



Distinction Hotel's Kepler Bat Research Report

The discovery of long-tailed bats along the Kepler Track Great Walk and plans for their protection

November – December 2011



Fiordland
Conservation Trust

**Department of
Conservation**
Te Papa Atawhai

Distinction Hotel's

Kepler Bat Research Report

The discovery of long-tailed bats along the Kepler Track Great Walk and plans for their protection

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Cover image credit (Hannah Edmonds): Warren Simpson, from the Department of Conservation in Te Anau, shows off one of the first female long-tailed bats caught in a harp trap in the Iris Burn Valley in December 2011. Visible in the photo is the tiny transmitter attached to the bat so that it could be tracked to the maternity roost for the colony.

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Executive Summary

New Zealand's native long-tailed bats have been detected around the Kepler Track Great Walk beside Lake Te Anau, and near the Te Anau Township. In December 2011 the Department of Conservation, in conjunction with the Fiordland Conservation Trust, undertook a one month research project to locate the breeding grounds of these *nationally critical* mammals.

As New Zealand's only native land mammals, native bats are very vulnerable to extinction through predation by rats at their maternity roosts. And unlike birds, once the bats are gone from the Kepler Mountains we are unlikely to ever see a return of either species through either self introduction or by a planned translocation.

The area around the Kepler Track Great Walk is now the focus of a significant restoration project - the Kepler Backyard Birdsong Project led by the Fiordland Conservation Trust (FCT), with sponsorship from Kids Restore New Zealand (Air NZ Environment Trust) and the Community Trust of Southland and Operational Work undertaken by the Department of Conservation (DOC).

The first two weeks of this Bat Research Project was sponsored by the Distinction Hotels through the Fiordland Conservation Trust. Within this first two weeks harp traps and automatic bat detectors were deployed around Area One of the Kepler Backyard Birdsong Project. Despite an intensive effort low numbers of long-tailed bats were detected along the Waiiau River on the edge of the Kepler Project.

Meanwhile high numbers of long-tailed bats were detected by visiting students in Area Two of the Kepler Backyard Birdsong Project, suggesting that there could have been a long-tailed bat colony in this area of the Kepler Peninsula. The decision was made to continue the second two weeks of this research in the Iris Burn Valley and that this research would be paid by the Department of Conservation. As a result eight maternity roosting trees of long-tailed bats were located within a 10 day period and a population of at least 80 bats was observed, confirming the presence of the second only known population of long-tailed bats in Fiordland.

1. Introduction

This bat research project was established to support the Kepler Backyard Birdsong Project - a community restoration project lead by the Fiordland Conservation Trust in partnership with Kids Restore NZ, the Department of Conservation and the local Fiordland schools and community (see map below). There are three stages to the Kepler Project, the first stage of which was sponsored by Kids Restore NZ (The Air New Zealand Environmental Trust).

Bats are New Zealand's only native land mammal and the two remaining species (the long-tailed and the greater short-tailed bat) are in need of special conservation effort if they are to survive in the wild. Unlike birds, once bats are gone from the Kepler Mountains we are unlikely to ever see them return through either self reintroduction or by a planned translocation. The long-tailed bat is ranked by the Department of Conservation as *nationally critical* and the short-tailed bat as *nationally endangered*. Both species are extremely vulnerable to predation by stoats and rats at their roost trees during the breeding season. New Zealand's third bat species, the greater short-tailed, recently become extinct through rat predation on an offshore island.



Above: the location of the Kepler Backyard Birdsong Project area in relation to Lake's Te Anau, Manapouri and the Te Anau Township. The boundary closely follows the Kepler Track Great Walk.

Over the past few years native bats have been sighted around the Te Anau Township and along the Waiau River that runs beside the Kepler Backyard Birdsong Project restoration area. The breeding area of these native bats had remained elusive despite small research projects in two previous summers. With stoat control about to begin in Stage One of the Kepler Project, and rat control funded by *Kids Restore NZ* planned for next year, it was timely to undertake a more in-depth research project to track down the breeding grounds of Te Anau's local bats.

1.1 Project goals

The overarching aim of this research project was to locate the breeding areas of native bats that had been sighted around the Te Anau Township that were thought may have been breeding within Stage One of the Kepler Backyard Birdsong Project area, the Kids Restore the Kepler Project area. Information gained from this research would then be used to decide if the 420 hectares of rat control planned for Stage One of the Kepler restoration project could be situated to protect any maternity roosting areas for bats. If the bats were found to be roosting outside of Stage One of the Kepler Project then discussion would be held between the Department of Conservation and the Fiordland Conservation Trust about how best to proceed to protect this colony in the future.

During this research project opportunities would also be taken to create awareness amongst the national and local community about any discoveries made, the partnership with Distinction Hotel and the Fiordland Conservation Trust and the need for future protection of any bat colony that was located.

The project goals are formalised in the Letter of Agreement between the Department of Conservation and the Fiordland Conservation Trust (DOCDM-865498).

1.2 Bats - New Zealand's only native land mammals

Due to its geological history New Zealand was a country dominated by birds and the only native land mammals were bats that were able to fly to the isolated island. There were three species of bats in New Zealand but now only two remain. The greater short-tailed bat (*Mystacina robusta*) was found on two islands off Stewart Island but following an invasion of ship rats, it was last sighted in 1967 and is probably extinct. The two remaining bat species are high priority for conservation effort for the Department of Conservation. The lesser-short tailed bat (*Mystacina tuberculata*) is ranked as *critically endangered* and the long-tailed bat (*Chalinolobus tuberculatus*) is now ranked as *nationally critical* for protection.



Photo above: the long-tailed bat that weighs only 11 grams (left) and the lesser short-tailed bat (14g) with its distinctively large ears for echo location.

Lesser short-tailed bat facts:

- The lesser short-tailed bat is the only member of its family, Mystacinidae, known to still survive.
- Short-tailed bats weigh 12-15 grams, have large pointed ears, a free tail and are a mousy-grey colour.
- Unlike most bats, which catch their prey in the air, the short-tailed bat has adapted to ground hunting and is one of the few bats in the world which spends large amounts of time on the forest floor, using its folded wings as 'front limbs' for scrambling around.
- Short-tailed bats are found in indigenous forests where they roost, singly or communally, in hollow trees. The bats go into a 'torpor' in cold weather and stay in their roosts. They wake up as soon as the weather becomes warmer.
- Thought to be a lek breeder, i.e. males compete for traditional 'singing' posts and 'sing' for a female.
- Its diet consists of insects, fruit, nectar and pollen.
- During a summer breeding season female short-tailed bats congregate in maternity roost trees with their young. They move between different roost trees approximately weekly.

Long-tailed bat facts:

- Long-tailed bats are smaller than the short-tailed bat, chestnut brown in colour, have small ears and weigh 8-11 grams. They are believed to produce only one offspring each year.
- The bat's echo-location calls include a relatively low frequency component which can be heard by some people.
- It can fly at 60 kilometres per hour and has a very large home range (100 km²).
- An aerial insectivore, it feeds on small moths, midges, mosquitoes and beetles
- Female long-tailed bats congregate in maternity roosting trees with their young during the summer breeding season. They usually move roost tree every night.

Native bats populations are decimated by rats and are particularly vulnerable at their maternity roost trees during rat plague years. It is likely that stoats and mice may also prey on native bats. Bat populations have stabilised and started to increase in abundance following the establishment of extensive rat control around roost sites in the Eglinton Valley. Further information is available on native bat species on the Department of Conservation website at <http://www.doc.govt.nz/conservation/native-animals/bats>.

