

# FORMAK Bird Count - *Kaute Manu* Planning Instruction

## Overview

### Why do it?

- To allow broad trends in relative abundance of birds to be tracked over time.
- To track broad trends over time in the relative abundance of groups of bird species with changes in management or environmental conditions.

### What's involved?

- Establishing a series of permanently marked bird count locations on the site.
- Counting the numbers of each species of birds heard or seen over a 5 minute period at each bird count location.

- Identification of bird species both visually and by their vocalisations is required.

### How long?

- Five minutes per count plus travelling time between counts. If a set of 10 counts are being undertaken, around 3 - 4 hours should be allowed.

### How often?

- As a minimum the counts should be repeated 3 times within a month, once a year. Counts should be in the same month each year, within the September to November period.

### Equipment Checklist

- FORMAK Bird Count Field Instruction
- FORMAK Header Guide
- FORMAK Bird Count Plot Form
- Wristwatch
- Binoculars
- GPS (optional – but use it if you have one)
- NZMS 260 series map of the area.
- Aerial Photograph – if available
- Clipboard
- Pencils
- Rubber
- Compass
- Count location markers
- Permanent marker pen
- Hammer
- Nails (60mm galvanised flat head).

### Skills

- The person undertaking the count needs to be able to identify most of the birds likely to be present on the site by sight and sound.
- They must have good hearing and eyesight.
- Where the person undertaking the count is uncertain of their skills, they should either spend more time learning bird identification (see Bird Identification Guideline) or get a more expert person to come out with them to undertake counts and train them at the same time.

### How many people?

- One person is required.

**Measure /  
Re-measure**

- Measurements are repeated three times within a month, every year. Counts should be in the same month each year. This should be within the September to November period. However, variations in this general approach may be appropriate at different sites or in particular situations (see sampling – below).
- If this is a new count, you will need to work through all the steps below.
- If it is a re-count, steps around defining the sample size and location of counts will already be determined.

**Planning - Before you go out into the field****Sampling**

- This kit is designed to look at general trends from ongoing regular measurements. It is not intended to provide precise individual estimates that allow detection of statistically significant differences between two measurements.
- A feature of bird counts is that a large amount of variation occurs with time of year, weather, time of day, observer etc. For this reason it is important to keep as many factors as possible constant between counts.
- Because of the high variation in bird counts, high sample numbers are required. However, in terms of the resources of individuals and groups using FORMAK high numbers of counts are not generally possible. Many of the areas being assessed are also often small. For counts to be fairly independent (i.e. the same birds are not being counted from different count locations) counts should normally be positioned around 200m or more apart.
- FORMAK focuses on building an important time series of measurements from a site over time – through regular repeat measurements being undertaken – often of small sample sizes. The best mechanism in terms of number of count locations and repeats of individual counts to support this approach will need to be further refined over time.
- Guidelines for setting up practical sampling in different situations are set out below. These are only general guidelines to allow broad trends to be examined. They are not suitable for detailed examination of short term changes – seek specialist advice if you are trying to do this.

**Sample  
Guidelines**

<b>Situation</b>	<b>Visited monthly</b>	<b>Visited yearly</b>
Large Site 50-100+ ha	Count 5 sites at least monthly. If this is not possible, count less sites (even 1). Where it is a site that is very close to home, it may be possible to count it weekly.	Count 10 sites 3 times in a month.
Medium Site 10-50 ha	Count 5 sites at least monthly. If this is not possible, count less sites (even 1). Where it is a site that is very close to home, it may be possible to count it weekly.	Count 5 sites around 4 times within a month.

**Sample Guidelines**

Situation	Visited monthly	Visited yearly
Small Site 2-10 ha	Count 2-3 sites at least monthly. Where it is a site that is very close to home, it may be possible to count it weekly.	May be difficult. If possible count 2-3 locations 5 times within a month.
Very small Site Less than 2 ha	Count 1 site at least monthly. Doing weekly or even daily counts will be even more valuable	May be difficult to effectively do useful bird counts if site is visited for only one month of year.

**Minimize Variation**

Key points to consider in minimising the variability of bird counts are:

- Most birds are most conspicuous from early September to late November. During these months, numbers are less likely to be influenced by new fledglings, which may not be a stable part of the population, so this is the best time to assess if you are only doing one set of counts a year.
- Try to survey between flowering periods of key species, for example, in a northern coastal area after the kowhai has finished flowering but before the pohutukawa comes into flower. This will avoid your hitting a peak in numbers one year because of birds flocking to a food source, then missing it in another year. If you do strike a peak flowering period – record this and try to repeat conditions next time you measure.
- Undertake a series of measurements of the count sites over a month, rather than intensively over a few days. This will help reduce the chance of short-term influences on numbers affecting the result.
- Do not assess the same site twice in the same day because these assessments are not “independent”. That is, the same birds may still be present at the same locations on the transect when it is quickly re-assessed. It is better to set up other counting sites than to re-measure the same transect again.
- Assess counting sites on calm, fine days.
- Assess sites between one hour after sunrise and midday.
- Use the same observer over time. Aim to set someone up to do the counts at the start who has a good chance of being able to continue to do them.

