199710 | 199513 | 200012 | | Rainy Ck | 199501 | 199403 | | |
| | 201102 | | 199712 | | 199514 | 200102 | | 200703 | 2003020 | 199502 | | |
| Freshwater | | | | | Venture Ck | 199515 | 200109 | | 200704 | 199504 | | |
| 199402 | Tutoko R | | | Pyke R | 200005 | 199714 | | Boatman's | 200803 | 199510 | | |
| | 200001 | | | 201006 | 200101 | 200009 | Nina R | 200801 | 200906 | 199605 | | |
| Small Craft Retreat | 200006 | | | | 200204 | 200010 | 200702 | | | 200804 | | |
| 199407 | 200013 | | | | 201004 | 200106 | | Inangahua | Cobb R | | | |
| | | | | | 201005 | | Wilberforce | 201007 | 199401 | | | |
| Paterson Inlet | L Hauroko | | | | | L Kaurapataka | 199903 | | 199807 | | | |
| 199606 | 199007 | | | | Gorge R | 199505 | | | 201008 | | | |
| | | | | | 199607 | 200203 | | | | | | |
| Tupari Bay | L Monowai | | | | 200104 | 200301 | | | Whanganui | | | |
| 199601 | 199301 | | | | | 200304 | | | 199404 | | | |
| | | | | | Smoothwater | | | | | | | |
| Jackson R | Bligh Sound | | | | 199002 | Heaphy R | | | Arthur Rge | | | |
| 200011 | 199604 | | | | 199517 | 199606 | | | 200201 | | | |
| | | | | | 200105 | 199608 | | | 200805 | | | |
| | Back Valley | | | | 200305 | 199609 | | | | | | |

| | 200402 | | | | 200802 | | | | | | | |
|----------------|-------------------|-------------------|----------|----------|--------------|-------------|------------|--------|-----------|--------------|-----------|-------------|
| Stewart Island | Fiordland | 'Other' Southland | SE Otago | NW Otago | S Westland | N Westland | Canterbury | Buller | NW Nelson | Nelson Lakes | NE Nelson | Marlborough |
| | Big River | | | | Franz-Fox | Oparara R | | | Stanley R | | | |
| | 200501 | | | | 200007 | 199705 | | | 200902 | | | |
| | 200601 | | | | 200307 | 199707 | | | 200903 | | | |
| | | | | | | 199708 | | | 200904 | | | |
| | Glaisnock R | | | | L. Wahapo | 199806 | | | | | | |
| | 200705 | | | | 200014 | 200008 | | | | | | |
| | | | | | | 200308 | | | | | | |
| | John o' Groats R. | | | | Waiatoto R | 200401 | | | | | | |
| | 201101 | | | | 199804 | 200502 | | | | | | |
| | | | | | 200202 | 200907 | | | | | | |
| | Hump Rge. | | | | 200306 | | | | | | | |
| | 200905 | | | | 201107 | Mokihinui R | | | | | | |
| | | | | | | 199801 | | | | | | |
| | | | | | Jackson R | | | | | | | |
| | | | | | 200909 | Charleston | | | | | | |
| | | | | | | 199805 | | | | | | |
| | | | | | Waipara R | 200403 | | | | | | |
| | | | | | 200102 | | | | | | | |
| | | | | | | L Kaniere | | | | | | |
| | | | | | Landsborough | 200503 | | | | | | |
| | | | | | h | | | | | | | |
| | | | | | 201103 | | | | | | | |
| | | | | | 201104 | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | Moeraki R | | | | | | | |
| | | | | | 201105 | | | | | | | |
| | | | | | 201106 | | | | | | | |

Table 2 Annual frequency of reports by location (with five or more records) and region

| Locations | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | Total |
|-----------------------------|----------|----------|----------|----------|----------|-----------|----------|-----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|--------------|
| Howard River, Nelson Lakes | 1 | 2 | | 2 | 1 | 3 | 1 | | | | | | | | | | | | 1 | | | | 11 |
| Waitutu Forest, Fiordland | | | | | | 1 | | | | | | | | 1 | | | | | | | 2 | 1 | 5 |
| Whataroa River, S. Westland | | 1 | | | | | 1 | 4 | | | | | | | | | | | | | | | 6 |
| Venture Creek, S. Westland | | | | | | | | | | | 1 | 1 | 1 | | | | | | | | | 2 | 5 |
| Hurunui River, Canterbury | | | | 1 | | | 1 | 2 | 1 | | 1 | 2 | | | | | | | | | | | 8 |
| Burgoo Stream, NW Nelson | | | | | | 1 | | | | | | | | 1 | | | | 1 | 1 | 1 | | | 5 |
| Grey River, N. Westland | | | | | 2 | 6 | | 1 | | | 2 | 1 | | | | | | | | | | | 12 |
| Oparara River, N. Westland | | | | | | | | 3 | 1 | | 1 | | | 1 | 1 | 1 | | | | | 1 | | 9 |
| Regions | | | | | | | | | | | | | | | | | | | | | | | |
| North Westland | | | | | 2 | 7 | 3 | 4 | 3 | | 3 | 1 | 1 | 3 | 2 | 2 | | | 1 | 1 | | | 33 |
| South Westland | 1 | 1 | | | | 1 | 2 | 4 | 1 | | 3 | 3 | 2 | 3 | | | | | | 1 | 3 | 5 | 30 |
| Northwest Nelson | | | | | 2 | 2 | | | 1 | 2 | | | 1 | 1 | | | | 1 | 2 | 5 | 1 | | 18 |
| Fiordland | 1 | | | 1 | | 1 | 1 | | | | 4 | | | 1 | 1 | 1 | 1 | 1 | | 2 | 2 | 2 | 19 |
| Nelson Lakes | 1 | 2 | | 2 | 1 | 3 | 1 | | | | | | | | | | | | 1 | | | | 11 |
| Canterbury | | | | 1 | | | 1 | 2 | 1 | 1 | 1 | 2 | | | | | | 1 | | | | | 10 |
| Stewart Island | 3 | 1 | | | 2 | 1 | 1 | | | | 1 | | | | | | | | | | | | 9 |
| NW Otago | 1 | | | | | 1 | | 1 | 1 | | | | | | | | | | | | | 1 | 5 |
| Buller | | | | | | | | 1 | | | 1 | | | | | | | 1 | 1 | | 1 | | 5 |
| Marlborough | | | | | | | | 2 | | | 1 | | | | | | | | | | | | 3 |
| SE Otago | 1 | | | | | 1 | | | | | | | | | | | | | | | | | 2 |
| NE Nelson | | | | | | | | | | 1 | | | | | | | | 1 | | | | | 2 |
| Southland | | | | | | | | | | | | | | | | | | | | | 1 | | 1 |
| Total by Region | 8 | 4 | 0 | 4 | 7 | 17 | 9 | 14 | 7 | 4 | 14 | 6 | 4 | 8 | 3 | 3 | 1 | 5 | 5 | 10 | 8 | 7 | |

NOTE Shaded areas indicate locations at which former compelling activity appears to have ceased

4. Strategic Plan

4.1 Objectives

The Trust's objectives are to:

- obtain unequivocal evidence that South Island kokako are still extant;
- evaluate the current distribution and relative abundance of the species;
- learn enough of the species' biology and habits to make recovery a realistic prospect.

4.2 Tasks

The Trust's primary tasks are to:

- develop and evaluate new methods for detecting the South Island kokako;
- encourage new sighting reports, and record them accurately;
- evaluate all new reports and prioritise them for follow-up investigations;
- train specialist staff to investigate sightings through systematic field surveys;
- form a working partnership with DOC to share the skills required to meet strategic objectives.

4.3 Advocacy

We will launch an advocacy programme in association with DOC.

The programme is intended to get the South Island kokako message out to multiple audiences (especially outdoors people who are our eyes and ears, and supporters whose contributions will be necessary to underwrite field investigations on an adequate scale).

Awareness will be raised through the Trust website, popular articles, social media, electronic and print media, and scientific journals.

4.4. Research

Research is an indispensable ingredient of this strategy. The Trust will commission or encourage research into:

- detection methods (to make survey and discovery faster and more effective);
- species biology (essential for management when the kokako's existence is proven);
- vocalisations (perhaps through post-graduate research, to distinguish complex vocalisation patterns of other songbirds and determine if they have any association with extant kokako).

4.5 Search Strategy

4.5.1 Field survey planning

The Trust will seek funds to employ a specialist kokako search team comprising experienced ornithologists with some experience of North Island kokako. This team will focus on priority sites and follow up reliable new reports.

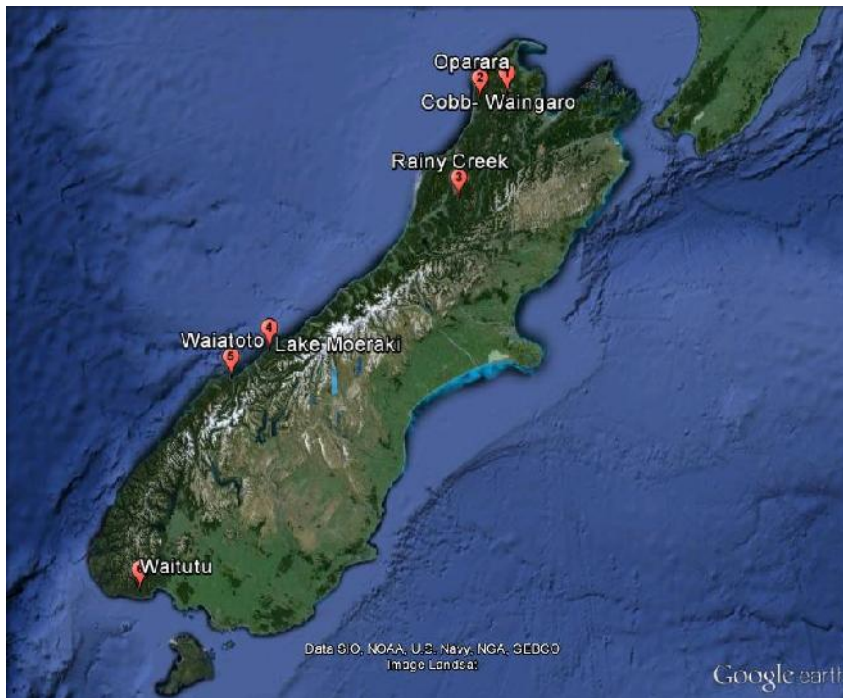
The Trust will take responsibility for planning surveys, supervising the team, and ensuring compliance with the Health and Safety in Employment Act 1992, and other legal obligations. The search team will need to be fully trained in survey methodology.