Prior to this research project the Eglinton Valley populations were the only known populations of long and short-tailed bats in Fiordland National Park. A long-term study of long-tailed bats has been underway in the Eglinton Valley and research on the short-tailed bat population has been undertaken since their discovery.

1.3 Restoration of the Kepler Peninsula

In 2006 the **Kepler Challenge** Organising Committee entered into a partnership with DOC to establish and maintain stoat traps around the length of the Kepler Track. Whio/Blue Ducks, Kiwi and many other birds inhabit the area and their survival is greatly increased through these trapping efforts as has been shown in many similar programs throughout New Zealand. Using a proportion of runner entry fees the Kepler Challenge Organising Committee maintains the stoat traps it has established around the length of the Kepler Track and invites competitors to help with the trap-checking runs. An informative page on their website (<http://www.keplerchallenge.co.nz/content/birdsong-project>) explains how the programme works, why it is undertaken and the trap-catch to date.

The **Kepler Backyard Birdsong Project** is a three stage project being led by the Fiordland Conservation Trust (FCT) in partnership with the Department of Conservation to restore 10,640 hectares of the Kepler Peninsula that encloses the Kepler Track Great Walk (see map below). Stage One of the restoration project is currently underway and is sponsored by Kids Restore New Zealand (the Air NZ Environment Trust) and funding from Community Trust of Southland. Stage One is called The *Kids Restore the Kepler* project and has a strong emphasis on youth involvement. The Department of Conservation (DOC) currently oversee the operational work and have been contracted to manage Stage One of the project for the initial two years of the project (Feb 2011- Feb -2013) with a further two-year term if the programme continues into the next stage.

The **Kids Restore the Kepler Project** will fund stoat control over 3000ha and rat control over 420ha within the Kepler Mountain Range over a two year period (see map below). This project builds on stoat control undertaken by the Kepler Challenge Committee on the Kepler track and is part of a larger community predator control plan, called Kepler Backyard Birdsong Project, to incorporate other pest species and over a wider 10,640 hectare area.

Kids Restore New Zealand has a strong emphasis for youth involvement in restoring the environment. The Kids Restore the Kepler Project was launched in November 2010, led by students from the local high school, Fiordland College, with support from the local primary school, Te Anau Primary. Assistance was also received from FCT, DOC and numerous experts from local businesses. The local college students have now set up a website for the project available at <http://kidsrestorethekepler.co.nz/>.

Research has been undertaken by the **Department of Conservation** during the previous two summers (2009/10 and 2010/11) to try to track down the roosting locations of bats within the Kepler area using automatic detectors and harp traps. No bats were caught however and a larger concerted effort was required this summer.



Above: The location of Area One of the Kepler Backyard Birdsng Project, where the *Kids Restore the Kepler* project of stoat and rat control is located.

1.4 **Support through the Fiordland Conservation Trust**

The Fiordland Conservation Trust is a local trust who works with businesses to support conservation projects throughout the Fiordland area. Established in 2007 the trust has worked with many different individuals and companies to bring about some outstanding conservation projects in Southland. Several businesses have on-going relationships with the trust. Many of the sponsorship projects managed by the Department of Conservation, including this Kepler Bat Research Project, have funding directed from the trust. Further information can be found on their website <http://www.fiordlandconservationtrust.org.nz>.



The Kepler Bat Research Project was presented to the Fiordland Conservation Trust as a sponsorship project by the Department of Conservation. A “one-pager” document and costing was presented to the trust so that they could use this information to find a suitable sponsor (see the images below that are available at DOCDM - 766405).



The Fiordland Conservation Trust brought the Distinction Hotels onboard as a sponsor for the project and they created their own agreements. A letter of agreement between the Department of Conservation and the Fiordland Conservation Trust (FCT) was drawn up to cover this bat research project (see DOCDM-865498). This was similar to previous agreements between these two parties, with DOC leading on project management and media, while FCT were to lead on liaison with the sponsor.

The main points from the letter of agreement between the Fiordland Conservation Trust and the Department of Conservation were:

- This agreement covers the cost of one member of a team working for one month (November/December 2011) of monitoring using bat detectors and harp capture nets to locate long-tailed bat roost trees.
- The results of this work will be taken into consideration when deciding on the exact location for the planned 420 ha of rat control (funded by Kids Restore NZ). A discussion will be held between the FCT and DOC before an agreement is made to the final location for rat control.

1.5 Sponsorship from Distinction Hotels

This project was made possible through the generous support of Distinction Hotels. The hotel provided funding for staff to work through the first two weeks of the project totalling to \$4950 (+GST). The Department of Conservation contributed funding for staff for the second two weeks of the transfer and support staff to achieve this work.



2. Methods

2.1 *Logistics and personnel for this research*

The field work for this project ran from the 28th November to the 23rd December, with the odd day required during November to set up and analyse automatic bat detectors.

Key Department of Conservation staff involved in the field work for this research project were Warren Simpson and Jo Whitehead. They were assisted by Hannah Edmonds and Jono Moore from the Te Anau office, along with Dane Simpson from Te Anau who helped out as a casual contractor. Dave Anderson from the Department of Conservation in Geraldine also assisted for the first week.

Hannah Edmonds and Michelle Gutsell were the supervisors for the team, and Peter McMurtrie was the lead contact for the Kepler Backyard Birdsong Project.

2.2 *Transport and Health & Safety*

Approval has been granted from the Te Anau Area Manager to use a bike in Fiordland National Park for management purposes. This will allow staff to access harp traps faster than they would by walking. Signage will be erected at each main entrance to the survey site to alert trampers and hunters that bikes are being used and that staff are working at odd hours (dusk and dawn). Hut wardens, the VA and VC teams will also be notified.

All personnel working on the Kepler Bat Survey worked under the Te Anau Biodiversity Work and Backcountry health & safety plans. The team carried PLB's, VHF radios and GPS units. They wore high visibility vests at all times. Team members working at night signed in with their respective partners or another appropriate person when they arrived home after hours.

2.3 *Communication around the project*

A communication plan was written up about the bat survey to ensure that appropriate messages were communicated to relevant stakeholders and that media opportunities were utilised (DOCDM-865615). One stakeholder is the Kepler Challenge Mountain run organising committee as the run took place during the bat work. The committee were informed of the bat work taking place, and the team will ensure harp traps were removed from the track prior to the run.

2.4 Automatic bat detector units

Automatic bat detector units (ABDU) are a valuable research tool for converting the otherwise inaudible, ultrasonic calls of bats into a sound that can be heard by the human ear. This is useful to determine both bat activity, and to identify bat species. ABDUs were set in suitable areas around the Kepler Track and wider Te Anau Basin area prior to catching in December, to determine where best to set up harp traps.

The automatic detectors were set to record between 8pm and 8am, on the 'FAST' noise switch so that fewer distractive noises (rain drops etc) were picked up. The boxes take an SD card and four AA batteries. They were ideally positioned in an elevated location (c.1 metre off the ground) pointing into a clearing, over water or into a throughway where it was suspected that bats may have foraged.

Equipment: Bat boxes 1 - 7 were owned by DOC in Te Anau. Bat boxes 8 and 9 were the older version and were borrowed from the Moira Pryde in the Research and Development team. Bat boxes were also borrowed from Ros Cole in Murihiku.

