

Save the Kiwi

Community, Kiwi Call Count Monitoring Training Package

This training and handout was developed by Wendy Sporle
for Kiwis for kiwi (now Save the Kiwi).

Photo credit: Maddox Photography

Save
the kiwi



This training package has been developed to help people learn how to do kiwi call count monitoring and to provide some consistency in the methods used around New Zealand. It is a national resource and some aspects may be omitted if they are not relevant to your area. Please retain most of the contents though to ensure a thorough training.



Tutor or Supervisor Specifications

This is not intended to be a formal qualification or training but it still must have credibility.

The person providing the training should be;

- someone who has had several seasons kiwi call count monitoring experience.
- someone who is able to follow and demonstrate 'best practice' as is outlined in the Best Practice Manual and the Tutor reference notes.
- someone who is prepared to sign their name to the trainees completion certificate
- someone able to teach the theory, in a clear manner, using the provided Power Point presentation and then provide supervision for the practical monitoring session.
- someone who can explain how to fill out the cards, forms and excel spreadsheet.
- someone who knows where to go if they need support or questions answered.

Tutor Reference Notes

Determining Kiwi Presence: Surveying & Monitoring Techniques

Background Information

Because of the secretive behaviour of kiwi and the fact they are nocturnal it is very difficult to count all birds in a known area. For this reason, we use surveys to give us an indication of kiwi presence and activity in an area.

To survey kiwi we make use of their calls because we know that most territorial kiwi call regularly and very loudly. Birds can be heard calling up to one and a half kilometers away in ideal listening conditions.

Additionally, male and female kiwi produce different sounding (sexually dimorphic) calls allowing us to know of the possible presence of pairs in an area.

Survey techniques based on calls only allow estimation of relative abundance, due to the fact that not all kiwi call at the same frequency or volume.

For example, males generally call about 2-3 times more frequently than females. In addition, the lower pitched calls of females don't carry as far as the whistle-like calls of the males. Juveniles are usually silent in their first year and some non-territorial adult or sub-adult birds rarely call.

During the breeding season many birds are on nests and so are not calling.

Since kiwi are territorial, if you can locate different calling birds you may be able to determine their distribution in a specific area.

As with the estimation of the number of kiwi in an area, determining the distribution of kiwi has limitations in that it is based on calling birds. In the same way, to obtain the best and most reliable information you must follow the same steps in the same way each time you survey.

Results may differ depending on weather, contour, thickness of vegetation, wind and other sounds. You may not hear calls at all as kiwi do not call every night all year.

In areas where the kiwi numbers are low, they tend to call less often than in more densely populated areas.

First decide what you are wanting to do and why you want to do it.

You may wish to do one or all of the following.

1. To determine presence and distribution Find out if you have kiwi in your area by:
 - using your personnel and/or visitors and asking them to fill out Reporting Cards.
 - carrying out Kiwi Call Scheme listening or surveying.
 - doing walk through surveys.
2. Monitoring kiwi If you have kiwi in your area you may wish to estimate or regularly record their relative density and distribution by carrying out the:
 - National Call Count Monitoring (which includes project call count monitoring).



Where to start

STEP 1

To determine presence and distribution choose one of the following headings and follow the monitoring instructions.

1. The Kiwi reporting cards
2. Call Scheme listening or surveying
3. Walk through survey
4. A distribution survey

STEP 2

If you want to monitor the population you can set up a monitoring programme for the project or a National Call Monitoring Scheme site.



Step 1: To Determine Kiwi Presence and Distribution

(to find out if you have kiwi)

The following techniques are used by field personnel to find kiwi in areas where there is no or little previous information, or where there is believed to be a small kiwi population.

1.1 Kiwi Reporting Card

The Kiwi Reporting Card is aimed at the general public, especially hunters, trampers and climbers to get information and records of one off or new kiwi sightings, kiwi heard, feathers found, probe holes (feeding evidence), kiwi footprints or kiwi faeces.

Method

1. Distribute cards to all possible reporters.
2. Collect cards on the regular basis and organise field expeditions to verify information.
3. Send all completed cards to: Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington

1.2 Kiwi Call Scheme

The Kiwi Call Scheme has three main aims:

- to determine the national distribution of kiwi
- to relate kiwi call rates to location and habitat
- to assign a kiwi call index at a known season to each listening station to monitor the changes in the population. Repeated listening at these stations after 5, 10 or 20+ years may indicate whether a population is stable, increasing or declining.

The Kiwi Call Scheme listening will allow only relative abundance of kiwi to be determined; it cannot be used to estimate absolute numbers because not all birds call.

There is a good correlation between call rates and density in high-density populations, but the relationship is not so good at low densities.

You must remember that this survey will not give you accurate records of kiwi density, but it will let you know about kiwi presence and relative location.