The key focuses of survey planning and fieldwork will be:

- selecting appropriate staff and ensuring adequate training prior to survey;
- ensuring health and safety measures of a very high standard;
- developing a clear and decisive plan for field survey;
- liaising closely with DOC on all field surveys, from planning to final reports;
- surveying safely and professionally;
- reporting adequately on outcomes of all surveys.

4.5.2 Selecting search sites

Six priority search sites have been identified in the South Island (Figure 1 below). Figures 2-7 provide more detail on these sites.



Brief details of the sites are:

Figure 2 Cobb and Waingaro Valley, North-West Nelson

Extensive survey activity has been undertaken in recent years by a group of Golden Bay residents, with a number of credible reports received between 2009 and the present. These are in similar locations to earlier records from as far back as 1994.

For more information, refer to Annex A4.2

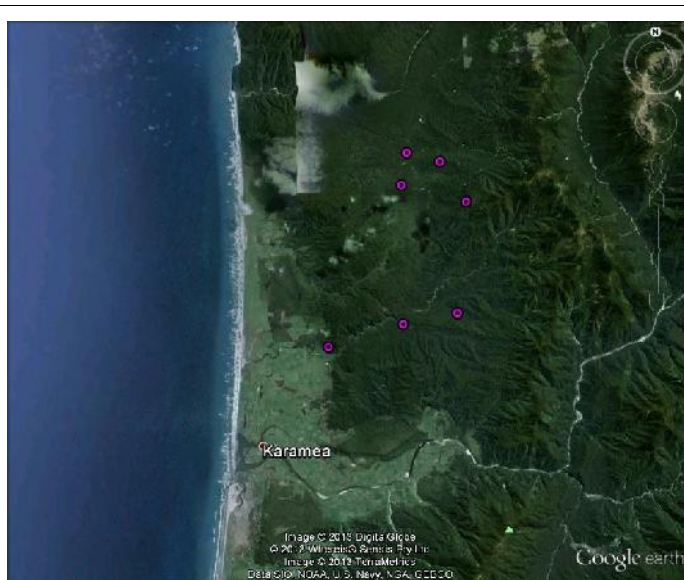
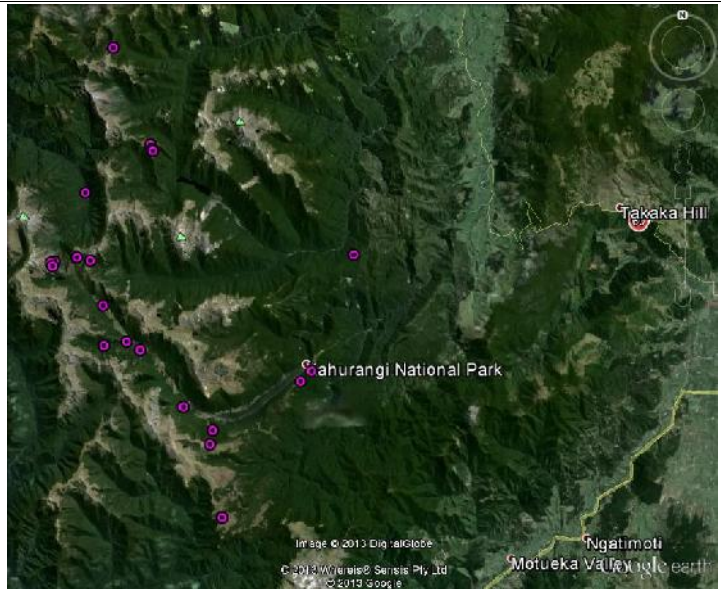


Figure 3 Oparara Valley, Karamea

This area has a long history of reports, dating back to 1994, and includes three independent reports. Several surveys have been undertaken by Trust members with encouraging results.

For more information, refer to Annex A4.2.

Figure 4 Rainy Creek, Upper Inangahua Valley

This is the location of the 2007 report recently accepted by OSNZ, and of five other independent reports received since 1997.

For more information, refer to Annex A4.2.

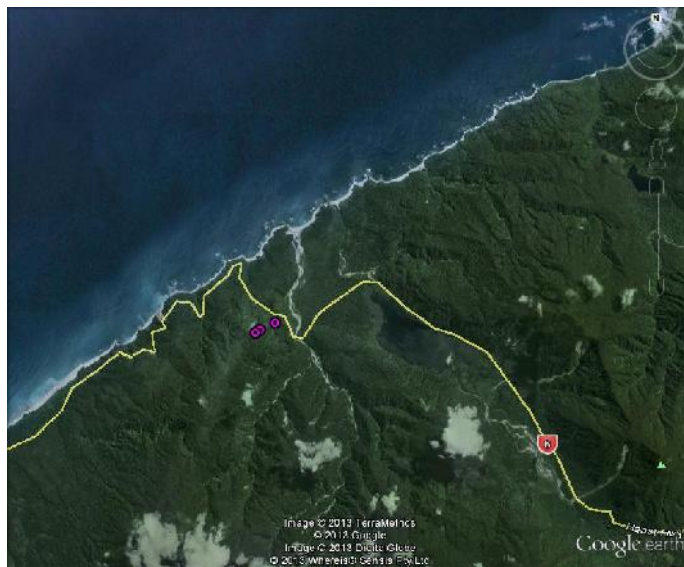


Figure 5 Lake Moeraki area, South Westland

Encouraging recent reports from two different sites have included glimpses of presumed kokako and the recording of presumed calls. A total of five records has been accepted since 2000.

For more information, refer to Annex A4.2.

Figure 6 Waitatoto River, South Westland

Three independent reports by three different ornithologists experienced with North Island kokako, who heard or saw presumed kokako on different years (2003-2007) at the same location ($\pm 300\text{m}$).

For more information, refer to Annex A4.2

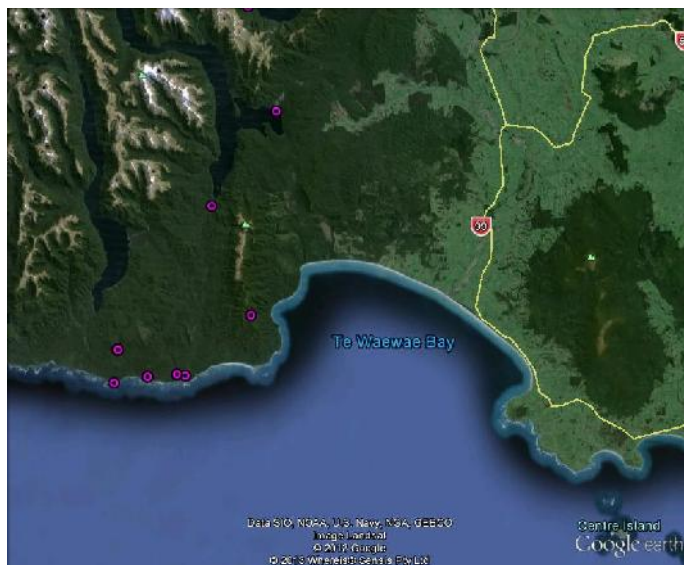
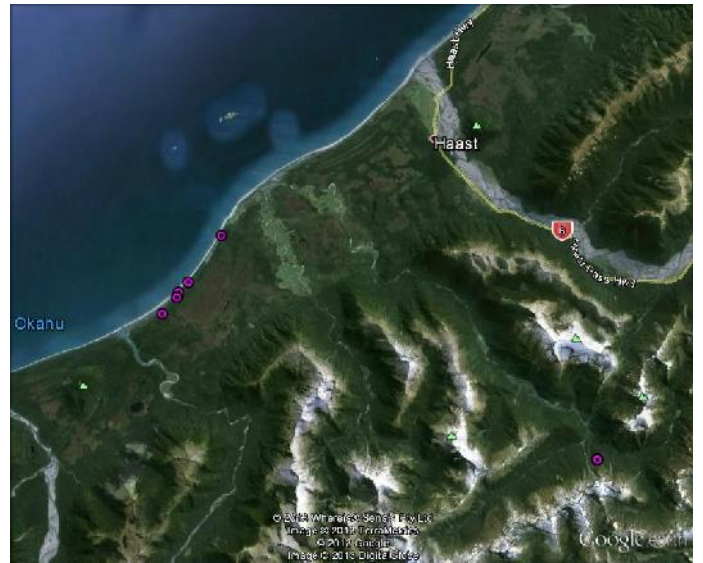


Figure 7 Waitutu–Wairaurahiri, southern Fiordland

Seven reports have been logged, including three independent reports. Follow-up surveys have been encouraging.

For more information, refer to Annex A4.2.

Annex 3 lists the criteria used to prioritise sites. Overall, sites have been selected according to

- how recent the report is;
- reliability of the report;
- frequency of reports from the same or adjacent area;
- indications of a population rather than single or isolated birds (e.g. counter-singing, dueting, typical kokako calls rather than infrequent odd ones);
- presence of moss grubbing sign;

- extent of potential favourable habitat for kokako;
- recordings;
- accessibility;
- pest control operations which would sustain kokako locally.