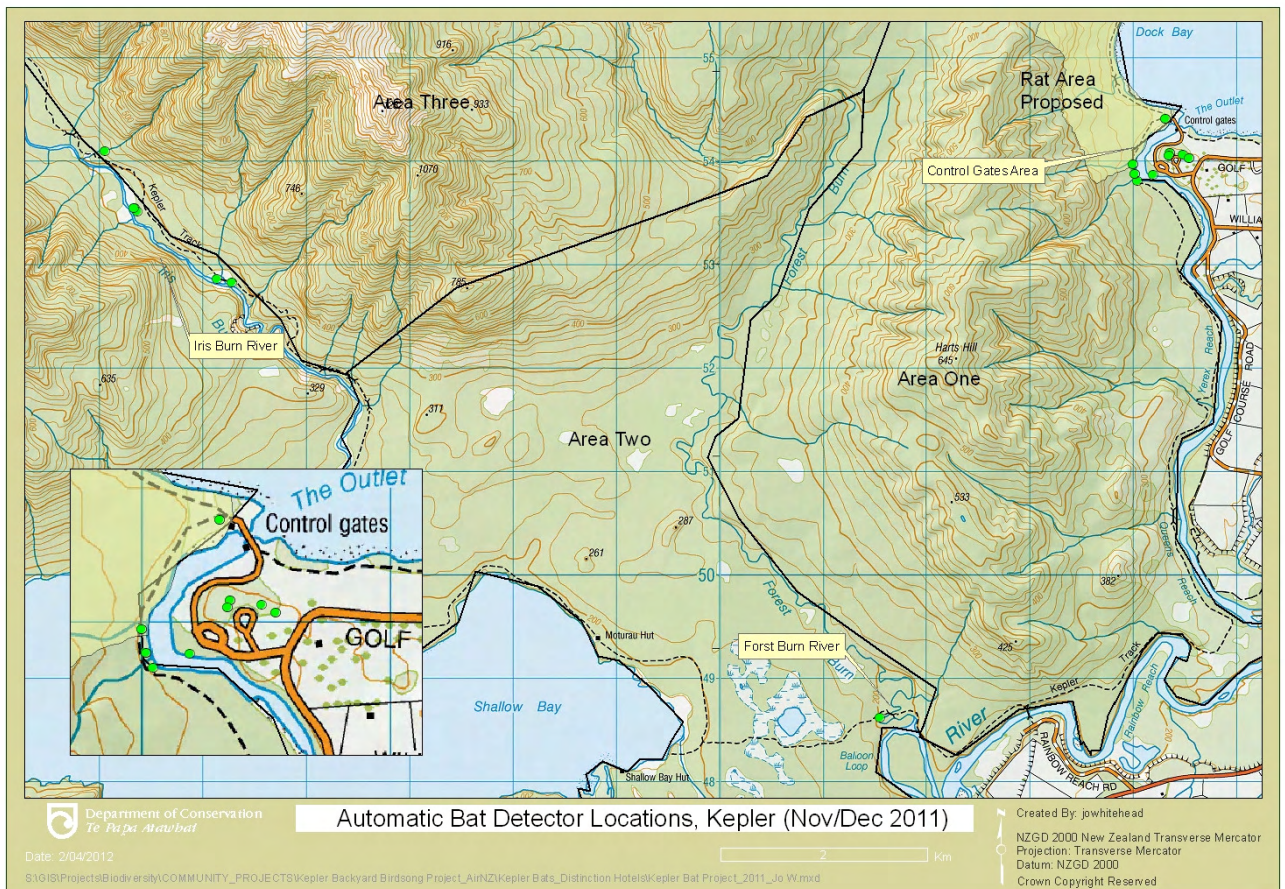


Photo: an automatic bat detector in the Iris Burn Valley (left) and a double-set harp trap set over the Forest Burn River near the swing bridge (right).

2.5 Deployment of harp traps

Harp traps consist of a frame that supports two rows of fine thread, and a catching bag at the base. Bats do not usually detect the fine thread, but if they detect the first row and swerves to pass through, they collide with the second row and tumble into the collecting bag. The harp traps were set up during the day along the Kepler Track, depending on where the most bat activity was detected from the automatic detectors. As the traps are heavy and complicated to set up, this takes at least two skilled people. The traps were then checked at midnight and then again at dawn, because in December female bats are feeding young at maternity roosts, therefore they need to return to the roost.

Harp traps were set up around the Waiau River during the first two weeks of November (see map in Methods). Each trap had to be checked at midnight and at dawn. Traps were pulled down if there was any rain to avoid getting the bags wet. Each trap was up for around one week before being moved to a new location. Traps were mostly set around the Control Gates area and upper Waiau where long-tailed bats had previously been recorded on automatic bat detectors. A double harp trap was set along the Forest Burn River near the swing bridge (see photo). After decision to move effort to the Iris Burn Valley, six harp traps were flown into the Rocky Point shelter and set up along the Iris Burn Valley (as shown below).



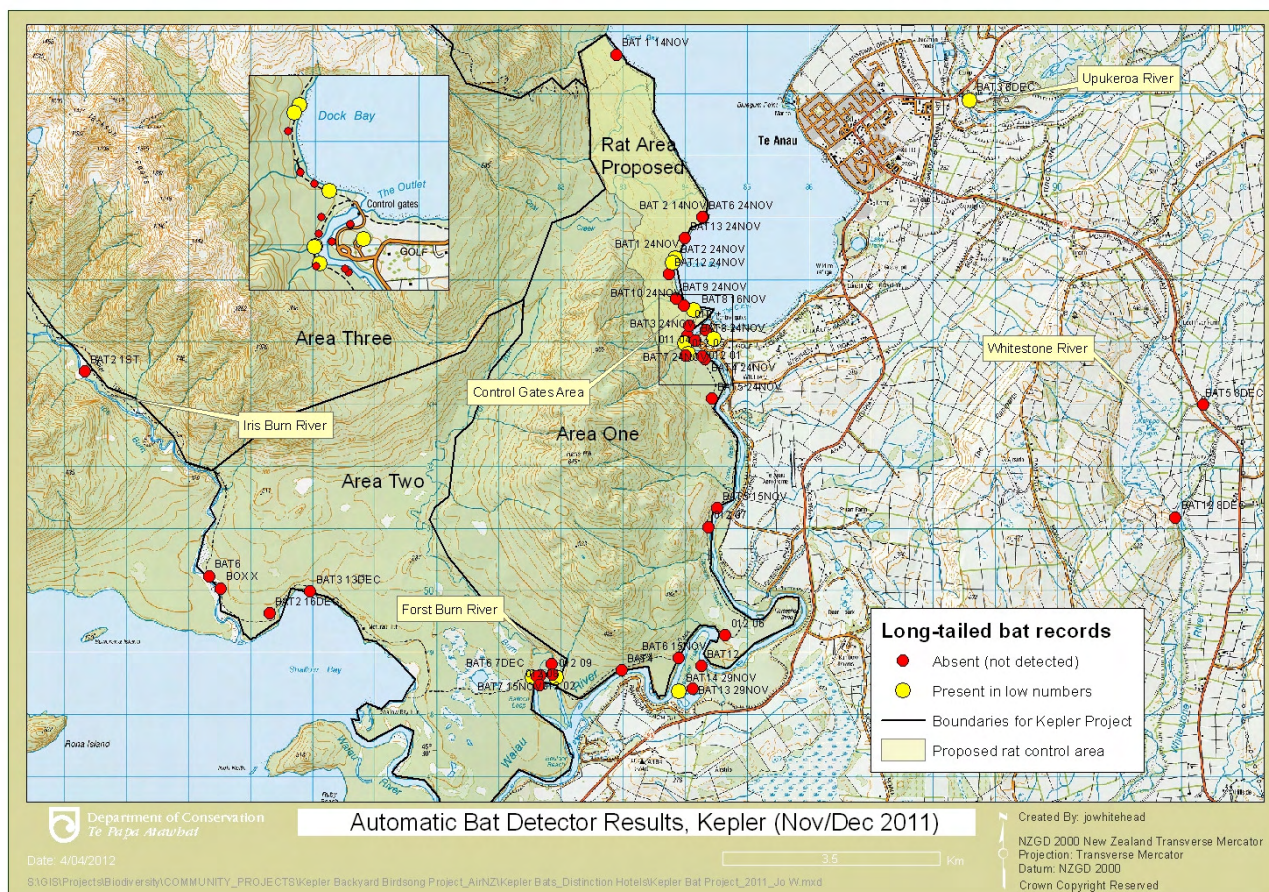
Map: Location of harp traps set around the Kepler Area in 2011, including a close up of the traps set around the outlet to Lake Te Anau/ Control Gates structure.

