

# Kea Population Survey - Winter Survey 2010 Report

## Kea Conservation Trust

*(Sponsored by Hubbards Food Ltd)*

### **Abstract**

The KCT kea winter survey has been running each July since 2008. The winter survey is part of an annual combined summer and winter survey of wild kea populations in the South Island of New Zealand. The project as a whole aims to clarify or improve the quality of information about the population status of this species. The winter survey portion of the project aims specifically to 1) increase public awareness and empathy for wild kea and issues impacting on the species and; 2) provide a long-term, cost effective and easily replicable method of surveying kea populations. The raw data from both population studies will be utilized to provide improved estimations of kea populations in the wild, survivorship, establish population trends in localized areas, investigate sink/source dynamics, provide information on distribution and movement of birds between survey areas and particularly in the case of the winter surveys, provide an opportunity for advocacy of the species.

2011 is the third year of the winter survey. 29 individuals/groups participated during the July survey weekend (equal to 2009 but down on 2008). A total of 62 recording sheets (down from 76 in 2009 and 92 in 2008) was received covering the weekends throughout July. A total of 81 kea were observed (down from 123 in 2009 and 108 kea in 2008) at 30 locations (down from 51 in 2009 and 42 in 2008) in the South Island. However a portion of these were most likely multiple counts of the same birds (ie repeat counts on separate weekends) although lack of accurate banding and/or reporting meant that this could not be absolutely quantified. However by accounting for double counting of resident birds across weekends, a more realistic count of kea across all sites would be 61 (down from 73 kea in 2009 and 78 in 2008). This equates to 2.1 kea/site which was consistent with previous years (2.5 kea/site in 2009 and 1.9 in 2008).

Anecdotal comments received from volunteers suggest that people are not seeing the numbers of birds that they used to see even as recently as the 80's and 90's. These comments are consistent from previous year's surveys.

All information is to be entered onto the KCT database and mapping programme. Additionally all information will be entered onto eBird (OSNZ). Observations are to be compared with the 2008 and 2009 winter survey results and the Atlas of Bird Distribution data (2007) to compare presence/absence of kea within the species known range.

### **Acknowledgements**

The Kea Conservation Trust would like to acknowledge the efforts of the following individuals and organisations for making this survey possible: Firstly our sponsor Hubbard's Food Ltd,. We would also like to thank Ray and Maree Goldring, Jules Robson and Melanie White for distribution of survey information throughout the Arthur's Pass, Nelson/Marlborough and Canterbury areas respectively. We would also like to thank our Trust Advisors; Dr Nigel Adams and Dr Lorne Roberts, all Department of Conservation Area and Conservancy Offices,

Visitors Centres, and staff who distributed information and contributed observations. Last but by no means least, we wish to thank our individual volunteers who took the time to contribute their kea observations; John Turnbull, Cedric Trounsan, Tamsin Orr-Walker, Dr. Lorne Roberts, Andrew Fidler, Honora Renwick ,Tessa White, Maree Goldring , Brenda Avery, Penny Slade, David Gainsford, Susan Mary Piercey, Hilary Isles , Don Neale, Andre Hartlief , Marius Adrion, T.J Irvin , Trevor Brunton , Josh Hill, James Pettengell , Kelvin Williams, Hamish Osbourne , Amuri Ski Club Inc, Mike Neilson, Laura Young, Ren Bishop, Carol Frost, Jane Gosden, Simon Litchwark, Sue Webb, Rowan Buxton, Nic Dussex, Ruth Garland, Hazel Stone, Anne Pearson, Sue Kritbosch , Erika Libaidua and Mike Lawson.



*Kea at Porter Heights skifield  
Photo credit: Tamsin Orr-Walker, 2010*

## 1.0 Introduction

The winter survey aims to record numbers of kea over a specified period of time at locations which are known to be kea strongholds or where the birds visit to forage in winter (e.g skifield and recreational areas visited by humans). For logistical reasons, these locations must be easily accessible by a network of volunteers. Where individual birds are able to be identified it may also be possible to visualize movement of birds between sites.