Selection has relied on thorough investigation of relevant reports. Fully detailed information on each site is included in Annex A4.2. More priority sites may be selected as new reports are received, or older ones are re-investigated.

4.5.3 Methods

A key task for the Trust is to review the methods used so far to trace South Island kokako (many borrow from North Island kokako practice) and suggest new methods where old ones are failing.

The Trust will seek advice from external experts such as DOC kokako teams on methods which may involve specialist intervention (e.g. using North Island kokako as call birds, or specialised trapping devices).

Automated sound recording, photography and filming devices are key tools that have changed the character and efficiency of kokako searches recently. These tools permit simultaneous surveillance in multiple places over significant periods of time.

Where resources allow, the Trust will explore the use of:

- mist nets or live traps in conjunction with a variety of lures (including where feasible a North Island call-bird (probably a trained juvenile));
- photography using automatic surveillance cameras (with lures of food or dummy birds);
- hides for observers with cameras and/or recording gear;
- co-ordinated call-playbacks to simulate a population of kokako calling to each other (to elicit responses from kokako present);
- DNA assessment of feathers likely to belong to kokako;
- release of radio-tagged North Island femalesto attract lone or receptive males

4.5.4 When to search

Analysis of database records (Andrew Holster, pers. comm.) suggests that there are peaks of kokako activity in May and October (Figure 8). Other variables may explain the periods of inactivity (e.g. less time spent in the forest in winter) but these two peaks coincide with key phases in the annual life-cycle of kokako: the post-summer moult,

when birds may be vocally active or displaying ‘autumnal recrudescence’,³ and the breeding cycle when greatest activity (particularly song) is expected before nesting.

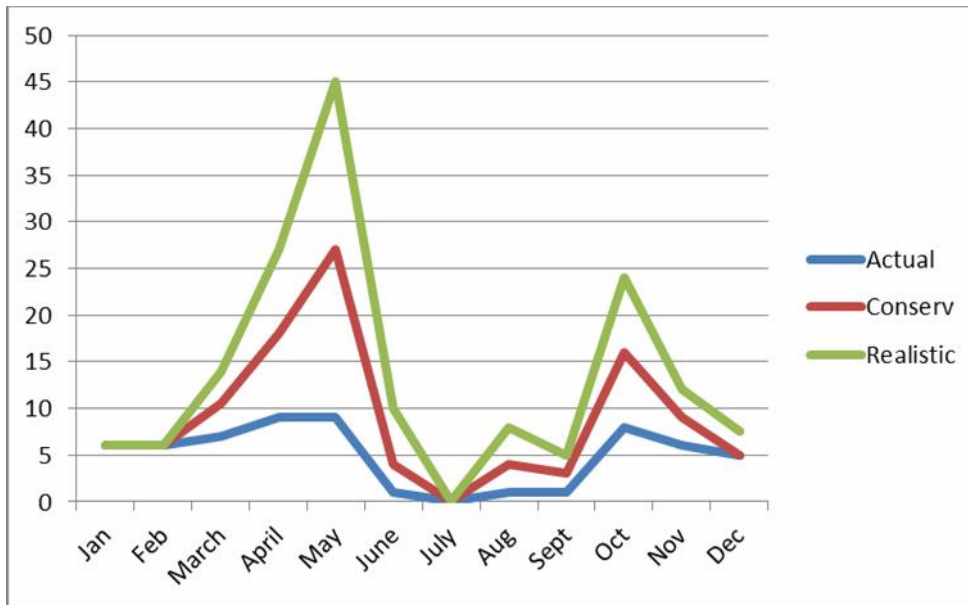


Figure 8: Monthly distribution of records from database (n=59 actual) Source: Andrew Holster

Buckingham found that South Island kokako tend to call with the first frosts and when the first snow falls to low levels at the beginning of winter. North Island kokako typically become more vocal on a weather change (e.g. with the onset of rain).

4.6 Future conservation management

Recovery management must be considered as soon as South Island kokako are confirmed at any site or a report is accepted by RAC. Further evidence would then elevate the threat ranking to ‘Nationally Critical’ and trigger concerted species recovery. There is also a priority to determine numbers present and their distribution at the site of discovery and its vicinity.

DOC has the statutory responsibility to manage threatened species in New Zealand and would be expected to play a prominent role in kokako recovery. The Trust will contribute significant information and technical support to assist DOC. This support is likely to be in the form of:

- knowledge of the discovery site and the nature of sighting(s)
- descriptions of sign
- techniques that might help capture birds;

³ This phrase describes the revival of breeding-like behaviour in autumn when birds are briefly ‘fooled’ by the same day lengths that trigger breeding in spring.

- other observations that might assist management planning;
- technical equipment and staff.

4.7 Budget

| | |
|--|-----------|
| Contractors - Survey | \$ 60,000 |
| Field Equipment - Trail Cameras (4) | \$ 1,600 |
| Field Equipment - Automatic Sound Recorders (4) | \$ 1,400 |
| Programme management | \$ 8,400 |
| Technical/logistical support | \$ 7,800 |
| TOTAL | \$ 79,200 |

The budget allows for contractors to be engaged by the Trust for the equivalent of 1,700 person/hours to undertake survey and reporting work. Given the dispersed nature of priority sites, more than one contractor may be engaged.

For each contractor, a team of between two and four specialists will be required to search in the sites specified by the Trust, at periods recommended by the Trust. The contractor will be required to provide their own vehicles, public liability insurance, health & safety planning and safety equipment.

The field equipment comprises specialist video and audio recording gear that will greatly improve the survey team's chances of success. The equipment will be purchased and owned by the Trust and supplied to contractors as required.

We expect survey work to be supplemented significantly by in-kind support from Trust members and volunteers. We also expect the Department of Conservation to assist with technical advice and logistical support where possible.

The Trust will also manage the survey programme as further in-kind contribution to the project.

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Annex 1: Sign of South Island kokako

Most of the following descriptions are from historical accounts and recent observations (author: Rhys Buckingham).

A1.1. Calls and Acoustic Behaviour

Documented call descriptions of South Island kokako (Potts 1882, Buller 1892, Douglas (in Pascoe 1957), and Washbourn 1933) are similar to recent descriptions of presumed South Island kokako calls (based on observations and tape-recordings). Potts (1882) described South Island kokako calls as comprising “soft flute-toned notes —”.

Washbourn (1933) remembered kokako in North West Nelson last century making very quiet calls “ their song is a curiously small, quiet one for the size of the bird.” Buller (1892) found that his captive bird produced a wide variety of calls. “Its habitual note, emitted frequently, but chiefly in the early morning and forenoon, was a long, plaintive double-note, pitched in a minor key, very pleasant to hear, but to my mind possessing less richness than the organ-note of the North Island bird. “Other calls Buller described were “hollow cough”, “short mellifluous whistle”, and “a liquid bell-note quite undistinguishable from the evening tolling of the tui”. Only rarely his captive bird made rich, organ-like notes resembling that of North Island kokako. Douglas (in Pascoe 1957) described the call of South Island kokako as very mournful. “Perhaps the whistling of the wind through the neck of an empty whiskey bottle is the nearest approach to it —” Douglas said that they produce only three or four notes at a time, “softer and sweeter than an æolian harp or a well-toned clarionet.”

During searches for South Island kokako since 1980, Rhys Buckingham, the late John Kendrick and others have heard and tape-recorded calls they presume were made by South Island kokako. They consider that South Island kokako have recognizable calls, some of which can be compared to those documented above. The main characteristics of these calls are:

- sharp clarity in timbre compared with tui or other songbirds;
- ‘hollow’ depth to some notes;
- directional control of some notes;
- occasionally calls are very similar to those of North Island kokako (e.g. ‘mews’, loud organ-like notes, contact ‘taking’).

Presumed South Island kokako calls appear to vary considerably in frequency, amplitude and timbre. Because generally only a few notes are delivered at a time, it is very difficult to obtain good recordings, or identify the source of the sounds. Although it seems impossible to predict times when presumed South Island kokako are vocal, playing recorded calls of North Island kokako, or presumed South Island kokako, has increased the chances of response. The most appropriate times of the year to plan investigations are November-December, and late April-early June, as vocalisations and response are more likely to be heard during these months.

The following call types of presumed South Island kokako are described below. This information is based on accumulated observations, and tape recordings made in various locations where presumed kokako have been heard since 1980.

Main call types and descriptions:

- (1) ‘Mews’: Relatively uncommon⁴, often identical to North Island kokako.
- (2) ‘Hollow’ notes: Relatively common, unusual sounding—like a wind instrument.
- (3) Flute-like notes: Relatively common, sometimes loud, always displaying an unusual clarity of tone, but lacking the depth of North Island kokako calls.
- (4) Ringing bell-like notes: Relatively common on Stewart Island and in the Caples Valley in the 1980s. Loud ‘pinging’ notes or chimes of exceptional clarity, and can be ‘non-locating’ (the latter characteristic in particular distinguishes the call from kaka or tui).
- (5) ‘Tooking’ and other close-contact calls: Relatively common and similar to North Island kokako.
- (6) ‘Organ-like notes and song: Uncommonly heard, unmistakably like North Island kokako.
- (7) Haunting, organ-like double-note, “Morww-orrr”: Uncommon but unmistakable when heard. Very melancholy call, from which the Maori name ‘koka’ for the South Island kokako (Williams 2010) might have been derived.

The calling behaviour of other birds has been considered a possible indicator of the presence of kokako. Song copying (mimicry) by different species is a well-known and complex phenomenon (e.g. Dawson 1982; Goodale & Kotagama 2006; Hughes 1981; Marler & Slabbekoorn 2004; Slater 2003).

Buckingham (1996a) summarised the interactions between tui, bellbirds and kaka with presumed South Island kokako. He reported from personal observations that these species usually respond to the infrequent loud calls of presumed South Island kokako in several ways:

1. increasing vocal output soon after the presumed kokako calls;
2. changing their call type — e.g. from complex songs to single note calls;
3. frequently repeating notes; and/or
4. copying the kokako calls.