Method

1. Choose listening stations with a view to covering the widest listening area within the prevailing weather and topographical conditions.
2. The stations should preferably be at least 1 km apart to reduce the coverage overlap.
3. On a topographical map, estimate the listening range from each listening station.
4. Go through Call Scheme Card methods before you go out.
5. Before leaving to go to the listening stations remember to synchronise watches.
6. Arrive at the listening station with enough time to get ready for recording and to become familiar with the terrain before dark.
7. Preferably, do your listening within the first four hours of darkness.
8. Limit yourself to recording the birds that called during a two hour period. Avoid starting or finishing a count just because you heard a bird.
9. Fill out the card following the guide.
10. After the listening total up the number of calls and try to make an estimate of the number of individuals you heard. Download onto the excel spreadsheet at your base.
11. A copy of all data collected should be sent to the Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington.

1.3 Walk-through Survey

In well-tracked areas where kiwi density is low or their presence is unknown, walk-through surveys can provide valuable site records while covering a large area relatively quickly.

They can be done at any time of night in any month of the year, preferably along a well-formed track, or on river flats where you are unlikely to get lost or suffer mishaps at night.

Method

12. Record the start time, the prevailing weather and moonlight conditions, and habitats.
13. Listen for kiwi as you walk, and record the sex of the bird, time, distance and compass bearing of the calling birds. You may need to return to the spot in daylight to more accurately assess where a bird called from. Mark the spot on the map (with the time) where you were when you heard the call.
14. Stop every 250 paces (500 m if you especially want to cover more ground in low density populations) and play a burst of male calls from a tape, minidisk, or mimicked on a shepherd's whistle. If there is no response after 1 minute, play a female call on tape or minidisk, or again imitate a male call on a shepherd's whistle (female calls can't be done on a whistle). Complete a full 5-minutes of listening at each site.

15. Plot the location of calling birds on a topo map.
16. Locate the monitoring sites and the route you follow on a topo map.
17. Summarise the number of times you stopped to play tapes and the number of individual kiwi heard on your survey sheet.
18. Send the survey information together with the NZMS 262 topo maps to the Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington.

1.4 Distribution Survey

Kiwi distribution surveys are useful:

- to estimate the relative density of birds before commencing a detailed study.
- where the distribution and abundance of kiwi is poorly known.
- when surveying for resource consent purposes (normally at the developer's cost).

Note that surveys of this type are resource-intensive, and remember that failure to detect kiwi does not mean that they are absent from the area.

Distribution surveys are two hours long, with no tapes in the first hour, and preferably with calls broadcast in the second hour to solicit calls.

Method

Follow general instructions given for the Kiwi Call Scheme, and follow these steps as well:

1. During the first hour listen, record on the of the Kiwi Call Scheme Card any birds heard and estimate numbers at the end of the hour.
2. Continue with the second hour of the survey even if you did not hear any kiwi calls during the first hour.
3. In the second hour, use a separate Kiwi Call Scheme Card from that used in the first hour, and clearly mark this "Second Hour".
4. During the second hour, preferably broadcast kiwi calls from an amplifying speaker. The calls should be played in the following manner:
 - At the start of the hour broadcast male calls for c.20 seconds.
 - After 15 minutes broadcast c.20 seconds of female calls.
 - After another 15 minutes interval broadcast c.20 seconds of male calls.
 - Finally after another 15 minutes interval broadcast c.20 seconds of female calls.
5. Note on your "Second Hour" card the times that tapes are played, and record calls.
6. Record hearing other teams playing tapes from another station.
7. If kiwi approach you, resist the temptation to chase them or catch them, but by all means quietly shine your torch above them to verify the sighting.
8. After the survey, summarise your data and estimate of the number of individuals.
9. A copy of all data collected in Conservancies should be sent to the Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington.

Step 2: Monitoring Kiwi Populations

Once you have an idea of the status of your kiwi population you can develop a monitoring programme to track changes in the population. This will provide information so you can review your management and make any required changes.

The best monitoring programme for your population will depend on time and resources available, and you should consider the estimated density and distribution of your population as well as other factors such as other research being carried out at the time.

Call-count monitoring is a useful method to determine whether pairs of kiwi are present year to year and is sensitive enough to detect declines in kiwi populations.

It is less useful for the detection of increases in numbers because of a 2-3 year lag in sub-adult calling rates.

Call Count Monitoring for Community Projects

Monitoring can be undertaken by call-counts, a combination of call-counts and territory mapping, the use of kiwi dogs, assessments of footprint size.

Call count monitoring is the simplest way for community kiwi protection projects that are not radio tracking or kiwi dog surveying their kiwi populations to gauge what is happening to the kiwi numbers.

Initial baseline monitoring done at the beginning of the protection work will provide some information to compare the following annual monitoring data against.

The methods are similar to the initial National Call Count scheme and are outlined below.