The value of the surveys will be in the information gained across years (trends in the population), which will be directly related to the number of observations and number of locations received in subsequent years.

## 2.0 Methodology

### 2.1 Volunteers

The benefits of using volunteers has been investigated by Newman et al (2002) who found that volunteers not only provided considerable time savings (and cost effectiveness) to enable large scale projects to be developed but also increased environmental awareness and understanding of scientific issues by the wider public.

An extensive advocacy drive was initiated in 2007 to help establish a large volunteer pool for the counts beginning July 2008. Each subsequent year this drive is re initiated with the result that a diverse volunteer pool continues to be developed.

Annual volunteers record maximum numbers of kea at sites of their choice across the South Island high country areas and in historical kea territory. These counts are conducted on 4 consecutive Saturday and Sunday afternoons throughout July between the hours of 12 noon and 5pm to avoid double counting of birds moving between localities. An afternoon count was chosen for volunteer convenience as well as kea behavioural reasons; kea are more likely to concentrate to scavenge for food in the morning and afternoons (Elliot and Kemp 2004, Diamond and Bond, 1992).

### 2.2 Locations

Survey sites each year vary and are dependant on volunteer availability and the activity volunteers are undertaking in their survey location eg. Skiing, sight seeing, tramping, working, hunting etc.



*Ian Clifford takes a moment to view kea flying over Mt Peel in Kahurangi National Park during the KCT winter survey.  
Photo credit: Mike Lawson, 2010.*

Locations were originally selected on the following criteria: 1) historical visitation by kea and within predicted or known range of kea. Areas visited by kea were identified utilising the Atlas distribution data (Bull et al, 1985; Robertson et al 2007) and Kea Survey information (KCT, 2007); 2) accessibility for volunteer personnel and volunteer availability at each site. As it is envisaged that a large volunteer pool must by necessity be used, accessibility to areas is extremely important. Commercial sites (ski fields, stations, guiding/ecotour companies, hut areas, DoC sites etc) are all likely to be easily accessed by the public and as such provide additional buy in from the public.

Although many of these sites are surveyed, repeat surveys between years of the same area are not necessarily carried out as volunteer availability is not consistent between years.



*Tamsin and Lorne (KCT, Unitec, NZ), recording kea at Deaths Corner, Otira Viaduct.*

*Photo credit: Georgina Warren Orr-Walker, 2010*

## **2.3 Recording Sheets**

The 2011 recording sheets were modified to ensure completion of forms is simplified (refer Appendix). Additional details on weather, numbers of people present, etc have been removed in an effort to encourage increased participation by volunteers. Additionally an online form was developed and loaded onto the KCT website (<http://www.keaconservation.co.nz/kearesearchprojects/populationresearch.html>).

This provided a simpler method of submitting results rather than physically posting survey sheets.

Information on the recording sheets as in previous years, was split into three main sections; observer information, survey information and kea details.

1. Observer name and contact details were collected to enable any follow up questions. Type of count conducted (stationary vs travelling) was removed.

2. Survey details included survey location (name, description and/or GPS information), start and finish time and time of maximum kea sighting. Information on weather conditions (degree of rain, snow, wind, temperature), and approximate numbers of people present in observation area (3 categories) was removed from this section.

3. Kea details included maximum numbers of kea observed and where possible identification of these into adult or sub-adult birds (using presence or absence of yellow around cere, bill and eye) and banded status (with any details of band colour, placement on the leg and numbers where possible). Behavioural comments were also recorded describing birds behaviour at the time of recording whilst additional comments of interest to the observer were recorded at the bottom of the form. This part of the form remained unchanged from previous years.

All information could then be entered onto the online form (which also acts as a generic year round survey form) with any comments on behaviour and additional points of interest entered in the generic comments box.

### 3.0 Analysis

All information from the returned recording sheets was entered into Excel Microsoft Word Kea Database and mapping programme and is to be loaded onto the eBird (OSNZ bird recording database).