3. Results

3.1 Automatic bat detector findings

Over a six week period the automatic bat detectors were put out at 46 different locations around the Te Anau Basin and Kepler Peninsula area. Recorders outside of the Kepler Area were focused around areas where bats have previous been recorded, such as the Whitestone and Upukeroa Rivers, and Patience Bay.

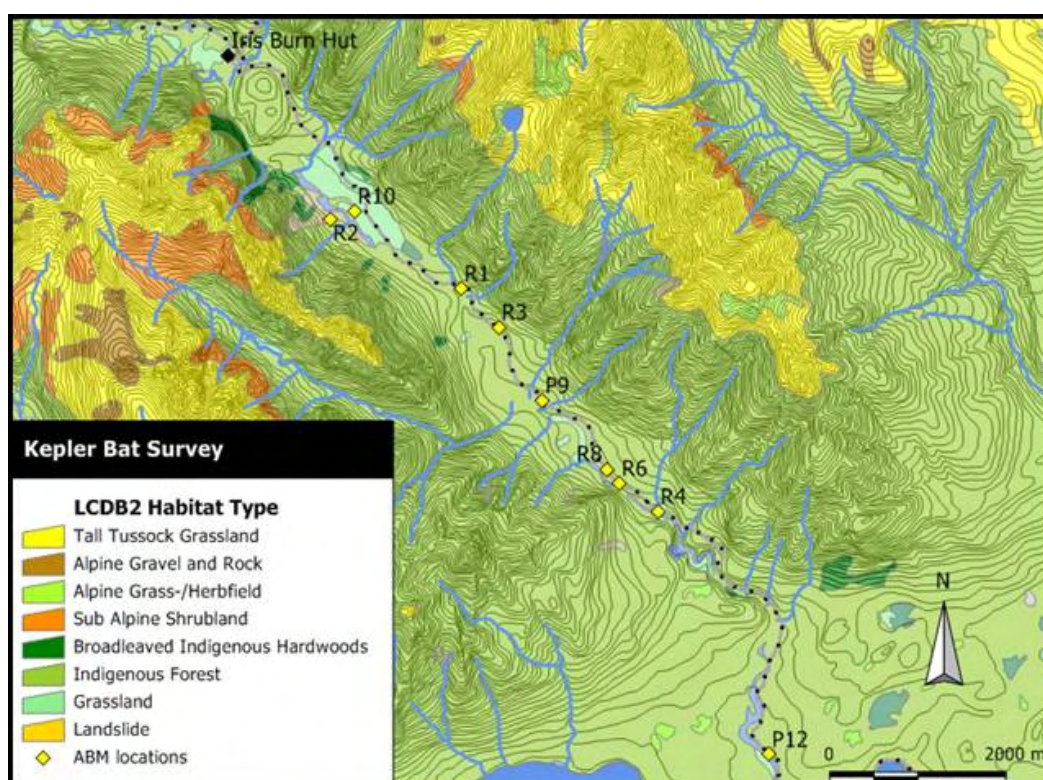
The results from the automatic recorders were recorded on paper and then the data inputted into an Excel Spreadsheet (Kepler Bat Research Data, DOCDM-865717). The highest number of passes recorded in one night was 17, but the average was less than five passes. Despite using the same equipment, these numbers of passes were significantly lower than those that had been recorded during the previous two summers and were extremely low compare to the high results recorded by Polytechnic students in the Iris Burn Valley (see following section).



Map: locations of where long-tailed bats were recorded present on automatic bat recorders by DOC, including a close up of locations around the Control Gates. The highest number of recordings in one night was 17 passes, but the average was < 5 passes/ night.

3.3 Automatic detector research by Polytechnic Students

During November 2011 long-tailed bats were detected by visiting Polytechnic students in the Iris Burn Valley area of the Kepler Peninsula. Long tailed bats (*Chalinolobus tuberculatus*) were found to be present at 6 of 9 automatic bat recorder stations in the Iris Burn catchment, during an ultrasonic survey over the period November 9 - 11, 2011.



Map: 13 automatic bat recorders by Polytechnic students in Iris Burn, 9 – 11 Nov.

Data summaries (see table below) indicate that bats were roosting in the mid reaches of the Iris Burn. No bat activity was detected from four stations near deployed about the Amoeboid mire. Several probable short tailed bat (*Mystacina tuberculata*) passes were also detected from station P9 and further work is required to verify these observations.

Table: Long-tailed bBat activity levels Iris Burn, November 9 – 11, 2011

Bat Recorder	R2	R10	R1	R3	P9	R8	R6	R4	P12
Total passes	4	1	0	37	89	477	207	0	0
Average/night	1.3	0.3	0.0	12.3	29.7	159.0	69.0	0.0	0.0

All recorders functioned well resulting in a total of 409.5 hrs of data being collected. 814 passes were recorded from 6 recorders in the upper valley and also a bat was seen flying down valley from a kiwi listening station near R2. High levels of LTB activity were detected from recorders R6 & R8 (see Table 1). Passes at recorder 8 were detected until 05:26 (19 passes on the morning of the 11th) and so it is likely these bats were roosting somewhere in the Iris Burn at this time.

3.2 Harp trapping results

During the first two weeks of this research harp traps were setup and run at nine different locations around the Control Gates and Upper Waiau River where bats had been recorded on automatic detectors. One double trap was also set near the Forest Burn Swing Bridge. Despite this effort zero bats were caught.

After the decision to move focus to the Iris Burn Valley, six harp traps were flown into the Rocky Point shelter and set up at suitable locations running north off the Kepler Track.