This information can be combined with records of kiwi sign (feathers and footprints seen) and together the information can indicate how effective the protection programme is for the kiwi, when compared against other years of monitoring.

Territory Mapping

In addition to collecting call-count records, it may be useful to mark the locations of birds calling on each of the four nights on a laminated map.

This will help to determine the number of pairs in each listening area.

Monitoring Footprint Sizes

An additional monitoring method is to measure the length of all kiwi footprints seen during the winter months (however be aware that their footprints are similar to turkey prints).

Footprint lengths of c.50-80 mm represent young kiwi that have survived (or hatched after) the summer period of greatest stoat abundance.

Footprints over 90 mm in length are likely to be adults. This approach will provide an indication as to whether some young birds are being recruited into a population. (note these are North Island Brown footprint lengths).

Nationwide Call Count Monitoring Scheme

A standardised national scheme has been established to monitor changes in kiwi call rates.

Several sites have been set up around the country and the monitoring procedure requires;

- the establishment of 3-6 permanently marked listening stations at each general location.
- 2 hours of listening to be done for 4-8 nights at each listening station. This procedure should be repeated at each station for at least three consecutive years, at the same time of year, to establish a firm baseline in call counts to then measure changes over time. After the baseline has been established, call counts are repeated at 5- yearly intervals at the same listening stations at the same time of year. If significant changes are detected, counts are repeated the following year to verify the initial results.

Method

1. Choose 3-6 listening stations with a view to covering the widest listening area within the prevailing weather and topographical conditions.
2. Permanently mark the exact location of each listening station with a permanent marker such as an Allflex cattle ear tag (orange, blue or yellow), which should be attached to a stake in the ground or nailed to a tree. The GPS reference should also be recorded.
3. The stations should preferably be situated at least 1 km apart to reduce overlap.
4. On a topographical map, estimate the listening range from each listening station.
5. Start listening at least 45 minutes after sunset and at the same time each night.
6. Listen for two hours within the first four hours of darkness. Monitor for 4 nights (they do not have to be consecutive).
7. Limit yourself to recording the birds that called during the two hour period.
8. During each 1 hour listen, take some time to fill the parts of the card that deal with the weather conditions at the site. It is a good idea to record weather conditions about halfway through each hour.
9. Fill in a separate card for each 1 hour period.
10. Do not solicit calls from kiwi using tapes.
11. Continue with the second hour even if you did not hear any kiwi in the first hour.
12. Record complete hours of listening. If a count is stopped part-way through an hour (e.g. if rain starts), then that complete hour must be re-counted on another night.
13. After the survey, total up the number of calls and make an estimate of the number of individuals you heard (in each hour, and over the 2 hour period).
14. Send to Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington. 15. Repeat for three consecutive years, then reduce to one survey every 5 years. 16. If call rates decrease significantly repeat the survey the same time the following year.

During nationwide, or project, monitoring, DO NOT play any taped calls or imitate kiwi whistles.



Project Call Monitoring

General listening instructions

Listening sites

Best listening stations are situated on prominent knobs, hilltops, ridgelines, spurs, or river flats, away from loud river, wind or sea noise.

However, don't be put off listening from a campsite in thick bush, so long as the listening category 'narrow', 'medium' or 'wide' is stated.

This same site must be used each year. It is also preferable the same person monitors the site each year as everyone has different hearing capacity.

The position should be plotted as accurately as possible on NZMS 260 series maps, using GPS wherever possible, with a general description of the location of the site.

The site should also be permanently marked or tagged on the ground for easy location.

Prior to monitoring

- Practice your compass skills.
- Be sure you know the male and female kiwi calls and can identify them from any confusing calls.
- Tape or minidisc recordings of calls of both sexes of all species of kiwi are available from the Coordinator of the Kiwi Call Scheme, SRU, DOC, PO Box 10-420, Wellington, and includes other calls which could be confused with those of kiwi, e.g. weka, pukeko, possum, morepork and long-tailed cuckoo. Please send a blank cassette or minidisc and these calls will be recorded and your tape returned.
- Become familiar with the survey methods and forms and also the details required.
- Get any landowner permission if going on another person's property.
- Let someone know where you are going and when you are due back.
- Synchronise watches with other survey and monitoring people.

Equipment to take

- Watch (preferably digital).
- Notebook, clipboard and pencil.
- Forms and scrap paper.
- Compass.
- Torch & spare batteries.
- Several layers of warm clothes, including wind and rain protection. You will get hot going to the site and then sitting still for 2 hours on a ridge is very chilling. A hat or hood which covers the ears can limit your hearing.
- Plastic or closed cell foam to sit on if ground is wet.
- Warm drink and possibly something quiet to eat (lollies in wrappers are too noisy).
- In isolated areas with cell phone coverage take a phone for emergency use.