**Count location**

- For practical purposes and time efficiency – try to locate count sites where they can be easily assessed, e.g. along a walking track, near to an access road that comes into the site etc.
- Avoid locations that are likely to have a lot of noise, such as sites close to a river where water noise is significant, close to a highway, or sites that will be commonly windy – e.g. a windy ridge.
- Sites can be located in a number of ways – the same as is described for vegetation plots. However bird count sites should be at least 200m apart.

- A good option, if possible, is to combine bird count locations with vegetation plot locations (this may be every second vegetation plot if they are 100m apart), or to have bird count stations along a pest animal transect. These options have the advantage of simplifying location and marking and also potentially providing a greater ability to relate the results of different FORMAK modules at one site.
- Where bird counts are done at the same location as vegetation plots, do the bird count first if they are being done at the same time. This avoids noise or disturbance from vegetation plot measurement affecting the bird count. Be very careful to avoid trampling or other damage to the vegetation plot area.
- Identify the planned location of bird counts on a map or aerial photo before going into the field. In some cases these locations may have to be adjusted in the field to allow more practical access.

#### Read field instructions

- Read the field instruction for bird counts and make sure you are familiar with and understand the requirements.

#### Check background information

This may include:

- Previous count forms
- Information from talking to previous assessors about the site.
- Information from talking to owners / managers if separate from measurer. This may provide information on key issues or changes (e.g. changes in management, environmental impacts such as wind, casual observations of changes etc).

#### Check weather conditions

As discussed under Sampling, counts should be undertaken on

***fine, calm days** – between 1 hour after sunrise and midday.*

- Check the weather forecast and conditions on the day to make sure that these conditions will be present.
- Generally wind should not exceed “1” on the scale on the Bird Count Form (Beaufort 2). Wind over this level will make counting difficult.

#### Bush Safety

- Refer to the NZ Mountain Safety Council leaflet “Going Bush” and check you are prepared at a level appropriate for the monitoring trip.
- Make sure you leave details of where you are going, and when you will be back with a responsible person (see the NZMC Help Form).

### Case Study 1 - A small forest remnant

A landowner is fencing a small forest remnant of approximately 2 hectares in a rough gully on the property. They will also be undertaking knock down control of possums using traps, followed by the use of bait stations to maintain low possum levels. They understand the bait stations will also reduce rat numbers. They are interested in setting up some FORMAK bird counts to look at broad trends over time in birds using the remnant. They have completed a FORMAK site assessment of the area and are now ready to plan their bird counts.

The area is small, so if they set up more than one count site in the area, they will not be independent. That is these count sites would be less than 200m apart, and they would be likely to count some of the same birds at each count. However, the block is close to the house and woolshed, so they are passing the block almost every day. That means it would be practical to do a 5 minute bird count at one location, at least once a month, and possibly more often. The count can be done on any day when there is decent weather and they are working nearby. They can do the count on their way home for lunch.

The landowner looks at the aerial photo of the site, and reflecting on their knowledge of the area, decides there is an easily accessed area approximately in the centre of the site. It is back from the stream to avoid noise of the water interfering with the count. It is also down into the valley enough that it will often be relatively sheltered from winds.

They print off a stack of FORMAK bird count forms and leave them in an envelope on the wall in the porch. That way they can grab one when they head out on a nice day, let family know they will be doing a count on the way home, and drop the completed form back at lunch time.



### **Case Study 2 – A FORMAK Site in a Large Forest Area**

A community group is interested in undertaking some intensive control of possums and mustelids (stoats, ferrets and weasels) on some easier, more accessible faces of a larger native forest block.

They wish to get an indication of the current condition of the area and begin to monitor broad trends on the site over a number of years as they continue with the control.

They have identified a FORMAK site and undertaken a site assessment. They have also established 5 vegetation plots, set out on a bearing that runs across the site (see FORMAK

Vegetation Plot – Planning Instruction (case study)). The site is approximately 25 hectares. They are all volunteers and don't have much time for monitoring on top of all the effort that they are putting into animal control. They decide that they can afford to put effort into undertaking bird counts once a year.

They decide that if they are to keep bird counts at least 200m apart so they are relatively independent, they will only be able to fit 5 count locations into the site. For ease of access and location, they will locate these counts at every second vegetation plot. The vegetation plots are 100m apart, so this will mean that the bird counts will be 200m apart. This would only account for 3 counts, so they will also set up the remaining 2 counts on a line on the same bearing that is approximately 300 m away. They will do three separate counts at these locations over a one month period.

Reading through the FORMAK Bird Count Planning Instruction, they identify that the most suitable month for counting, that also matches in with group members schedules, is November. There is a long term member of the group who lives locally and has a good bird identification knowledge, so they will do the counts every year. To give some security, in case this person leaves the group, a second person who is very interested in bird identification will accompany them whenever possible. This will ensure the second person can take over the counts if required.

When November comes around, they check the weather forecast and identify a fine day for the first set of counts. After the usual bush safety checks, and leaving a Help Form with a partner, they are at the site by 9:00am, and have finished the counts by 11:30am. During the month they repeat this twice more, to give a total of three counts at each location.