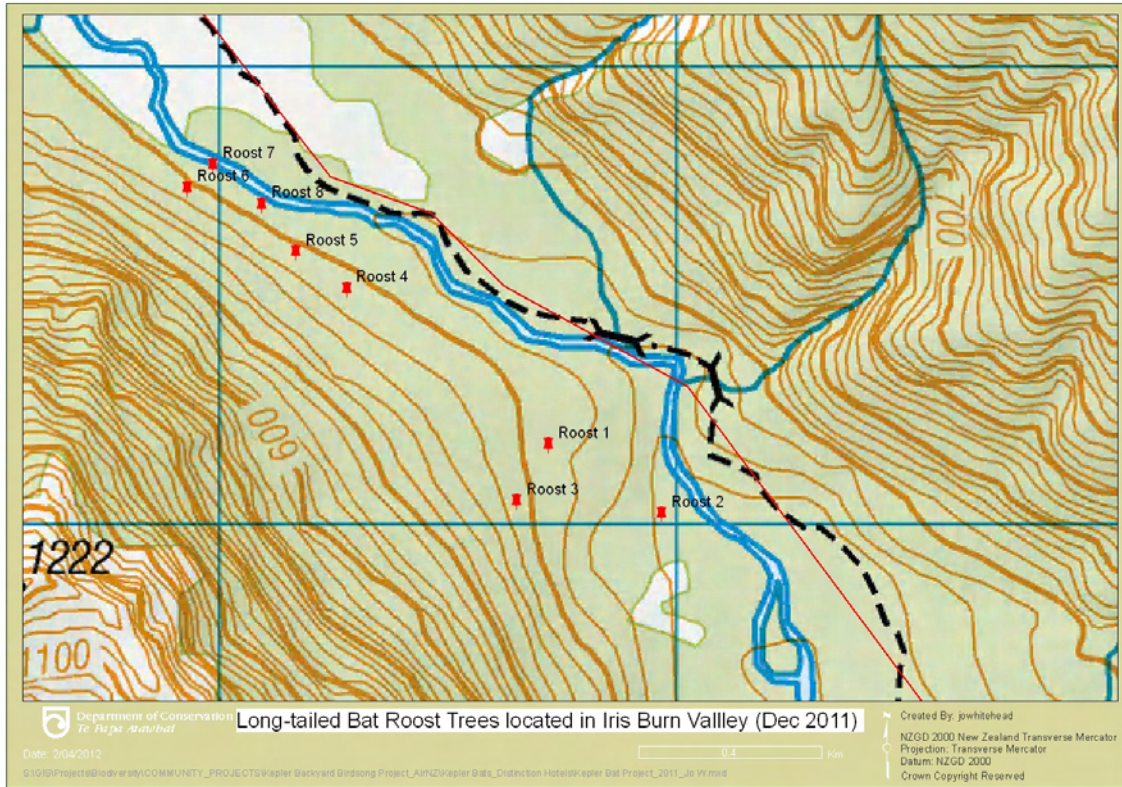
On the first night, four long-tailed bats were caught in the Pond Harp trap, two lactating (breeding) females and two juveniles. Transmitters were attached to the two breeding females (Tx 55 and Tx 65) so these females could be tracked to their maternity roost trees.



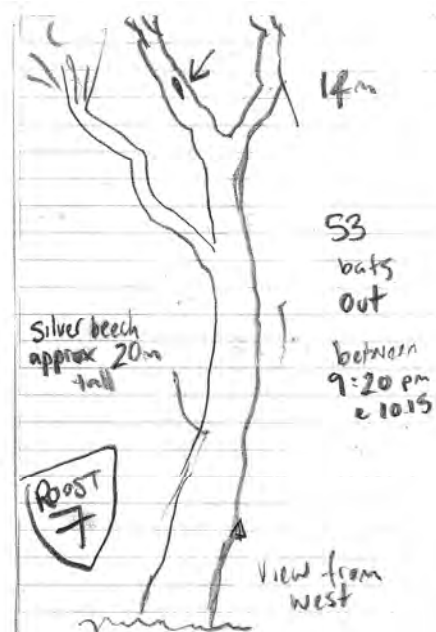
Above: Warren Simpson holding one of the first long-tailed bats caught in the Kepler Peninsula and showing off the tiny transmitter now attached to it's back.

3.4 Long-tailed bat roost trees

After the two transmitters were attached to the breeding females they were radio-tracked to their maternity roost trees. Eight separate roost trees were located over the 10 days available for the research (as shown in the map below).



Map: The locations of 8 roost trees found in December 2011 are shown, along with the current boundary for the Kepler Backyard Birdsong Project area boundary (red line) which is on the true left of the Kepler Track Great Walk (shown by dashed line).



Above: Roost tree one with three big limbs (left) and a diagram of roost tree seven (right). A description of all roost trees found is in the table that follows.

Table: Descriptions of Iris Burn Valley long-tailed bat roost trees, Dec 2011.

Roost No	Date	Observer	Location	Tree details	Observation details
Roost 1	14/12/11	Jo Whitehead	1172717 4955176	Silver Beech, 3 main stems, dbh~1.8m.	Tx 55 and Tx 65 tracked to tree. Bats started emerging at 21:15. 41 bats seen leaving tree before it got too dark to count, but likely to be more in tree as lots heard on bat detector between 22:20 - 22:30. First bat seen circling at 21:08. (diagram in note book) 16/1/12 - Tx 55 tracked and found on ground outside roost. Tree trapped at night & 8 bats caught (see trapping details in later section).
Roost 2	13/12/11	Warren Simpson	1172964 4955025	Mountain beech (?)	
Roost 3	16/12/11	Colin O'Donnel & Jo Hoare	1172647 4955052	Silver beech, 25m high, dbh ~ 1.1m, slope 20°	Tx 65 tracked to tree. Located 146m SW of roost 1. Saw 13 bats emerge from narrow slit hole 7m above ground, NE side. 1 st bats emerged at 9.45pm, last at 9.53pm.
Roost 4			1172276 4955517		
Roost 5	20/12/11		1172164 4955598		Tx 55 in tree.
Roost 6	21/12/11	Jono More	1171927 4955737	Silver beech, ~20m. Roost cavity ~8m up. Roost in clearing. (diagram in note book)	Tx 55 in tree. 69 bats seen leaving roost between 9.20pm - 10.30pm. Bats were coming back to roost making it confusing to count. Possibly a few juveniles still inside as some squeaking could be heard.
Roost 7	22/12/11	Jono More	1172020 4955775	Silver beech, ~20m tall. Cavity ~14m up tree. (diagram in notebook)	RoostTx 55 found in roost. 53 bats observed leaving roost between 9.20pm - 10.15pm.
Roost 8	23/12/11	Jono More	1172088 4955702	Silver beech, ~16m tall.	Possible roost hole at 11m. Roost not watched in evening.

3.5 Genetic analysis of long-tailed bats

Genetic sampling of Fiordland's only other known long-tailed bat population (in the Eglinton Valley) began in 2011 to determine the relatedness of individuals within colonies in the valley. Department of Conservation scientists working on this project (Colin O'Donnell and Jo Hoare) took the opportunity to join us in the Iris Burn Valley to take genetic samples of long-tailed bats within this newly discovered population. Results should be available within the year that will provide information on the relatedness of the Eglinton and Iris Burn Valley long-tailed bat populations.

Table: Details of long-tailed bats caught for genetic sampling over three nights.

Details for each night:	15/12/11	16/12/11	17/12/11
Tree trapped	Roost One	Roost One	Roost Three
Total no. bats caught	3	8	26
No. breeding females	2	5	22
No. non-breeding females	0	1	2
No. adult males	1	2	2
No. juveniles	0	0	0
Total no. of samples taken	3 tissue	8 tissue	19 tissue
Notes	Light rain	Mites collected	Mites collected

3.6 Possible short-tailed bat sighting

On 21st December 2011 at 10.40pm near Roost 6 (E 1171984, N 4955788) on the true right of the Iris Burn River, Jono Moore called in a short-tailed bat using a squeaker and it flew right past his ear. It was confirmed as a short-tailed bat through the bat detector that was on frequency 28, but was not caught in the hand.

Several sessions were spent attempting to mist-net short-tailed bats in the Iris Burn Valley but without success.

3.7 Other wildlife observations

While in the Iris Burn Valley a number of interesting wildlife observations were made:

14/12/11 - Roost Tree One (night observation)

- Kiwi - Male and female heard calling upstream on true right of river, ~400m away, another kiwi heard down stream.
- Kea - heard flying above.
- Morepork - heard all around us.
- Possums - one almost fell on me from the tree above, many were heard calling around us and seen.
- Deer - heard during the day and at night; three seen on track while travelling back to rocky point hut.

4. Communication Outcomes

A communication plan was written by the Department of Conservation to ensure that appropriate action was taken during the project to raise awareness about native bats, the Kepler Backyard Birdsong Project, safety around the project for DOC staff and the sponsorship by Distinction Hotels through the Fiordland Conservation Trust (see DOCDM-865615 for the plan).