Optional equipment to have or to have in the office

- NZMS 262 topo map and a large laminated copy to mark bird locations on.
- Tape with kiwi calls.
- Cassette or minidisc player with broadcast speakers (but only if instructed).
- Extra batteries for cassette player and speakers.
- GPS.
- Excel monitoring spreadsheet.

Monitoring times

- Listening conditions are best on a dark night.
- Listen during peak calling times as identified in the table following.
- Listen within first 2 hrs after dark for 4 calm nights. (not necessarily consecutive).
- Monitor the same site at the same time each year (by the same person).

Peak calling times by various kiwi taxa

Kiwi Taxa	Peak Calling
North Island Brown Kiwi	Apr to Jun
Rowi or Okarito Brown Kiwi	May to Jun
Haast Tokoeka	Feb to Jun
Southern Tokoeka	Nov to Dec
Great Spotted Kiwi or Roroa	Nov to Mar
Little Spotted Kiwi	Feb to Aug

On arrival at the site

- Arrive at the site before dark on the first night so you can get a better idea of distance and landscape.
- Make sure that you have all the clothing and gear you will need arranged around you so you do not make noise sorting it while you are listening

Actual monitoring

- For each kiwi heard calling record; time, its sex, compass direction and estimated distance.
- Write down weather and other details required half way through monitoring.
- Do not solicit calls from kiwi using tapes, unless you have been asked to. If you do use tapes, make sure this is clear from your notes.
- Record each hourly period on a separate sheet, to obtain a total of eight one-hour counts for each station.
- At the end of the session identify how many individuals were heard. (Identify how many different birds called by working out where they called from and at what time they called, and the approximate distance away).

After monitoring

- It may be easier to fill out the final copy of the form at home rather than in the field in the dark. Take some scrap paper to write field data.
- You can place the location of each bird on a laminated topographical map or make a drawing of the area to show where calls came from.
- Combine other people records who may be hearing the same birds as you to give a better idea of actual locations. Triangulate the call data.
- Keep a copy of your forms and send a copy to the local monitoring co-ordinator or DOC office.
- If this is a new site record. The form should be sent to the Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington.
- Download the data onto the excel spreadsheets so graphs can be developed for reports and records.

Recording your information

The Excel Spreadsheet

This file has 3 workbooks started. The “Kiwi call card 01” has been started to show how it can be filled out. Note that many of the sections have drop boxes which have similar choices to the call scheme cards. This workbook can have it’s name changed for the year being monitored and be copied for futures years recordings.

The “About page” explains how to use it and the “Drop lists” show what the drop list choices are.

This spreadsheet is available on the savethekiwi website and on the CD with this training resource.

Opportunities

Kiwi monitoring provides an opportunity to engage and involve people who may not be able to help with other project work. It also provides an opportunity for people to feel greater ‘ownership’ or personal attachment to local kiwi. Over years people learn to distinguish individuals and to take interest in what is happening to them over time.

School children, sponsors, bank staff and other members of the community can become interested in the project through helping with call count monitoring.

Kiwi Reporting card

Please complete this form as fully as possible and return to the Department of Conservation.

1. The call of the male kiwi is a repetitive (8-25 notes) high-pitched whistle.
2. The call of the female kiwi is a repetitive (10-20 notes) coarse rasping note.
3. Weka, moreporks and possums are often confused with kiwi calls.
4. Footprints are about the size of a domestic chicken’s and are often found in mud or snow.
5. Probeholes usually occur in groups and look like a screwdriver has been pushed into the ground, rotated and pulled out again. They are about 10 cm deep.
6. This form may also be used to report other species of wildlife such as kaka, kokako, blue duck, bats etc. Please ensure you clearly identify what you are recording.
7. Post this card to the Coordinator of the Kiwi Call Scheme Department of Conservation, PO Box 10420, Wellington or leave it with a hut warden.

Thank you for your cooperation. Your assistance will help stop the decline of New Zealand’s native fauna.

Kiwi Call Scheme Cards (card filling in explanation)

The information we require from the surveys need to be written down in a Kiwi Call Scheme Card. This may sound a bit cumbersome, but because we are only estimating numbers it is of great importance that every one collects the same information and in the same way each time a survey is carried out. Without careful recording we will not be able to use the data we collect to make valid assumptions regarding the health of our kiwi populations.

Following is a run down of the various sections of the card. Please read carefully and apply this information when you use the card.

Card Number

The top right-hand space is to remain blank. If you wish to link the number of a listening station in the area surveyed use the NOTES section on the card.

Observer

If more than one person listens from a listening station give the name of the most experienced observer first. This eases computer processing. For each new observer give address and affiliation on the first card only. This information is not required on subsequent cards unless addresses or affiliations change. Make sure that if you are surveying different areas the cards from each area are clearly marked and kept separately.