For example, immediately after a kokako-like song was heard in Fraser Creek, in May 1983, bellbirds began singing, and continued singing for at least half an hour after the presumed kokako called, despite heavy rainfall (Alison Davis and Mark Bellingham, pers. comm. April 1983). Similarly, a long sequence of loud ‘bongs’ heard in the headwaters of Fraser Creek on 29/4/1983 was followed by a noticeable increase in the

⁴ The phrase “relatively common” means common only in the repertoire of presumed South Island kokako.

number of bellbirds singing, and a dramatic change in their dialect from multiple-note songs to persistently repetitive single-note ‘bells’ (Buckingham pers. obs.).

In the Grey Valley, North Westland, Buckingham had just started a formal 5-minute count when he heard a loud kokako-like call and had to delete that count from the data, as from an average 3-4 bellbirds a count he lost count of 15+ bellbirds that ‘went crazy’ after the call, one even trying to mimic it. On another occasion, in the same general area, tui and bellbirds changed their calling pattern by repeatedly produced long ringing notes after a presumed kokako produced a long sequence of loud, reverberating ‘chimes’.

Buckingham observed more complex vocal behaviour after playing back North Island kokako calls. On some occasions tui and/or bellbirds responded to the playback with repeated kokako-like calls that were quite different to the call type being played. It was as though these songbirds recognized this call type and were able to associate it with other calls they had learned from a kokako. This behaviour might be considered a very good indicator of kokako presence, or relatively recent presence.

It is also apparent that South Island kokako copy the calls of other songbirds (Buller 1892; Buckingham pers. obs.). A South Island kokako seen by Buckingham in the Freshwater Valley in November 1984 produced long sequences of notes that were indistinguishable from tui and bellbird. North Island kokako are also known to mimic tui and other songbirds (Hughes 1981, Murray Douglas *in litt.* 23/7/1984).

A1.2. Moss grubbing

Unusual moss sign, known as ‘moss grubbing’ where large clumps of moss grow detached on the forest floor, was first described on Stewart Island by Martin (1951). Martin didn’t know what might have produced the sign, but he suggested possum or other cause.

McBride (1981) also describes a fresh disturbance of moss at locations when he saw kokako in the mid 1960s⁵:

“As I climbed and returned I would always come upon areas of the mossy forest floor that had been recently disturbed, and rotting tree trunks and branches that had been picked at and underdug. I suspected kaka but saw no other sign... The following year, still intrigued by the "ploughing" I took more care to travel quietly and, on my way down, spent an hour or so just listening. I was rewarded by hearing the same (exalted) Tui-like sounds from two different directions, and did see movement of what appeared to be a largish bird in the tree tops from whence one song came. The next year (1966), ... I was coming quietly down the trail and stopped ... Presently, I realised I was looking straight at a strange bird perching on a branch 15-20 metres away. ... The light was not good, but I could see detail quite well. It was facing directly towards me, the tip of its tail visible below the 10-cm-thick branch. It was dark grey with

⁵This was an officially accepted report by the then Rare Birds Committee of the ornithological Society of New Zealand

jet black head and beak. One could imagine it was wearing a mask ! Its wattles, which were quite prominent, were putty coloured, just a light fawn, but it was undoubtedly a Kokako.

The following year (April 1967), I was within 400 metres of the previous sighting, and close to a patch of "ploughed" ground which I had seen on my way up the valley about six days before. ...I had stopped to listen, propped against a tree for only a few minutes, when a Kokako appeared walking along a log which protruded from a thick patch of fern beside a patch of "ploughed" ground."

K. McBride, in Notornis 28 (4), 1981

Buckingham found signmatching Martin's and McBride's description in 1982-83 (Caples Valley and tributaries, Wakitipu State Forest) and in 1984-85 (remote parts of the Freshwater Valley and Rakeahua valleys, Stewart Island). Fresh sign was associated with calls and activity of what Buckingham presumed to be South Island kokako. Calls believed to have been made by a kokako were recorded when microphones were placed near the freshly disturbed moss sites. Search teams led by Buckingham, John Kendrick and Ron Nilsson found a strong correlation between presumed kokako activity and fresh moss grubbing sign, at >10 sites on Stewart Island and at other localities in the 1980s and 1990s. Kokako activity comprised calls, silhouette sightings, and a bill impression on an orange at one site (Freshwater Valley, Stewart Island, 1984) that matched the shape of a kokako bill (Sandy Bartle, pers. comm.).

The nature of the sign found on Stewart Island in the early 1980s implied that it was behavioural rather than feeding sign. Areas of disturbance comprised large numbers of 'powder puff' moss pieces neatly clipped at the base and often grouped together. At Howard Saddle (Nelson Lakes) and Glenroy River (Murchison area), moss was grubbed over a relatively large area of the forest floor (c 4-5 hectares) in a matter of hours or days. It was as though someone had used a small plough to harvest moss. The sign differed markedly from any known to be made by other animals in New Zealand.

Buckingham and team have also observed moss grubbing sign in a number of isolated localities on the West Coast and Nelson Lakes area. It is also been reported at the Hurunui South Branch by DOC staff (Peter Dilks pers. comm.). Dilks said that the sign was very unusual in being clipped at the base rather than pulled or kicked (like weka or blackbird). The sign is typically found in areas where South Island kokako are reported or their presence is suggested by other evidence. The sign appears now to be extremely uncommon in the South Island and Stewart Island. There are two other reports of possible kokako picking moss on the ground: one by Robin Campbell (Stewart Island 1970s-80s) and the other by Gordon Appleton (1/1/90 at the Head of Lake Matiri near Murchison). Gordon described the process in detail: *Two birds hopped from tree to a nearby log where they picked at moss for about 5-10 minutes. Flicked moss off using a sideways motion of bill. The bill was inserted vertically into the moss, then the moss prised loose with a sideways flick. This was very distinct. Each dislodged clump of moss was about 2-3 times the size of a 50 cent coin.*

The database and record compilations contain 17 reports of moss grubbing (half made by the SI kokako team) found at places where presumed kokako have been heard or seen. Large areas were noted on three occasions: 20x20m, 150x150m and 200x200m. Sometimes the patches of moss grubbing have extended over 4 ha of forest floor. There was also one occasion when a hunter reported grubbing alone because he had never seen anything like it before: *a large area of intensive moss grubbing on forest floor. Large patches (size of living room) disturbed. Moss clipped off rather than grubbed.* (Brent Boyce - D'UrvilleValley Nelson Lakes N.P.)

North Island kokako have not been recorded grubbing moss though Buckingham has found similar sign near the edge of a kokako territory at Pureora Forest in rather poor habitat abutting farmland. Also, Buckingham talked to a hunter at Pureora Forest in 1987 who claimed he had once seen a kokako on the ground working moss.

Several forest birds, such as blackbird, song thrush and weka are known to lift moss from the forest floor, or fallen trunks. Yellowheads remove clumps of moss from branches. Also, moss disturbance can be caused by mammals such as deer or pigs. Therefore, caution needs to be taken in identifying the agent of moss grubbing sign.

Although the distinguishing features of presumed kokako moss grubbing sign are not clearly understood, key indicators of possible kokako sign are considered to be:

- moss tends to be detached neatly or clipped at the base, with comparatively little soil or litter attached (unlike sign made by blackbird or weka);
- variable size of detached moss clumps, some with diameters up to 18 cm;
- typically, large quantities (thousands of pieces) of moss are 'pinched' out of moss growing on logs or the forest floor over a period of hours or at most a day or two;
- sign typically covers a relatively large area of forest floor (e.g. up to 5 ha); activity restricted to a few days or less each year, usually during November-December, but sometimes during April/May;
- the period of moss activity correlates with the time of presumed kokako activity (calls, wing-flapping, kokako-like birds seen, response to tape playback);
- activity may be site specific; i.e. birds return to the same areas to grub moss each year.

Tufted mosses (*Dicranoloma* spp.) tend to be the most common species of moss dislodged; other species disturbed include *Ptychomnion aciculare* (a moss), and various species of liverworts and lichens.

Annex 2 Summary of South Island kokako workshop decisions, and threat status changes

| DATE | SOURCE | OUTCOMES |
|---------------|--|--|
| June 1988 | Joint DOC and Ministry of Forestry kokako workshop, Rotorua | “That there must be a major commitment to finding out where, and how many kokako are on Stewart Island, and to developing a management strategy for this subspecies” |
| April 1996 | DOC, South Island kokako meeting, Dunedin | “The accumulation of evidence is significant enough to recommend the Department of Conservation should act on the reports within the next year” |
| January 1997 | OSNZ Rare Bird Committee (from considerable documented evidence presented by Rhys Buckingham) | “The committee agreed that there is sufficient positive evidence to suggest some urgent and concerted effort in the ‘hottest’ and most recent sites of observations” |
| February 2001 | DoC, South Island kokako meeting, Greymouth | It was agreed that South Island kokako was a priority, and a plan for its recovery should be developed in consultation with North Island kokako experts and others. |
| October 2002 | Hitchmough, R. (compiler) 2002. New Zealand threat classification system lists 2002. Department of Conservation, Wellington. 210 pp. | Page 19. South Island kokako Nationally critical, present at West Coast and Canterbury. Qualifiers: HI (Human induced). |
| 2007 | Miskelly et al. 2008. Conservation status of New Zealand birds, 2008. <i>Notornis</i> 55: 117–135 | Changed ranking to ‘Extinct’ due to lack of recent records |
| 2013 | NZ Threat Classification <i>New Zealand Birds Online 2013</i> | Revoked ranking: New classification ‘Data Deficient’ due to newly submitted reports, one of which was accepted by RAC. |

Annex 3: Criteria for assessing sites and individual reports

Assessing ‘sites’

Criteria have been divided into primary and secondary, with primary criteria to be used first and the secondary criteria considered to help choose between sites considered of similar priority ranking.