4.1 Information sheet

The following two-page information sheet was created to be able to hand out to members of the public that staff met during their work, and to display at prominent locations around the Kepler Track. Sponsorship by Distinction Hotel was recognised with a large logo in the top of the banner (DOCDM- 862207)

The image shows two pages of an information sheet. The left page is titled 'Protection for our rare Bats in the Kepler Mountains, Fiordland' and features a Distinction Hotels logo. It contains text about the project's purpose, background on Fiordland National Park, recent discoveries of long-tailed and short-tailed bats, and the issue of their declining populations. The right page is titled 'Protection for our rare Bats in the Kepler Mountains, Fiordland' and features a Distinction Hotels logo. It includes a 'What's the plan?' section, details about automatic bat detectors, and information on how the work will be undertaken, including the use of harp traps and the requirement for staff to wear uniforms and high-visibility vests. Both pages include logos for Fiordland Conservation Trust and the Department of Conservation.

Above: Distinction Hotel information sheets handed out and displayed during the research project.

These information sheets were displayed and available at the following locations:

- Control Gates shelter
- Rainbow Reach shelter
- Te Anau Department of Conservation Visitor Information Centre
- Attached to harp traps that were set in prominent positions around the Kepler Track
- Te Anau Events Centre during the Kepler Challenge briefing and prize-giving
- Handed out to school groups met along the track (Clyde school)

4.2 News release and media coverage

A news release was written by Biodiversity Ranger Jo Whitehead and circulated to local and national contacts on the 23rd December 2011. The full news release is included in the appendices, available at DOCDM-882793 or on the DOC website at <http://www.doc.govt.nz/about-doc/news/media-releases/2011/rare-bats-discovered-in-the-kepler-mountains>.

The news release was picked up by newspapers and radio stations across the country, with particularly good timing that the news was broadcast just before Christmas. The following media articles were picked up, but there were likely to have been more. Copies of known media articles are included in the appendices.

Known media coverage resulting from press release:

- National Radio newswire (25 Dec 2011) - *Rare bats discovered in Fiordland*
- Scott Bare radio news (25 Dec 2011) - *Rare bats discovered on Kepler Track*
- Manawatu Standard (26 Dec 2011) - *Colony of rare native bats found*
- The Southland Times (26 Dec 2011) - *Rare bat colony found in Kepler Mountains*
- The Nelson Mail (26 Dec 2011) - *Rare bats find*
- New Zealand Herald (27 Dec 2012) - *Critically endangered bats found close to track*
- Fiordland Advocate (12 Jan 2012) - *Colony of rare bats found on Kepler Track*

Unfortunately only one of the articles was printed with the photograph that was sent out with the media release, the Fiordland Advocate January 2012 article. This may have occurred because the photograph originally sent with the press release was of a low resolution and as this was over the holiday period reporters were asked to contact the Te Anau visitor information centre for a high-resolution image. In future it would be wise to send out a high-resolution image with the press release if it is likely that the DOC contact will not be able to respond promptly.

5. Budget

The Distinction Hotel donated \$4500 towards wages for staff who undertook the first two weeks of work on bat research in Area One of the Kepler Backyard Birdsong Project area.

The Department of Conservation paid for the second two weeks of the research through their operating budget. Additional costs included signage (\$190) for hazard warning signs and accommodation for a staff member from out of town.

- wages for Jo, Jono, Dane, Wazza, Hannah?
- Backcountry allowances
- Accommodation for Dave Anderson at the Holiday Park (Michelle)
- Helicopter of harp traps into rocky point (was a drop off from Pete McMurtrie's projects)
- Helicopter of harp traps out of rocky point (joint flight with Grant Tremain)
- Food for rocky point trips
- Transmitters (paid for from Eglinton budget)
- Printing of health and safety signs (Michelle)

6. Discussion and Recommendations

Despite a concerted effort over four weeks, there were very few bat passes recorded around Area One of the Kepler Backyard Birdsong Project area, with the most being 17 passes in one night. These records paled in comparison to the 159 passes recorded per night the Iris Burn Valley, just outside Area Three of the Kepler Project. It is most likely that the passes recorded along the Waiau River and near Area One are of long-tailed bats that roost in a colony outside of Area One, perhaps even in the Iris Burn Valley.

A previously unknown population of long-tailed bats was discovered just outside Area Three of the Kepler Backyard Birdsong Project, beside the Kepler Track Great Walk. This population is at a minimum 80 bats and they have at least eight maternity roost trees but there will be many more within the vicinity. The genetic distinctiveness of this population is currently being compared to the Eglinton Valley populations. This is only the second known population of long-tailed bats in Fiordland.

Observations by DOC staff suggest that short-tailed bats may also be present in the Iris Burn Valley but as yet this has not been confirmed.

Recommendations:

- Consult with DOC's bat recovery group on the potential importance of the Iris Burn Valley site for the protection of long-tailed bats in the South Island.
- Establish stoat and rat control around the maternity roosts of the long-tailed bats in the Iris Burn Valley
- Extend the boundaries to the Kepler Backyard Birdsong Project area to include the whole of the forested area of the Iris Burn valley. Currently the boundary to Area Three is along the Kepler Track, which follows the true left of the Iris Burn River. The long-tailed bat maternity roosts located this season are all on the true right of the Iris Burn River so would not be protected by the current operational plan.
- Conduct further research in summer 2012/13 to determine the core area of maternity roosts that should be protected by rat control. Spread out the research during the breeding season so that a larger area is covered. I.e. Conduct 1 - 2 weeks in December, January, February and March.
- Confirm the presence of short-tailed bats in the Iris Burn Valley using automatic bat detectors and mist-netting techniques. If confirmed, attach a transmitter to a short-tailed bat and locate their maternity roosts too.
- Find a sponsor to support this project.
- Further research could be conducted to determine if the bats recorded closer to the Te Anau township are roosting in the Iris Burn Valley, or elsewhere, but this will probably take substantial effort for little results.

7. Acknowledgements

We thank the following people and organisations that helped make the discovery of native bats on the Kepler Track a reality:

- Distinction Hotels for their sponsorship towards the project
- Fiordland Conservation Trust for their co-ordination of the sponsorship
- Warren Simpson, Jo Whitehead, Jono Moore and Hannah Edmonds (DOC Te Anau), Dane Simpson (Te Anau contractor) and Dave Anderson (DOC Geraldine) for their assistance with field work
- Sanjay Thakur and Pete McMurtrie (DOC Te Anau) for their helping with the harp traps.
- Lindsay Wilson, Michelle Gutsell and Caroline Carter (DOC Te Anau) for their assistance with project planning and communications
- Colin O'Donnell and Jo Hoare (DOC Christchurch) for their help with field work and their genetic analysis research
- Patrick Stewart, tutor for Bay of Plenty Polytechnic who organised students to participate in bat surveying in the Iris Burn Valley and analysed the data
- Bay of Plenty Polytechnic, Environmental Management Class 2011 students for their work with bat surveys in the Iris Burn Valley that led to the discovery of the long-tailed bat population near Rocky Point.

8. References

- Kepler Bat Project Letter of Agreement between the Fiordland Conservation Trust and the Department of Conservation (DOC DM-865498), October 2011
- **DOC (Sept 2010) Kepler Peninsula Community Predator Control Project Operational Plan 2010.** Produced for the Fiordland Conservation Trust (DOCDM- 700950)
- Kepler Bat Research Sponsorship one-pager prepared by DOC for the Fiordland Conservation Trust to present initial information to sponsors (DOCDM 766405)
- Edmonds, H and C Wickes (2010) Kepler Bat Survey Report from Research in 2010 (DOCDM- 725016)
- Kepler Bat Survey Report from Research in 2009 (DOCDM592545) March 2010
- **Kepler backyard birdsong project details are contained in the attached Project Operational Plan DOCDM-700950.**

9. Appendices

9.1 Contact details for Polytechnic Students

Contractor to Bay of Plenty Polytechnic, Diploma in Environmental Management

Patrick (Paddy) Stewart,
Red Admiral Ecology,
383 Kapanga Road, Coromandel 3506
0274 489327/07866 8111
www.patrickoutside.com/patrick_outside/

9.2 Radio-tracking of bats with transmitters

Table: Two breeding females were caught in a harp trap the first night they were set in the Iris Burn Valley. A transmitter was attached to each bat (Tx 55 & Tx 65) and the locations of these bats is shown in the table below.