Location

Give, in order, the name of the Department of Conservation Conservancy, the province, the forest or reserve etc. and the nearest named locality or feature (such as river, stream, trig etc.). Finally give a brief description of the exact location of the listening station (use the notes section for more space).

For example Southland, Stewart Island, Mason Bay, mound 100m to east of Island Hill Homestead. This location will be further verified by the grid reference. This enables all records from Southland to be sorted or all records from Stewart Island (via Southland) to be accessed. If possible include a photocopy of the map of the area with the listening stations marked on it.

Grid Reference

Wherever possible, use maps of the metric NZMS 260 series. These now cover the entire country. The metric 260 series map number is coded with a letter followed by two numerals. The grid reference consists of 5 numbers for horizontal and 5 numbers for vertical positions. Include the smaller figures of the grid number at the corners of the map in these spaces. A sample reference for Mt Robertson on Picton NZMS 260 sheet P27 would be: Series 260 sheet P27 grid ref. 25955 59838.

In addition, if using a GPS give full 14 digit location (and error) in notes section. The N,S,X on the card refers to the old NZMS 1 inch to the mile series. NOTES If kiwi are heard in the area, but do not call during the listening period, please note this fact. This information will be important for distribution analysis. If more space is required for notes, continue writing under the entry of the last call heard on the back of the card (at the completion of the listening period).

Noise

This is a subjective score of interference to listening caused by strong wind, river, waterfall or sea noise, talking by nonlistening members of the party or noise from other animals, e.g. cattle mooing or frogs croaking. Avoid these conditions wherever possible.

Moonlight

Some previous studies of North Island brown kiwi, in particular, showed that these birds call noticeably less often on bright, moonlit nights.

Listening Coverage

When listening from a ridge on a calm night choose ‘wide’ as the descriptive term. Conversely, when listening from a campsite in a gully underline ‘narrow’. Listening in a gully with a noisy creek and pouring rain...forget it!

Major Habitat Types

Mark with a maximum of three categories of vegetation types found within the zone of listening. If other than those types listed are present, ring 17 and explain in notes. Developed farmland is typical New Zealand pasture, well fenced, intensively grazed, and with few trees. Undeveloped farmland has rank grasses, interspersed with manuka and other scrub throughout and may include extensively grazed river flats or frost flats.

Minutes Listened

Total the time listened in minutes. The number of calls will eventually be expressed as number of calls per hour.

Calls

Record the direction, distance and sex of the calls.

Species

Species Common name	Species name
North Island brown kiwi	Apteryx mantelli
Okarito brown kiwi	A. mantelli ‘Okarito’
Haast tokoeka	A. australis ‘Haast’
Southern tokoeka	A. australis
Great spotted kiwi	A. haastii
Little spotted kiwi	A. owenii

Other Animals Heard

Refer to the tape if any calls heard are unfamiliar to you. Two spaces are available for noting calls from animals other than morepork, weka, or possum, e.g., crickets, frogs, cattle. With a wide listening coverage, use the following criteria: Few 1-2 individuals in listening area Moderate number 3-5 individuals Many 6+ individuals

DATE		OBSERVER'S DETAILS	
LOCATION		Name	
		Address	
Map Series [][][]	Sheet [][][]	Grid Preference [][][][] E [][][][] N	
Number of Kiwi seen (Other, please specify)		Comments (Vegetation, habitat, dogs or other predators seen)	
Number of Kiwi heard			
Male calls	Female calls		
Signs of Kiwi present (eg. footprints, probeholes)			
Are you 100% sure that what you saw or heard was a kiwi?		Y/N	