Primary Criteria

- The quality of the report (descriptive detail).
- The experience and reliability of the observer.
- Date and nature of individual reports (see below). The older the report the lower chance of success in following up.
- Number of reported birds (seen or heard).
- Number of independent reports at the same location.
- Outcome of follow-up investigation/s (note: the more follow-ups since a report that have yielded nothing, the lower the priority of the site).

Secondary Criteria

- Accessibility – primarily a cost/effectiveness issue.
- Facilities (Hut, tracks, etc) – also relates to effectiveness.
- Management regime– a site with comprehensive pest control in place might be a priority over one without this as bird survivorship should be higher.
- Personal feeling/choice – if everything else is equal there may be scope to favour sites that individual searchers feel to be more likely to deliver positive results based on intangibles.

Assessing Individual Reports

The following classification system has been proposed for individual records on a reliability basis. Three categories are proposed. The criteria for allocating a category to a report are chosen to make the classification as objective as possible. The details of the report, the experience of the observer, and how recent the report, are the most important first criteria to consider, and this might affect criteria listed below. Location is also an important factor when considering priority of follow-up: i.e. particularly when more than one independent report centres on the same or similar location. These matters are further discussed below. The following criteria are weighted on the merits of the report descriptions alone.

1. Definitive

Report substantiated by physical evidence (e.g. video footage, photograph, carcase, feather) and accepted by RAC.

2. Accepted

Report accepted by RAC but not involving physical evidence.

3. Probable

For a report to be classified as probable, the report must include a detailed description of a closely observed bird (i.e. within 50m). These details may include:

- fleshy wattles reported at the base of the bill of a bird fitting the general description of kokako;
- bird clearly viewed with descriptions matching kokako size and colour;
- typical kokako behaviour (hopping gait, laboured flight and/or moss-grubbing);
- clear description of call type/s that typically matches that of probable kokako; and/or
- recognised kokako call-type response to playback of kokako call.

4. Possible

For a report to be classified as possible it must have at least one of:

- bird poorly viewed, or observed >50m from observer, but having descriptions matching kokako (size and colour, behaviour, etc), or
- call not recognised as from other source (e.g. tui, korimako, goat, kaka, and kea) and fitting kokako call types, or
- moss grubbing of a type considered to be possibly produced by a kokako.

Note: All reports must have a contactable address/phone number to be registered in the South Island kokako database.

Other relevant factors are:

- experience of observer (highest importance for ornithologist with North Island kokako experience, ranging to general ornithologist and outdoors person familiar with a range of bird calls);
- the area – likely suitability of habitat for kokako, previous reports, frequency of visits; and
- number of individual birds involved: if more than one individual was considered present this increases the chance of birds still being present.

Annex 4: Summary of reports (1990-2013) from most active sites.

A series of locations have provided the strongest evidence for the survival of the species and these are identified in this annex.

A4.1 Sites of significant past activity

Table 2 (Section 3.2) recorded (by shading) four such locations that had periods of major activity in the recent past then a lack of reports:

- North Westland – A strong series of reports from the Grey River valley 1994-2001
- Nelson Lakes – Reports and positive follow-ups from Howard River valley 1990-1996.
- Canterbury – Reports from the Hurunui River valley 1993-2001
- Stewart Island – Reports from Paterson Inlet and major rivers flowing into it from 1984-96.

The following summarises the strength of the evidence in each case.

Grey River, North Westland

The first report came from Buckingham⁶ who was conducting bird surveys for Timberlands West Coast. On 26/3/94 during a 5-minute count he heard ‘a loud unmistakable kokako call consisting of a ‘mew’ and two organ-like notes (identical to North Island kokako). This was followed by the dramatic response of bellbirds referred to in Annex A1.1. Further follow-ups at this site in 1994/95 detected no further sign of birds but fresh moss grubbing was found in November 1995. On 25/10/94 Nilsson heard loud ‘chime’ calls at a second site 1.3km away and a repeat three days later.

These results led to an intensive search in Granville and Maimai State Forests in November and December 1995 financed by Timberlands West Coast Ltd. Tape recorded calls of kokako were played, and food stations were set up at the grubbing sites. Records of kokako-like calls were obtained at five different sites in the vicinity, a brief sighting of ‘an unidentified dark-coloured bird ‘power-glided’ from the crown of a beech tree to dense shrubs in the under-storey’, wing flapping, moss grubbing, and a response to a taped call.

14/11/97 Nilsson heard ‘mew, flute-like and hollow notes’ at a further site. In November 2000 Nilsson and Buckingham obtained calls, a possible sighting and found fresh moss

⁶ Buckingham surveyed for and studied North Island kokako over several months in 1986 and 1987 closely following birds and learning their behaviour and calls

grubbing at the original site on separate days. A new independent report of kokako-like calls was received the following November from a different location at Granville SF.

Conclusion:

Strong evidence of 1-2 birds present in Burton Creek area (Maimai SF) and more in Granville SF in 1994-95. Search effort largely ceased after Timberlands closed down. Needs reconsideration for further follow-up.

Howard Valley, Nelson Lakes National Park (NLNP)

Reports of kokako in NLNP had been received since the early 1970s, but a significant search effort in the Howard Valley was triggered by an observation in Louis Creek on 10/4/87 describing a good sighting including orange wattles. At least six follow-up trips were made there between September 1987 and November 1991 with negative results except for some unusual calls and moss grubbing. However a new independent report was received of kokako-like calls over a 20-minute period on 15/4/2008. This has not yet been followed up.

After a May 1991 visit to Louis Creek, Buckingham visited areas at the head of the Howard Valley that had also provided earlier reports including a strong one in 1973 (John Flux, *in litt.*). Here on two different days he noted: *'hollow notes, long flute-like notes after playback of N.I. "mew" calls - mimicry from bellbirds and tui after the bird called. Wing flapping, quiet "took" calls heard'*. Further follow-ups took place in this area on at least five occasions up to January 1997 yielding two other database records, loud 'bong' calls at dawn on 28/10/95 (Buckingham) and a long sequence of kokako-like calls at dawn on 29/10/95 and short sequences all that morning (Kendrick⁷). A large area of very fresh moss grubbing was found at the locality where Kendrick heard the calls that day (Buckingham, pers. comm.).

Conclusion:

Cumulative evidence was very strong in this area during searches in late 1980s to mid 1990s, after which the number of searches decreased due to time constraints and focus in other areas. A very recent report of kokako at nearby Sabine Hut (27 July 2013⁸) might be good reason to resume the search in the Howard Saddle area.

Hurunui Valley, Canterbury

The Hurunui has been the site of major conservation programmes to conserve rare birds for decades. An experienced DOC staff provided the first 'kokako' report (a large area of moss grubbing) on 15/11/93. Between then and March 2001 there were several reports mostly from DOC staff. The reports were particularly important as they involved sightings of birds, typically gliding through the forest. Rhys Buckingham and Andrew Macalister, supported by DOC, made one unsuccessful follow-up visit in November

⁷ The late Johnny Kendrick was a bird call expert whose sound recordings are regularly played on National Radio.

⁸ Ian Young via Alec Milne

2000, though they did find moss grubbing which they considered consistent with kokako activity. The most recent report was an independent one of a 'dark bird gliding through forest' in 2005.

Conclusion:

Considerable fieldwork is undertaken in the site each year primarily for orange-fronted parakeet conservation and the lack of more recent reports are the key reasons this site is considered no longer active. However, the number of kokako reports from very experienced ornithologists and the odd report from trampers, strongly indicate that kokako were present in the area until recently.

Stewart Island

Stewart Island was a site of major kokako search activity in the 1980s and early 1990s. The island provides a habitat free of stoats, probably one of the bird's main predators. However, rats can frequently reach plague proportions and limit bird populations, such as found for robins on the island (Harper 2009).

Significant searches on Stewart Island, logistically or financially supported by NZ Wildlife Service, NZ Forest Service, Department of Conservation and Forest & Bird, began in 1980 and were stepped up in 1984-1988 following a significant independent report. A series of possible sightings, kokako-like calls, the finding of a feather (below), and moss grubbing at the same sites lead Buckingham (1986, 1987) to conclude that small groups of perhaps 3-4 birds were present at two localities, the north-east branch of the Freshwater Valley and the north branches of the Rakeahua Valley. However subsequent follow-ups in these areas between 1990-92, including an attempt to use a North Island kokako as a call bird⁹, proved unsuccessful.

In 1995 a detailed report of kokako seen in the Jackson River area ten years earlier was received. Follow-ups in Dec 1995/January 1996 by Rhys Buckingham and John Hall-Jones (who sponsored the trip) found four areas of fresh moss grubbing, a bird close by with loud kokako-like wing flapping and a response to a 'mew' call. In 2000 a further survey by Buckingham and volunteers reported kokako-like calls, moss grubbing and a brief sighting of a silhouette kokako-like bird.

Finding of Feather

Buckingham (1987) reported on the finding of a bluish-grey contour feather by Dave Crouchley in Koka Basin (NZMS 260, C49, D49, 123466), on 26/11/1986. It had a loose texture and very long afterfeather, each being characteristic features of kokako and was found at a location where other recent sign (calls, moss grubbing) of kokako was present.

The feather was subsequently found to be almost certainly that of a kokako (John Darby, *in litt.*, 8/1/1987; Tim Brom, *in litt.*, 12/11/1991). Darby wrote: '*Obviously it would be nice to seek a second opinion for I also feel there will be microscopic differences. At this stage*

⁹ The bird died within a few days of starting the trial.

of the game I feel that the gross differences in the afterfeather are sufficient to state without any further qualification that your feather is that of a kokako.' The feather is currently held by Te Papa and a post-doctoral geneticist is undertaking an analysis of its DNA.