Date	Location of Tx 55	Location of Tx 65	Trackers
12/12/11	Breeding female caught in harp trap by pond, fixed transmitter	Breeding female caught in harp trap by pond, fixed transmitter	Warren & Hannah
13/12/11	Roost 2	Not found	Warren
14/12/11	Roost 1	Roost 1	Jo W
15/12/11	Roost 1	Roost 1	Jo W
16/12/11	Roost 1	Roost 3	Colin and Jo H
17/12/11	Not found	Roost 3	Colin and Jo H
18/12/11	Roost 4	Roost 3	Dane S
19/12/11	Roost 4	Not found	Jono and Warren
20/12/11	Roost 5	?	Jono
21/12/11	Roost 6	?	Jono
22/12/11	Roost 7	?	Jono
23/12/11	Roost 8	?	Jono

9.3 News Release

23 December 2011

Rare bats discovered in the Kepler Mountains

A colony of rare native bats has been discovered beside the Kepler Track Great Walk, thanks to a project supported by Distinction Hotel and the Fiordland Conservation Trust. Rangers from the Department of Conservation made the remarkable discovery in mid-December after the detection of bats on automatic recorders led them to discover just the second known colony of long-tailed bats in Fiordland.

Long and short-tailed bats are New Zealand's only remaining land mammals and are in desperate need of protection with both species now ranked as *nationally critical* and *nationally endangered* respectively. This discovery of a previously unknown long-tailed bat colony in the Iris Burn Valley is a significant achievement for bat conservation, and will hopefully allow protection work to be undertaken to preserve this colony so close to Te Anau.

Department of Conservation Biodiversity Ranger Jo Whitehead said unlike birds, once these bats have gone from the Kepler Mountains they are unlikely to ever return as we don't yet have the techniques to transfer bat populations. Native bats are decimated by rats in plague years and are particularly vulnerable while breeding in their roost trees over summer. Five maternity roost trees have so far been discovered in the Iris Burn Valley, upstream of Rocky Point and less than 500m from the Kepler Track Great Walk.

The discovery came about as a result of Distinction Hotels and the Fiordland Conservation Trust supporting a one month research project to track down the maternity roosts of native bats that had been sighted around the Te Anau township in recent years. The project fits alongside the Kepler Backyard Birdsong Project (partially funded by the Kids Restore/Air New Zealand Environmental Trust) that aims to bring back the birds, and now hopefully the bats, to the Kepler Peninsula. Funding is still being sought for pest control to protect some areas of the Kepler Peninsula, including the Iris Burn valley that is now home to long-tailed and possibly short-tailed bats.

Interestingly, the discovery may not have been made if it wasn't for the work of twenty Polytechnic students visiting from the North Island. During the first two weeks of December, Department of Conservation rangers focused their research around the outlet to Lake Te Anau and along the Upper Waiau River where bat activity had previously been recorded on automatic detectors. Specially designed harp traps were erected around these bat feeding grounds to try and catch one of these elusive native mammals, but after two weeks of late nights and early mornings no bats were caught.

When staff received news that hundreds of long-tailed bat passes had been recorded on automatic bat detectors in the Iris Burn Valley by the Polytechnic students from Tauranga, they were quick to switch focus and erected six harp traps in the valley the following week. On the first night four bats were caught, and to the excitement of staff, two were breeding females. *"We attached a tiny radio transmitter to each female so we could track them down to their maternity roost trees"* said Department of Conservation ranger Warren Simpson. *"This is when we discovered they were roosting so close to the Kepler Track"* he said.

Following the discovery of the roost trees in the Iris Burn valley the size of the long-tailed bat colony was estimated by watching the bats leave their roost in the evening. *"At least 60 bats have been seen so far, but the population may be closer to 100"* said Mr Simpson. *"The first bats left the tree soon after 9pm when it was still quite light but most flew out around 10.20pm under the cover of darkness"*.

This information and data from automatic bat detectors (that pick up the echo location of bats while they are feeding) has Department staff suspecting that the bats sighted around the Te Anau township may well be the long-tailed bats from the Iris Burn Valley, travelling across Lake Manapouri and up the Waiau River to feed around Te Anau. Further research will be required to confirm this but it seems likely as bats will commonly travel 20 km in an evening to feed on insects, especially along their favoured waterways. Scientists have tracked bats from the Eglinton Valley (the site of Fiordland's only other known colonies of long and short-tailed bats) feeding 30 km away at the mouth of the Eglinton River.

–Ends–

For more information on:

- *the Fiordland Conservation Trust please contact Trust Manager Rachel Cockburn tel; 0274 952 954*
- *native bats please contact Fiordland National Park Visitors Centre tel; 03 249 7924, email; fiordlandvc@doc.govt.nz or visit the DOC website on www.doc.govt.nz.*

Further information:

- The area of bat roosts in the Iris Burn Valley is on the true right of the Iris Burn River, but may cover a wider area. Further research will be required to determine this. Long-tailed bats move roost trees most night during the breeding season and trees are usually 200 – 300m apart. They favour large, old trees to roost in, usually mountain or silver beech. During the breeding season (December – March) the female long-tailed bats roost communally in the same trees. The males may join them or choose solitary roost trees.
- The genetic relatedness of the Iris Burn long-tailed bats will be compared to the Eglinton Valley population next year as genetic samples were taken of 30 Iris Burn long-tailed bats during December.
- There may also be short-tailed bats in the Iris Burn valley as possible short-tailed recordings were heard on automatic detectors. However three nights of mist-netting for short-tailed bats failed to catch any. Further research would be required to confirm if short-tailed bats are present.
- There are three hotspots for long-tailed bats in the South Island. These are the Dart Valley, Springs Junction and the Eglinton Valley along the road to Milford Sound. There are long-term research projects running on short and long-tailed bats by Department of Conservation in the Eglinton Valley. Since an extensive predator control programme (including rat control) was started in the Eglinton Valley the bat populations have stabilised and started to increase in abundance.
- The Kepler Challenge Committee regularly runs predator trapping (mainly for stoats and rats) around the Kepler Track, contributing to the protection of biodiversity in the area. At least six kiwi (male and female) were heard calling at night in the Iris Burn valley near the bat roost trees. Possums and deer were commonly seen at night.
- The Fiordland Conservation Trust was established in 2007 and has worked with many different individuals and businesses to bring about some outstanding conservation projects in Southland. Several businesses have on-going relationships with the trust. The encounters with some of New Zealand's threatened species and amazing wilderness environments experienced by these people is having a real positive impact on their willingness to support future projects.
- If you would like an opportunity to see bats in the Eglinton Valley, DOC are running the popular *Birds, Bats and BBQ's* summer event on Friday 13th January 2012. Visit www.doc.govt.nz (search) '*fiordland events*' for full details and to book a space.

9.5 Newspaper articles

Manawatu Standard, Monday 26th December

manawatustandard.co.nz

Manawatu

Colony of rare native bats found

A colony of rare native bats has been discovered in the Kepler Mountains in Fiordland.