Directional Sheet

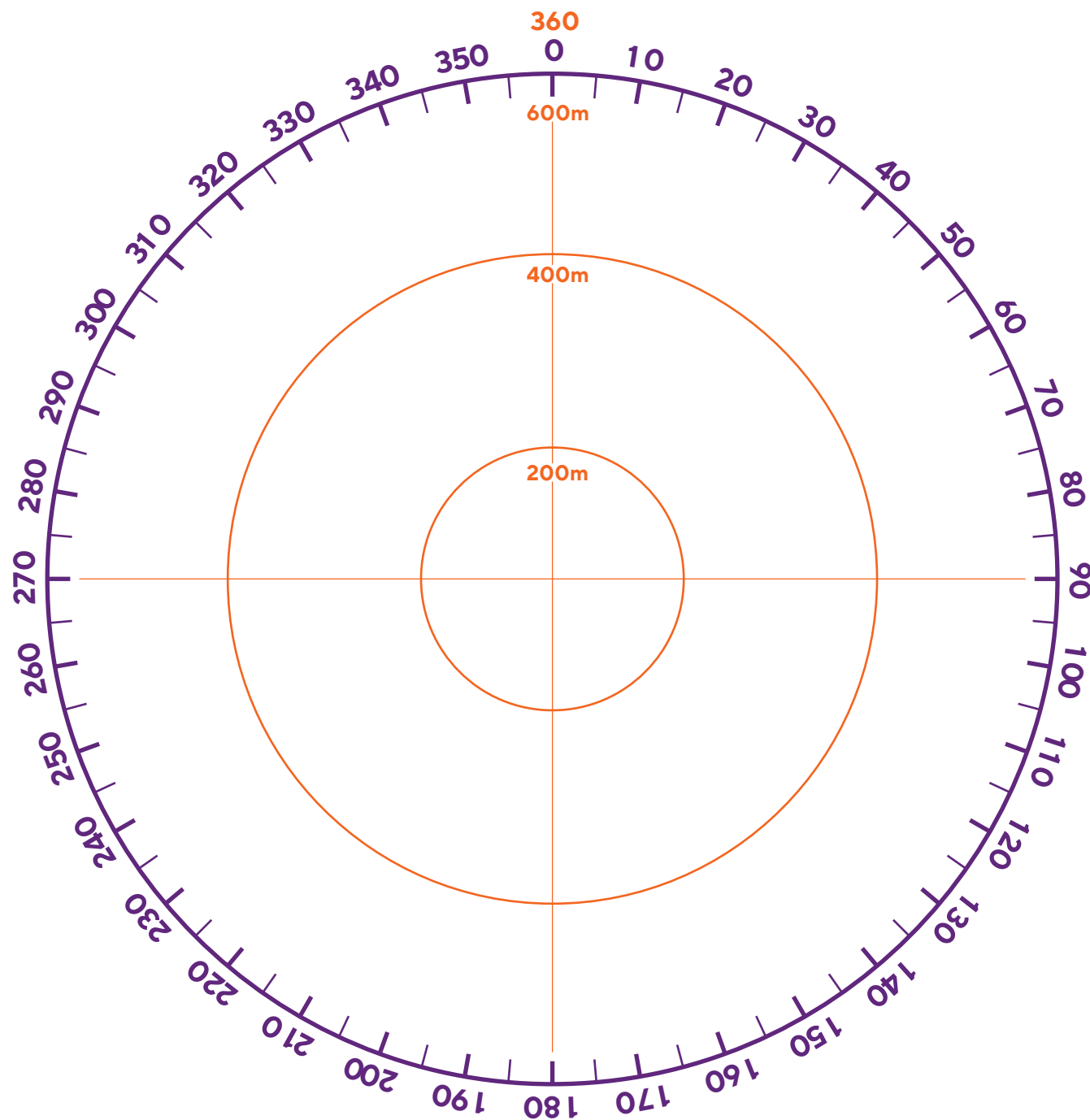
Useful to help identify individuals in areas of low to medium call rates

Date / /	Station number
Start time :	Observer(s)
Finish time :	
Male calls	Male kiwi
Female calls	Female kiwi
Total calls	Total kiwi

KEY:

Female  time (eg.  17.29)

Male  No. time (eg.  7 18.12)



Card No.		KIWI CALL SCHEME											
Observer _____ Initials Surname					Date _____		Locality Name _____						
Address: _____													
Affiliation: _____					Series 		Sheet 		Grid Reference 				
Notes _____					Wind 1 Calm 2 Light 3 Mod 4 Strong		Rain 1 Nil 2 Light 3 Moderate		Ground Condition 1 Dry 2 Damp 3 Wet		Major Habitat Types 1 Beech forest 2 Podocarp Forest 3 Broadleaf forest 4 Exotic forest 5 Scrub 6 logged 7 burnt 8 undeveloped farmland 9 developed farmland 10 grassland 11 tussock 12 swamp 13 coastal 14 beach 15 river terrace 16 alpine 17 other		
					Wind Direction 		Temperature 1 Cold 2 Mild 3 Warm		Moonlight 1 Light 2 Dark 3 Black				
Number of Kiwi calls _____		Minutes listened _____		Cloud Cover 1 Clear 2 Partly cloudy 3 Overcast		Listening Coverage 1 Narrow 2 Medium 3 Wide							

[illegible]

Monitor trainee handout

These handout notes are an outline of how, and why, to do kiwi call count listening.

The full training kit is available by email request to enquiries@savethekiwi.nz and on our website – savethekiwi.nz



Step 1: Determine kiwi presence and distribution

(to find out if you have kiwi)

You can apply one of the following methods, whichever is appropriate to your situation.

Background Information

- Kiwi survey techniques allow estimation of relative abundance.
- Juveniles are usually silent in their first year and some birds rarely call.
- During the breeding season many birds are on nests and so are not calling.
- Kiwi are territorial, and call to defend their territory and to locate their mate at the beginning of the breeding season. You may be able to estimate distribution or numbers by listening to calls.
- Results may differ depending on weather, contour, vegetation, wind and other sounds.
- In areas where the kiwi numbers are low, they tend to call less often.