Conclusion:

Stewart Island was considered home to isolated populations of South Island kokako in the 1980s, but after a series of negative follow-ups in the early 1990s some of these small populations appear to have died out. However a number of sites with reports are remote and rarely visited and considered to be worth further searching – e.g. Jackson Bay and bays southwards towards South West Cape, and catchments flowing into the southwest arm of Patterson Inlet.

A4.2 Sites of more recent likely kokako activity

Rainy Creek, Upper Inangahua

The first report was in July 2002 when Buckingham was bird counting south of Rainy Creek and heard distinct kokako-like calls (short, loud organ-like calls and wing flapping) and found intensive fresh moss grubbing. Nilsson and Euan Kennedy investigated the area a month later with negative results, apart from confirming the typical moss grubbing sign (then older). In 2004 Peter Rudolf (experienced with North Island kokako) reported hearing a kokako-like call while carrying out predator control in the area.

Len Turner (MBC Ltd), while carrying out predator control maintenance for Oceana Gold Ltd in March 2007, reported a haunting resonating call “like an Aboriginal wailing” that he had not heard before. Shortly after, further up the ridge, he saw an unusual bird perched on a branch only 10-15 metres from him. His description of the bird was: plumage steely grey with a bluish tinge; distinct wattles on the sides of its bill, their base a deep matt blue and the remainder (the larger part) ochre (“fleshy orange-brown”). The bird was viewed for about 30 seconds before it glided away with some heavy dull wing flapping and the observer noted the rounded edge of the wings in flight, and described the flight as clumsy (Buckingham et al. 2007).

The following day Rudolf and the observer re-visited the site. They heard distinctive kokako-like heavy wing beats about 60m away then saw a bird in silhouette ‘leaping up a rimu trunk before gliding off when Rudolf identified it as a kokako. An extensive area of fresh moss grubbing was seen along the forest floor and extending up tree trunks higher than weka would be likely to reach (Buckingham et al. 2007).

On 23/3/07 Rudolf heard kokako-like calls here in the dawn chorus, though some of these were made by tui and bellbirds. Later he heard a bird moving in the branches of a rimu which made 2-3 very soft “contact” calls similar to NI kokako calls.

This report was accepted as South Island kokako by RACin 2013.

Several other reports of kokako-like calls or unidentified calls were reported in the same general area (e.g. Glen Johnstone, John Bywater, Grant Crossett and others), some of which are held in files at the Department of Conservation Greymouth office.

Some effort has been made to follow up this record, but without success. A concerted effort involving several surveys over a number of months would be required to yield any possible positive result. Buckingham had carried out bird surveys at the Turner/Rudolf report area over a six-year period (July 2002; September-October 2004-2009), yet only once heard calls he considered were almost certainly made by a kokako in that area.

Conclusion:

At least one kokako was present in 2007. This site remains a priority for further follow-ups.

Lake Moeraki, South Westland

This area has a number of independent reports of sightings and calls of possible kokako, located at two different areas. The first report was in 2000 and a follow-up then provided convincing evidence of kokako presence (response to call playback and kokako contact calls on approach of the bird). The area was repeatedly visited during the 2000s until in May 2010 when good recordings were obtained (Grey Ghost web site: <http://www.greyghost.org.nz>). In June that year, Buckingham had a glimpse of a bird he considered was a kokako that responded to these locally recorded calls (Buckingham & Nilsson 2011). It made a couple of quiet flute-like notes of extreme clarity. The bird was identified by its tail (shape and length) and the way it power-glided from the dense canopy that otherwise obscured it.

At another location in the Lake Moeraki area, a sighting of a black-grey bird was reported by Pieter Hensen and his son in April 2011. *“The bird approached us and fluttered from branch to branch at approx. 6 to 10 metres away...”*. When asked to describe the bird’s movement, Pieter noted: *“When it moved around the tree it ran along the branches then sort of jumped to other branches”*. *“The way it seemed curious about us, it seemed inquisitive and a little clumsy when it moved around the trees”*.

The report was quickly followed up by Alec Milne and his family who reported a silhouette of a bird matching a kokako, heavy-sounding wingbeats and a tui-like call in response to playing North Island kokako. Alec wrote *“...the responding bird flew straight in, landing on the side of a leaning tree 30m away and staring at me. I viewed it thru binoculars but the bird was in shadow and I had a veiled view thru light foliage. It was lighter coloured than a tui and slightly larger with a splash of colour on the side of its head...perhaps a light blue”* It then walked up the steeply leaning tree somewhat like a parrot. Alec’s partner Marian later had a glimpse of a grey bird, slightly larger and plumper than a tui. Repeated follow-ups to the site and general area after April 2011 have failed to detect kokako or any sign.

Recently, Buckingham has reviewed data from four automatic acoustic recorders set up by DOC in the same valley where recordings were obtained in May 2010. This data (provided by Dr Graeme Elliott) was obtained in January 2010. No kokako-like calls of any particular note were heard in a total of 56.25 review hours (real time) during this period. This result markedly contrasts with recordings made at this location at other times of the year, and other years, when kokako-like calls are commonly noted (typically in the repertoire of tui and bellbird). The suggestion is that South Island kokako may not be in this valley at all times of the year. They may not be particularly territorial (like North Island kokako), except perhaps during the breeding season.

Conclusion:

The Moeraki area is one of the most important “hot spots” for further kokako investigations, particularly as good-quality local recordings have been obtained. However, evidence suggests that a concerted effort will have to be made at different seasons, with particular focus in late autumn and spring when most evidence of kokako in this area has been observed.

Oparara River, North Westland

An initial April 1997 report of kokako-like calls (Sandy King, Pers. comm.) was followed up a month later with further calls heard, and presumed South Island kokako responses vocally to playback at four different sites in the valley. The calls, that closely resembled those of North Island kokako (rich organ-like notes) or historical descriptions of South Island kokako (loud, ‘hollow’ sounding notes), were made by a very cryptic bird, that could not be seen even when presumably close to the observer (Buckingham 1997b). In 1998 there was a further report in this valley of a bird seen with yellow marks about head and ‘thumping’ and ‘squealing’ calls.

Two major follow-up surveys took place in 2000 with two sites of interest identified near Nimrodel Creek in October. At these localities, possible vocal response by kokako to call playback was observed. On one occasion kokako-like wing flapping was heard followed by a brief sighting of a largish bird that ‘power-glided’ in kokako-like fashion. Between 2003 and 2009 there were a number of reports including a sighting of a dark blue bird with flashes of pink on head, three independent reports of kokako-like calls, including two comprising full organ-like song. More recently in June 2011, Alec Milne heard calls in response to playback and saw a bird flying from perch on vine into shrubs. In May 2013, Buckingham also heard possible kokako calls in response to playback on the ridge immediately south of Nimrodel Creek.

Conclusion:

A priority site for further follow-ups given the number of independent records and outcomes of investigative surveys.

Waitutu, Fiordland

The first report was in February 1995 when an experienced DOC manager from the Te Urewera familiar with kokako (Pete Shaw) elicited a response of possible kokako from calls of this species. In 2000 and 2003 there were two independent sightings of birds with orange wattles reported including the following: Johan Groters (Wairaurahiri Jet Ltd) reported that while unloading guests from the jet boat to the Waitutu Lodge one elderly gentleman remained in the jet boat while the other guests went ashore for a break. On their return Johan was questioned by the elderly gentleman as to “*what was the large grey bird with orange wattles in the nearby trees*”?

In January 2009, there was a report of ‘*a large grey bird (smaller than a pigeon) that flew in a clumsy flight, was gunmetal grey in colour and flew with its wing and tail feathers spread out.*’ Later that year a walker heard a loud clear “*haunting*” call which she later identified as kokako after hearing North Island birds on Tiritiri Matangi Island .

In January 2010 Glenn Brown recorded a single kokako-like note after playing back calls from a putative South Island kokako (recorded by Buckingham in 1987 in North West Nelson). This and the earlier reports prompted the Trust to investigate the area.

Nilsson and Rudolf conducted a follow-up in April 2010 and heard kokako-like ‘anvil’, flute notes in descending scale and ‘tooking’ calls and found grubbing sign at three sites. In 2011 Milne found sign at the same three sites and heard ‘double noted flute, hollow, mew, and jumbled notes that he considered to be from a kokako. Finally in the 2012/13 summer, GlennBrown reported interesting calls near Waitutu Lodge and had a brief sighting of dark bird larger than a tui, with longish tail, being chased by a tui.

There have been extensive 1080 drops throughout this forest in recent years and the owners of the Wairaurahiri Jetboats have been trapping stoats & rats in the area for more than five years.

Conclusion:

A priority search area, with a very reliable initial report, followed by several strong independent reports and positive follow-ups.

Waiatoto River

Anecdotal reports of South Island kokako from remote locations in the Waiatoto River have been known for many years (the late P. Child, pers. comm). Peter Child and Buckingham followed up a particularly convincing report of kokako in the valley in May 1985 (Child & Buckingham 1985). More recent reports in the lower valley (coastal forest) have also been received. One report was from an overseas ornithologist who sighted a bird with orange wattles in 1998. Kokako-like ‘organ song’ was heard in 2002 and ‘organ notes’ and ‘flute-like calls’ in 2003, in the same general area. Then in July 2007, entomologist/ecologist Ruud Kleipaste reported that a kokako called and flew across the road within about 300m of the 2002 and 2003 reports. A brief survey in

autumn 2012 set out several automatic sound recorders but no kokako-like calls were detected in 8-10 hours of recording time.

Conclusion:

A priority area based on several independent sightings over the past decade, including three by experienced kokako observers. Moreover, these three observers at different times, reported kokako at sites within 300m of each other.