The find was made by Department of Conservation rangers this month.

The colony of long-tailed bats is only the second known such habitat in Fiordland. The bats are ranked as nationally critical.

Department of Conservation biodiversity ranger Jo Whitehead said once the bats were gone from the Kepler

Mountains it was unlikely they would return as the department did not yet have techniques to transfer bat populations.

Native bats had been decimated by rats in plague years and were particularly vulnerable while breeding in their roost trees during summer.

Five maternity roost trees had been discovered in the Iris Burn Valley. They were less than 500 metres from the Kepler Track Great Walk.

Fairfax NZ

Fiordland Advocate, 12 January 2012

Fiordland Advocate

12 January, 2012 | Page 11

LOCAL NEWS

Colony of rare bats found on Kepler Track

Department of Conservation rangers have discovered just the second known Fiordland colony of the critically endangered native long-tailed bat - right beside the Kepler Track.

The remarkable discovery was made in mid-December after the detection of bats on automatic recorder. This was thanks to Distinction Hotels and the Fiordland Conservation Trust supporting a one-month research project to track down the maternity roosts of native bats that had been sighted around the Te Anau township in recent years.

Interestingly, the discovery may not have been made if not for the work of 20 visiting North Island polytechnic students. During the first two weeks of December, Department of Conservation rangers focused their research around the outlet to Lake Te Anau and along the Upper Waiau River where bat activity had previously

been recorded on automatic detectors. Specially designed harp traps were erected around these bat feeding grounds to try and catch one of these elusive native mammals, but after two weeks of late nights and early mornings no bats were caught. Then staff received news that hundreds of long-tailed bat passes had been recorded by the polytechnic students from Tauranga on automatic bat detectors (that pick up the echo location of bats while they are feeding) in the Iris Burn Valley. They were quick to switch focus and erected six harp traps in the valley the following week. On the first night four bats were caught and, to the excitement of staff, two were breeding females.

DOC ranger Warren Simpson said at least 60 bats had been seen so far, but the population may be closer to 100.

Long and short-tailed bats are New Zealand's only remaining

land mammals and are in desperate need of protection with both species now ranked as nationally critical and nationally endangered respectively. Native bats are decimated by rats in plague years and are particularly vulnerable while breeding in their roost trees over summer. Five maternity roost trees have so far been discovered in the Iris Burn Valley, upstream of Rocky Point and less than 500m from the Kepler Track Great Walk. Funding is being sought for pest control to protect some areas of the Kepler Peninsula, including the Iris Burn Valley that is now home to long-tailed and possibly short-tailed bats.

Department of Conservation Biodiversity Ranger Jo Whitehead said this discovery of a previously unknown long-tailed bat colony in the Iris Burn Valley was a significant achievement for bat conservation, and would hopefully allow protection work to be



Department of Conservation ranger Warren Simpson with a rare long-tailed bat discovered near the Kepler Track that has now been fitted with a radio transmitter so its maternity roost site can be tracked and protected.

undertaken to preserve this colony so close to Te Anau. Unlike birds, once these bats had gone from the Kepler Mountains they

were unlikely to ever return as there were not yet techniques established to transfer bat populations, she said.



The New Zealand Herald

New Zealand Herald — A004 — 27 Dec 2011

Critically endangered bats found close to track

by Isaac Davison environment reporter

A colony of rare native bats has been discovered beside one of the most popular walking tracks in the country.

Department of Conservation rangers found the long-tailed bats near the Kepler Track Great Walk in Fiordland after automatic recording devices led them to just the second known colony of the creatures in the region.

DoC ranger Warren Simpson said 60 of the critically endangered bats had been observed, and the colony was believed to number around 100.

Long- and short-tailed bats are the country's only native land mammals, and both are critically endangered.

In mid-December, Bay of Plenty Polytechnic students recorded hundreds of bat passes on automated recording equipment in the Iris Burn Valley. The "bat boxes" picked up the animal's high-frequency echo-location calls.

The students tipped off rangers and the Fiordland Conservation Trust, which had been looking for the bats near Lake Te Anau.

After relocating to the valley, rangers immediately caught four bats, two of them breeding females.

"We attached a tiny radio transmitter to each female so we could track them down to their maternity roost trees," said Mr Simpson.

"This is when we discovered they were roosting so close to the Kepler Track."

The bats were seen leaving the roost trees in darkness. They then made huge round trips of 20km to feed on insects at their favourite waterways. Their home range can extend to as much as 100sq km.

Five maternity roost trees have now been discovered in the Iris Burn Valley, less than 500m from the Kepler Track.

DoC biodiversity ranger Jo Whitehead said that techniques had not been developed to transfer bats to predator-free environments. Native bats, once plentiful in South Island towns and forests, were decimated by rats during plague years and the clearance of their habitat for development.

The creatures, which breed in large, lofty trees such as silver birch, produce only one offspring a year.

Ms Whitehead said she hoped the find would encourage protection work such as pest control to save the colony



SOUTHLAND TIMES — 26 DEC 2011 Edition 1, Page 7

Rare bat colony found in Kepler Mountains

A colony of rare native bats has been discovered in the Kepler Mountains in Fiordland.

The find was made by Department of Conservation rangers this month.

The colony of long-tailed bats is only the second known such habitat in Fiordland.

The bats are ranked as nationally critical.

Department of Conservation biodiversity ranger Jo Whitehead said once the bats were gone from the Kepler Mountains it was unlikely they would return as the department did not yet have techniques to transfer bat populations.

Native bats had been decimated by rats in plague years and were particularly vulnerable while breeding in their roost trees during summer.

Five maternity roost trees had been discovered in the Iris Burn Valley.

They were less than 500m from the Kepler Track Great Walk, Ms Whitehead said. The discovery came about as a result of a month-long research project.

It had been supported by the Fiordland Conservation Trust and Distinction Hotels in an effort to find maternity roosts of native bats that had been seen in areas around Te Anau.

Twenty Tauranga students were also instrumental in the find, after recording evidence of bats on automatic detectors in the Iris Burn Valley.

CAPTION:

Rare discovery: Department of Conservation ranger Warren Simpson holds one of the first long-tailed bats to be discovered roosting in the Kepler Mountains

The Nelson Mail

NELSON MAIL — 26 DEC 2011 Edition 1, Page 12

Rare bats find

A colony of rare native bats has been discovered in the Kepler Mountains in Fiordland. The find was made by Department of Conservation rangers this month. The colony of long-tailed bats is only the second known such habitat in Fiordland.

Part: 0
Section: NEWS
Sub-Section: NATIONAL

National Radio

Rare bats discovered in Fiordland

Radio New Zealand Newswire — 25 Dec 2011 : 04:26:02

A colony of rare native bats has been discovered beside the Kepler Track Great Walk, in Fiordland National Park.

Department of Conservation rangers found the long-tailed bats earlier this month, after automatic detectors recorded them.

The native bats are on national critical and endangered lists, and the colony of about 100 is just the second to be found in Fiordland.

The discovery was made after Tauranga Polytechnic students recorded the bats near Lake Te Anau.

A DOC biodiversity ranger, Jo Whitehead, says protection for the bats' habitat is vital as they do not know how to transfer the species to a predator-free location.

Ms Whitehead says the native bat population has been decimated by rats and they are particularly vulnerable while breeding over summer.

Rare bats discovered in Fiordland

Radio New Zealand Newswire — 25 Dec 2011 : 04:27:46

A colony of rare native bats has been discovered beside the Kepler Track Great Walk, in Fiordland National Park.

Department of Conservation rangers found the long-tailed bats earlier this month, after automatic detectors recorded them.

Rebecca Quilliam reports:

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