1.1 Kiwi Reporting Card

The Kiwi Reporting Card is to get one off or new kiwi sightings, kiwi heard, feathers found, probe holes (feeding evidence), kiwi footprints or kiwi faeces.

1.2 Kiwi Call Scheme

The Kiwi Call Scheme has three main aims:

- to determine the national distribution of kiwi.
- to relate kiwi call rates to location and habitat.
- to indicate whether a population is stable, increasing or declining.

You must remember that this survey will not give you accurate records of kiwi density, but it will let you know about kiwi presence and relative location.

Method

1. Choose listening stations 1 km apart with a view to covering the widest listening area.
2. On a topographical map, estimate the listening range from each listening station.
3. Go through the Call Scheme Card methods before you go out.
4. Follow the general instructions.
5. Preferably, do your listening within the first four hours of darkness.

1.3. Walk-through Survey

In well-tracked areas where kiwi density is low or their presence is unknown, walk-through surveys can be done at any time of night in any month of the year. They use a tape with calls.

- Record; time, habitat, conditions, distance walked and distance and compass bearing of calls. Also mark calls and route followed on a map.
- Stop every 250 paces. Play male call, wait 1 minute and play female. Complete for 5 minutes.
- Summarise the number of times you stopped to play tapes and the number of individual kiwi heard on your survey sheet and send to the Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington.

1.4 Distribution Survey

Kiwi distribution surveys are useful:

- to estimate the relative density of birds before commencing a detailed study.
- where the distribution and abundance of kiwi is poorly known.
- when surveying for resource consent purposes (normally at the developer's cost).

Distribution surveys are two hours long, with no tapes used in the first hour, and preferably with calls broadcast in the second hour to solicit calls. Play alternating c.20sec of male and female calls. Record information from all teams on form and maps.

Send to the Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington.

Step 2: Monitoring Kiwi Populations

Once you have an idea of the status of your kiwi population you can develop a monitoring programme to track changes in the population. This will provide information so you can review your management and make any required changes.

Call Count Monitoring for Community Projects

Monitoring can be undertaken by call-counts, a combination of call-counts and territory mapping, the use of certified kiwi dogs and assessments of footprint size. Call count monitoring is the simplest to gauge what is happening to the kiwi numbers. Initial baseline monitoring done at the beginning of the protection work will provide some information to compare the following annual monitoring data against. This information can be combined with records of kiwi sign (feathers and footprints seen) and together the information can indicate how effective the protection programme is for the kiwi, when compared against other years of monitoring.

Opportunities;

- to engage and involve people who may not be able to help with other project work.
- for people to feel greater ‘ownership’ or personal attachment to local kiwi.
- To get interest of school children, sponsors, bank staff and other members of the community.

Territory Mapping

In addition to collecting call-count records, it may be useful to mark the locations of birds calling on each of the four nights on a laminated map.

Footprint Size Monitoring

In Northland, footprint lengths of c.50–80 mm represent young kiwi that have survived (or hatched after) the summer period of greatest stoat abundance. Footprints over 90 mm in length are likely to be adults. This approach will provide an indication as to whether some young birds are surviving.

Annual Nationwide, Call Count Monitoring Scheme

This was set up a number of years ago where there was the;

- the establishment of 3–6 permanently marked listening stations at each general location in NZ.
- 2 hours of listening to be done for 4–8 nights at each listening station.
- Listen for at least 3 years and then continue 5 yearly to compare results.

Project Call Count Monitoring: General Listening Instructions

Listening Sites

- Prominent knobs, ridgelines, spurs, or river flats, away from loud river, wind or sea noise.
- This same site must be used each year. It is also preferable the same person monitors the site.
- Mark the site on a map, using GPS wherever possible and tag it on the ground.

Prior to Monitoring

- Practice your compass skills and know the male and female kiwi calls from confusing calls.
- Tape or minidisc recordings of calls of both sexes of all species of kiwi are available from the Coordinator of the Kiwi Call Scheme, SRU, DOC, PO Box 10–420, Wellington
- Become familiar with the survey methods and forms and also the details required.
- Get any landowner permission if going on another person’s property.
- Let someone know where you are going and when you are due back.
- Synchronise watches with other survey and monitoring people

Equipment to Take

- Watch (preferably digital), compass, torch & spare batteries, clipboard and pencil, forms, paper.
- Several layers of warm clothes, including wind and rain protection.
- Plastic or closed cell foam to sit on if ground is wet.
- Warm drink and possibly something quiet to eat (lollies in wrappers are too noisy).

Optional Equipment to have or to have at the Office

- NZMS 262 topo map and a large laminated copy to mark bird locations on.
- Tape with kiwi calls and extra batteries for cassette player and speakers.
- GPS.
- Excel monitoring spreadsheet.