Cobb Valley and Burgoo Stream

Two sightings of blue-grey birds were reported on two separate hunting trip up Chaffey Stream in 1994 and a sighting and calls above Mytton's Hut in 1998. The Burgoo Stream area was the site of 'organ' song at dawn in 1995 and a possible sighting in 2003. In November 2007 there was a sighting at Mt Xenicus above the stream of a grey bird with orange at the base of the bill seen hopping and in 2008 and 2009 there was a further sighting, calls and a response to playback there (Alec Milne, pers. comm.).

Conclusion:

A priority site where at least one bird is considered present, following a strong set of reports and promising follow-ups.

Waingaro

A sighting of a magpie-sized grey bird near the Stanley River was received in 2009. This report was followed up twice by Alec Milne in 2010, who reported kokako-like calls and wing flapping in response to playback (Alec Milne, pers. comm.). A further independent report was received from the Waingaro Saddle in 2011 of a grey-like bird that was not a tui. A further report was followed up in the Skeet Creek area of the Waingaro Valley in winter 2012. Several call recordings obtained were considered very likely to have been made by kokako (audio reviewed by Buckingham and Nilsson).

Conclusion:

A priority site based on independent reports and investigations, but relatively inaccessible without helicopter.

Glenroy River

Buckingham reported watching a kokako through binoculars for over a minute near the Glenroy River on 27/11/96 (Buckingham 1997a). An hour or so before this sighting he found a large area (c. 150 x 100 m) of freshly grubbed moss on the beech forest floor. This prompted him to play tape calls of juvenile North Island kokako to which a presumed kokako responded (short sequence of lucid song). On stalking the bird, Buckingham was rewarded with a sighting of the bird walking and feeding (in a most unusual way) down a bough of a large beech tree. Pale-coloured wattles and a heavy bill were glimpsed briefly before the bird disappeared behind the trunk of the tree.

A significant follow-up survey was undertaken from 28/10 to 9/12/97 using a variety of techniques including automatic cameras and no definitive evidence was obtained though kokako-like calls were heard on several occasions (Buckingham 1997a). In May 1999 Buckingham reported unidentified calls after playback, loud wing-flapping and a change in bellbird vocal behaviour, and on 2/1/ 2000 Nilsson reported 'flute-like and hollow calls' and moss grubbing. A short survey in October 2000 yielded no results.

Conclusion:

Significant follow-ups through to the early 2000s yielded no definitive results with conclusions that this record most likely represented one old bird. A visit by Buckingham a few years ago indicated no sign of kokako in this area. Therefore, the area is no longer considered a priority.

Tiropahi River, Charleston

An observer interviewed by Buckingham in Westport in 2000 reported two unusual birds near the Tiropahi Valley in spring/summer 1998/1999 that were described as blue-grey, larger than tui with face wattles, one blue and one orange. They had a distinctive "ghostly" call which was successfully recorded, and played to Buckingham and Andrew Macalister in 2000 and 2001. The recorded call was unmistakably that of a kokako, consisting of 20 seconds or more of loud organ song. He showed Buckingham and Macalister a purported nest site in early 2001 but no responses were obtained to playback of the locally-recorded song. The observer declined to provide the recording to Buckingham and Macalister, and unfortunately all copies of this call were later lost in a house fire.

A series of investigations followed with the following positive indications:

- 1-2 and 28-29 August 2002 – kokako-like calls heard and some response to playback (R. Buckingham)
- Dec 2003 – kokako-like calls heard intermittently (Johnny Kendrick).
- A silhouette sighting by Ron Nilsson at same site followed by calls heard by him and Buckingham close to the original report location in May 2004. This was a very short sequence of about 3-4 notes, delivered during a period when songbirds in general were very quiet. Immediately after hearing this call, tui and bellbirds began calling excitedly in the vicinity, attempting to copy the original call.
- An unmistakable kokako contact call heard at very close range by Buckingham the same month c.500 metres from the original report location. A nut-cracking sound identical to that made by North Island kokako was heard at the same site immediately before the call. Despite the proximity of the bird to observer, no sign of it was obtained after an hour of quiet and focussed observation.

Buckingham, Nilsson and others worked periodically in the Charleston area for almost ten years over which period reports ceased.

Conclusion:

Kokako were potentially present until about five years ago, but follow-ups since then have been unsuccessful and it is presumed that the one or two kokako present there might have died, or moved on.

Tutuko Valley, Fiordland

The first recent report was on 1st January 2000 when Fraser Maddigan, an ornithologist with experience of the North Island species, heard what he considered to be kokako song, c.1km from the Milford road. A follow-up ten days later reported kokako-like calls in response to playback, and wing braking on another occasion. In December that year Buckingham and others made a further visit and heard calls and obtained a response to playback at a site where they heard wing flapping.

Conclusion:

Almost certainly a kokako was present in the area in 2000. Whether it still remains, or whether a small population exists there is unknown and a return investigation could be warranted.

Alexander River (Victoria State Forest Park)

Two independent reports were received from experienced DOC staff. The first was in December 2000 when a large bird was sighted closer to pigeon size than tui, grey in colour, with an unusual flight: grubbing sign was also reported. The second was a month later when kokako-like calls were heard. Buckingham also recorded kokako-like calls in the area during a survey in 1983 for the New Zealand Forest Service (Hokitika).

Conclusion:

The area including 'Bald Hill' was considered a "hot" area for kokako in the 1980s, but has received little investigative attention since then. Further reports from that area could make it an important priority.

Bligh Sound

A former Wildlife Service officer, very familiar with North Island kokako, reported kokako-like calls when moored in the Sound and saw a bird flying on 20/4/96 that could not be anything but a kokako. There were also reports of a wapiti hunting party hearing kokako-like calls in the Stina Burn Valley in 2005, a few kilometres away from the first site.

Conclusion:

Considered worth following up, as this area of Fiordland is possibly relatively free of possums. Accessibility is a problem though.

Lakes Manapouri and Monowai, Fiordland

In April 2004 a hunter observed a kokako in the Back Valley with orange wattles, hooked beak and dark colour from 30m. In January 2012 two people c200m SE of Hope Arm Hut heard a noise described as very "mechanical" and very loud (Glenn Brown, pers. comm.). Reported kokako-like calls early the next morning SW of the hut. First calls were later imitated for Buckingham who considered they resembled kokako organ-call.

A loud "mechanical" sonorous note repeated four times was heard at Lake Monowai (opposite side of Lake to Roger's Inlet) about two years ago (Glenn Brown, pers. comm.). The description (and imitation by the observer) fitted the loud 'bong' type presumed South Island kokako call. Lake Monowai has a history of compelling SI kokako reports (NZ Wildlife Service records; R Buckingham and R. Nilsson, pers. comm.).

Conclusion:

Both sites are considered worth following up if resources allow.

Aorere Shelter, Heaphy Track

Many earlier reports and two more recent ones have come from this area. A follow-up in January 2013 yielded possible call and sighting following playback.

Conclusion:

Considered a lower priority for further follow-up unless more convincing evidence is produced.

A4.3 Sightings in which wattles have been reported

There are a number of reports in which the fleshy wattles at the base of the bill have been clearly reported. Alec Milne and Richard Stocker submitted 11 of these to RAC in 2013.

These records were:

Accepted:

- 2007, Rainy Creek, Upper Inangahua Reefton (see section 3.2.2). (3 members 'accept', 1 'probable', 1 'possible').

Probable:

- 1990, Lake Matiri. Gordon Appleton observed 2 birds at 5m for over 5 minutes. Wattles clearly seen. ('Accept' 2, 'probable' 1, 'possible' 1, 'not accepted' 1).
- 1997, Parapara Ridge, Golden Bay. Mike Southern and Paul Bowers observed a bird at 4m for over a minute. Wattles clearly seen. (Accept' 1, 'probable' 2, 'possible' 1, 'not accepted' 1).

Possible:

- 1995 Catlins Forest, Southland. Peter Miller. ('Probable' 1, 'possible' 4)

- 1996, Abut Head, South Westland (see section 3.2.2). ('Probable' 2, 'possible' 3)
- 1999 Deep Bay, Tennyson Inlet. Ross Nicholson. ('Possible' 5)
- 2003. Keneperu, Mahau Sound. Lisa Harper. ('Probable' 1, 'possible' 3, 'not accepted' 1)
- 2006 Catlins, Southland. Wayne Clare. ('Probable' 3, 'not accepted' 2).
- 2008, Arthur Range, Kahurangi N.P. Dougal Satherly, a professional hunter for DOC. Was familiar with kokako in North Island forests. Identified the bird as a kokako when it landed on a branch 40m from him. Confirmed the identification viewing through rifle scope (7x mag.), wattles clearly seen. ('Probable' 2, 'possible' 3).

Not Accepted; alternative identification: North Island kokako:

- March 1997 and June 1997 Two independent reports with very close observations in a suburban garden. Kim and Vivien Coutts, Waikawa Road, Picton.

Note: reports are grouped according to average consensus and chronologically within these groupings.

Conclusions:

The review of South Island kokako reports by RAC is considered important to obtain professional independent assessment of these reports. While reports of sightings clearly defining wattles might be seen as the most convincing evidence for the species' existence, cumulative evidence from exhaustive investigations of significant reports provides scientific integrity to these records.

Annex 5: Field Survey Protocol

For each of these survey types the following equipment is required:

- digital recording and playback devices allowing immediate playback of any local call obtained
- appropriate playback recordings including North Island kokako juvenile calls and locally recorded South Island calls if available
- programmable digital recorder for automatic acoustic surveillance
- video-capable camera equipment
- binoculars
- GPS
- compass
- maps
- notebook
- small paper bags or envelopes for storing suspect feathers found

A range of other equipment should be readily available to the Specialist team for use if kokako activity is detected. This equipment comprises:

- programmable video game-camera equipment for automatic visual/acoustic surveillance;
- suitable decoy (model bird as lure);
- Camouflage clothing and hides.