Monitoring Times

- Listening conditions are best on a dark night.
- Listen during peak calling times as identified in the table following.
- Listen within first 2 hrs after dark for 4 calm nights. (not necessarily consecutive).
- Monitor the same site at the same time each year (by the same person).

Peak Calling Times by Various Kiwi Taxa

Kiwi Taxa	Peak Calling
North Island Brown Kiwi	Apr to Jun
Rowi or Okarito Brown Kiwi	May to Jun
Haast Tokoeka	Feb to Jun
Southern Tokoeka	Nov to Dec
Great Spotted Kiwi or Rorua	Nov to Mar
Little Spotted Kiwi	Feb to Aug

On Arrival at the Site

- Arrive before dark on the first night so you can get a better idea of distance and landscape.
- Have everything arranged so you do not make noise sorting it while you are listening.

Actual Monitoring

- For each kiwi heard calling record; time, its sex, compass direction and estimated distance.
- Write down weather and other details required half way through monitoring.
- Do not solicit calls from kiwi using tapes, unless you have been asked to. (then declare it).
- Record each hourly period on a separate sheet. Only recording the birds that called during the period.
- Identify how many individuals were heard.

After Monitoring

- Complete forms and excel spreadsheet (and do graphs if you wish).
- You can place the location of each bird on a laminated topographical map or drawing.
- Combine other people records. Triangulate the call data.
- Keep a copy and send a copy to the local monitoring coordinator or DOC office.
- If this is a new site record. Send to the Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10–420, Wellington.
- Download the data onto the excel spreadsheets and develop graphs.

Step 3: Recording Your Information

There are copies of the forms following for you to photocopy and use.

After the forms and spreadsheets are filled out.

- Keep the information from your surveys or monitoring sessions for your own records and reports.
- A copy should also be sent to the Coordinator of the Kiwi Call Scheme SRU, DOC, PO Box 10-420, Wellington.



Kiwi Reporting card

Please complete this form as fully as possible and return to the Department of Conservation.

1. The call of the male kiwi is a repetitive (8-25 notes) high-pitched whistle.
2. The call of the female kiwi is a repetitive (10-20 notes) coarse rasping note.
3. Weka, moreporks and possums are often confused with kiwi calls.
4. Footprints are about the size of a domestic chicken's and are often found in mud or snow.
5. Probeholes usually occur in groups and look like a screwdriver has been pushed into the ground, rotated and pulled out again. They are about 10 cm deep.
6. This form may also be used to report other species of wildlife such as kaka, kokako, blue duck, bats etc. Please ensure you clearly identify what you are recording.
7. Post this card to the Coordinator of the Kiwi Call Scheme Department of Conservation, PO Box 10420, Wellington or leave it with a hut warden.

Thank you for your cooperation. Your assistance will help stop the decline of New Zealand's native fauna.

DATE			OBSERVER'S DETAILS	
LOCATION			Name	
			Address	
Map Series [][][]			Sheet [][][]	
Grid Preference [][][] E [][][] N			Phone Home/Work	
Number of Kiwi seen (Other, please specify)			Comments (Vegetation, habitat, dogs or other predators seen)	
Number of Kiwi heard		Signs of Kiwi present (eg. footprints, probeholes)		
Male calls	Female calls			
Are you 100% sure that what you saw or heard was a kiwi? Y/N				

Card No.		KIWI CALL SCHEME											
Observer						Date		Locality Name					
Initials Surname													
Address:													
Affiliation:													
Notes						Series		Sheet		Grid Reference			
Number of Kiwi calls		Wind Direction				Wind		Ground Condition		Major Habitat Types			
		W N E S				1 Calm 2 Light 3 Mod 4 Strong		1 Dry 2 Damp 3 Wet		1 Beech forest 2 Podocarp Forest 3 Broadleaf forest 4 Exotic forest 5 Scrub 6 logged 7 burnt 8 undeveloped farmland 9 developed farmland 10 grassland 11 tussock 12 swamp 13 coastal 14 beach 15 river terrace 16 alpine 17 other			
Minutes listened						Rain		Noise					
						1 Nil 2 Light 3 Moderate		1 None 2 Slight 3 Mod					
						Temperature		Moonlight					
						1 Cold 2 Mild 3 Warm		1 Light 2 Dark 3 Black					
						Cloud Cover		Listening Coverage					
						1 Clear 2 Partly cloudy 3 Overcast		1 Narrow 2 Medium 3 Wide					

Start time:	Finish:			
Sp	Sex	Time	Bearing	Distance

OTHER ANIMALS HEARD

	1	2	3	4
Morepork	none	few	mod	many
Weka	none	few	mod	many
Possum	none	few	mod	many
		few	mod	many
		few	mod	many