In addition, specialised equipment requiring special training or permits should be considered, that might include:

- mist nets and live traps;
- canopy-placed hides;
- call birds;
- other innovative devices to help elucidate the quarry.

Protocol for walkthrough and investigative surveys:

1. Walkthrough playback surveys (or rapid surveys) are generally used to detect any kokako vocal activity, but also aim to record calls of kokako, and photograph any kokako seen. These surveys may range over a wide area. Two main options are used:
 - Single observer working alone: The observer is equipped with playback and audio recording equipment, a hand-held video or digital camera, and a hand-held radio to communicate with other staff. Calls are played regularly as the observer moves through the forest, but never at high volume (no louder than a kokako would call naturally). A selection of calls are chosen, often playing a series of different calls sequentially. Recording devices need to be continuously activated, at least at each playback station.

- Two observers working together but separating slightly at playback stations. One is responsible for playback and the other handles recording equipment. Each observer faces opposite directions at playback stations. Otherwise same protocol as above.
2. Investigative surveys are usually triggered by a recent kokako report, or if walkthrough surveys detect sign of possible kokako. These surveys tend to be focussed at specific sites and are less wide-ranging than walkthrough surveys. The same protocol and equipment as for walkthrough surveys is used, with additional focus on searching for grubbing sites, feathers (including checking bird nests for feathers) and other non-acoustic sign. Any suspect feathers found are collected using tweezers and placed in paper envelopes, then sent to laboratories for DNA assay.
 3. More specialist investigative surveys might involve mist nets, live traps, hides, camera traps, or other specialised equipment aimed at positively identifying South Island kokako. These surveys will involve experts experienced with North Island kokako and/or other threatened birds, and will be instigated if sustained sign of presumed kokako activity is found at any site.

Investigative surveys may extend for a week or more depending on the reliability of the report, evidence obtained from walkthrough surveys, or the extent of activity of a presumed kokako at a specific site. To obtain more certainty of kokako presence/absence, investigative surveys should be replicated during different seasons over a period of at least one year.

Annex 6: OSNZ advice on documenting a bird sighting

The advice below is provided by OSNZ on its website <http://osnz.org.nz/rarebirds.htm> on documenting a sighting of a rare or unusual bird.

It doesn't matter if you have the world's best digital camera and a lens which takes photos of a bird's iris from 200 metres, **you have to** take some notes. A number of perfectly good records have been rejected by the RAC because the submitter either did not take any notes or didn't submit any with the photo they supplied.

What notes should you take?

Look at the bird closely, not taking your eyes off it until you have identified every feature that you can see (and hear if you are lucky). This includes not only the diagnostic field marks, but the details that would enable you to describe that bird (say on the phone) to someone else. Only once you have done this **then** you should you take pictures, if you have a camera, or write down your description, or both (taking pictures first). If you can sketch the bird, do so. Even if you are hopeless as an artist (and most of us are), you may be able to draw a wing or tail pattern, or a bill shape or pattern. If similar or other birds are in the vicinity, write down its differences from them. Record its appearance, behaviour, posture, and try to transcribe or describe its vocalisations.

If you are with other birdwatchers, do not assume that they will write notes. If several of you are taking notes, the ideal procedure is for each person to write details without influencing the others. It helps no one if someone dictates to everyone what they are seeing. A suggestion to look at a particular feature whilst a number of people are observing, helps focus your attention on a potential key identification mark, whereas a statement that the "such and such" is quite striking" may influence the content of everyone's notes. Similarly, consulting references during the note-writing process can suggest the presence of features that are not actually present. Resist the temptation to record what you know is there. In a group situation, different observer's notes will be different. Do not worry about missing a detail that someone else has recorded - your notes will have value as an independent document.

Many birdwatchers concentrate on observing and studying the rarity as long as possible, and then write notes immediately after the observation. Although this approach has its advantages, especially if the bird is difficult to observe or does not linger, there is always the possibility that some identification characters may be overlooked. Unless the bird stays around for days, there is little possibility of retrieving overlooked information. The likelihood of overlooking features is lessened if you scribble down notes during the observation, thus forcing yourself to look at the bird in more detail, rather than just observing basic identification features. Most people don't have a photographic memory! The hardest habit to break is looking at your field guide when you should be looking at the bird and writing down what it looks like. Force yourself to leave the books alone, at least until you have written the best description you can. If you add anything to your

notes after consulting field guides, indicate which features were prompted by looking at the books (and specify which books).

The points that can wait until after the bird has gone are the notes on your distance from the bird, the relative position of the birds, the sun, and you, the habitat, exact location, time and date, the optics you used, the names of your fellow observers, and your previous experience with the species.

It is very important to mention features that were not observed, though, if you are aware of them. Some observers feel that mentioning things you missed is a sign of incompetence, but the RAC is more likely to look favourably on a record that has a lot of "I don't know" rather than one that just seems a little too perfect. No matter how good your memory, the more time that elapses between the observation and recording the information, the more "fuzzy" or biased the details can become, if not forgotten altogether. Most birders would probably be amazed at their poor recall of plumage patterns and fine detail.

Field notes do not have to be neatly printed; information scribbled on a cigarette packet is preferable to nothing at all. These notes, no matter how messy or soiled with mud, sweat, or food, constitute your original data, and, therefore, should be saved whether or not the information is later transcribed to a separate notebook or directly to a more formalized report (e.g. for submission to the RAC). The RAC prefers observers to photocopy their original notes and add them as an appendix to any major rarity. Scribbled notes on small, easily misplaced scraps of paper should be transcribed as quickly as possible to prevent possible loss. Notes in whatever bizarre short-hand you choose to make should be rewritten while information not recorded on paper can still be retrieved from memory.

Just don't leave out any detail.

Recording form headings: Unusual/Rare bird report

Species: Sub-species/race (if evident):

Observer's name:

Address:

Other observers:

Date(s) of observation:

Location:

Habitat:

Viewing distance:

Optical aids used (magnification):

Duration of observation(s): hours minutes

Books consulted:

How well do you know the species (list previous experience)?

How confident are you about the identification?

State any relevant weather conditions that helped or hindered the observation:

Description of the bird(s)– (irrelevant parts removed)

In the following pages please give a full description of the bird from your field notes and impressions gained at the time of the sighting. Please start with an account of how the bird was discovered and what other birds it was with. Then lead into a description and produce evidence for the elimination of similar species. Use sketches throughout, wherever possible (the notes at the sides of the following pages are prompts, if you need them). If the bird was photographed or tape recorded please provide photographs or tapes in support. Whenever you make comments that have been prompted by books you consulted, state clearly that you have done so.

First impressions/discovery

Size

Shape

Plumage colour

Bare parts

Behaviour

Elimination from other species

Reaction to other birds

Reaction to humans

Annex 7: Protocol for Collecting Feathers and Droppings

Careful collection of and analysis of feathers or droppings can potentially provide valuable evidence for the presence of kokako. In the past, Massey University scientists have offered to examine suspect kokako feathers free of charge. They have a well-equipped laboratory and have conducted previous assays on a variety of New Zealand feathers including those of North Island kokako.

The places to search for feathers and faeces are at sites where kokako are suspected of being present (this is not rocket science), and specifically at suspect fresh moss disturbance sites or near putative kokako song trees. Another good place to look for feathers is within disused bird nests of species such as dunnoek and fantail that use feathers in the construction of the nest.

Collection of samples is very important, as if not done correctly can result in personal hygiene issues, or spoiling or contamination of samples affecting DNA analysis. All samples must be collected without human contact. Preferably new surgical gloves are used to pick up samples otherwise the samples may be handled with sterilized tweezers or similar. Under no circumstance should the feather be held by its base, as this is where the material is extracted for DNA assay.

Samples are best placed in brown paper envelopes and sealed carefully. Plastic bags are not advised. All envelopes must be well labelled and include details of location, NZMG coordinates, date, collector's name, etc. Samples will be sent to appropriate laboratories for DNA analysis.

Annex 8: Protocol for call playback

There are a number of cautionary matters when considering playback of calls to attempt to elicit response from South Island kokako. These are summarised as:

1. In breeding seasons it is imperative that you use playback with extreme caution. During those times birds might be upset on nests, or subject to increased vulnerability to predation and other dangers.
2. Calls should never be broadcast at louder volumes than would be normal for the bird. Usually it is best to play at very low volume then increase volume slowly if there is no observed response after 5-10 minutes.
3. Avoid repeated frequent playback of same call types unless on a rapid walkthrough survey over a larger area, as birds might become habituated to these calls and not respond.
4. Presumed kokako have responded to call playback 30 minutes or more after playback commenced. Therefore, at sites where suspected kokako are heard, it might be prudent to sit/stand quietly in a hidden or camouflaged site, broadcasting calls quietly every five minutes or so for an hour or more.
5. Most successful calls eliciting response from presumed South Island kokako have been those recorded from a juvenile North Island kokako. A number of juvenile call types are available for use. If local calls can be recorded these would be the first calls to use for playback. It is therefore very important to have recording and playback systems that can rapidly switch between record and playback functions.
6. During vocal seasons it is usually very easy to detect vocal and other activity of presumed South Island kokako. Imitative 'mew' whistling may be all it takes to elicit response. At these times especially, playback must be kept to a minimum, broadcasting a variety of calls at low volumes, while trying to close in on any suspect vocal bird.

Please take comprehensive notes of all activity noted including:

- time and date/GPS location of playback and response, or incidental calls heard/recorded;
- note any unusual calls or song copying by common songbirds;
- look for any other sign (e.g. feathers or moss grubbing) and record GPS waypoints if any found;
- note broad vegetation descriptions (e.g. dominant canopy, sub-canopy and understorey species; canopy height and closure; type and quantity of fruiting or flowering species);
- record any other relevant observations;

Send these details to Register Encounters:

<http://www.greyghost.org.nz/registerencounters.html>