Recorded locations are also to be compared with the Atlas Bird Distribution kea data.

### 4.0 Results

Registration sheets were not distributed this year. 29 individuals/groups participated during the July survey weekend (equal to 2009 but down on 2008). A total of 62 recording sheets (down from 76 in 2009 and 92 in 2008) was received covering the weekends throughout July and an additional 11 sightings were recorded outside the survey times (and as a result are not included in this report).. A total of 81 kea were observed (down from 123 in 2009 and 108 kea in 2008) at 30 locations (down from 51 in 2009 and 42 in 2008) in the South Island (average of 2.7 kea/site up from 2.4 kea/site in 2009 and 2.6 kea/site in 2008). However a portion of these were most likely multiple counts of the same birds (ie repeat counts of resident birds on separate days). This is very likely in areas where resident pairs have been recorded (eg Rainbow Ski area and Arthur's Pass) although lack of banding meant that this cannot be confirmed.

| Numbers of kea seen each weekend during July (and across years) |                 |                 |                 |                   |                   |                   |
|---|-----------------|-----------------|-----------------|-------------------|-------------------|-------------------|
| Date  | Max kea<br>2010 | Max kea<br>2009 | Max kea<br>2008 | Locations<br>2010 | Locations<br>2009 | Locations<br>2008 |
| Sat 1   | 6               | 16              | 10              | 8                 | 8                 | 8                 |
| Sun 1   | 1               | 3               | 9               | 3                 | 6                 | 9                 |
| Sat 2   | 9               | 14              | 2               | 7                 | 11                | 8                 |
| Sun 2   | 18              | 3               | 38              | 8                 | 7                 | 18                |
| Sat 3   | 23              | 11              | 19              | 7                 | 7                 | 8                 |
| Sun 3   | 3               | 24              | 7               | 6                 | 8                 | 8                 |
| Sat 4   | 12              | 32              | 15              | 6                 | 11                | 12                |
| Sun 4   | 3               | 20              | 8               | 4                 | 14                | 12                |
| Sat 5   | 3               |                 |                 | 5                 |                   |                   |
| Totals  | 91              | 123             | 108             | 55                | 72                | 83                |

Multiple counts in individual areas across weekends are as follows:

- Arthur's Pass village – 3,1,4, 2,1,1,1 (max 4) 1 bird ID'd as stumpy; 1 other banded (Left: yellow/black. Right: metal V0021). Last year this areas maximum count was 4.
- Treble Cone – 5,3 (max 5) (max area count in 2009: 3) (potentially 7 ie. 5 banded on right and 2 on left)
- Rainbow Ski area – 1,1,3,1 (max 3) . 1 kea only banded metal on left leg seen on 3 occasions (inclusive of max count of 3). Last year this areas maximum count was 2.

If maximum numbers in a specific area are taken across all weekends, a total of 66 kea were sighted over the 29 locations (or an average of 2. 27kea/site).

Of the 66 kea sighted a total of 13 kea (12 adults and 1 sub-adult) were sighted with bands from 8 different sightings. However the actual total was more likely to be 8 birds at 3 different sites.

Of these 12 birds, 3 were observed at Rainbow ski-field – all with a metal band on the left leg (27341). As such they are likely to be the same bird.

Another 6 banded birds on 1 occasion were observed at Treble Cone ski-field (5 adults and 1 subadult).

The two separate sightings at Arthur's Pass confirmed this to be the same bird (yellow/black confirmed in both cases) . As such it can be confirmed that there was a maximum of 61 kea were seen (2.1kea/site).

The maximum number of kea observed in any one area at any one time was 10 in the Kahurangi area(Mt Peel), followed by 8 each at The Remarkables ski field (Queenstown), and Porters ski field (Arthur's Pass). 7 kea were sighted at Darnley Creek, Okarito.

Numbers of returned sheets varied between regions with Canterbury, Otago and Nelson/ Marlborough having the best response rates and Southland and Otago the lowest.

| <b>Numbers of returned recording sheets per region/year</b> |                                |                   |              |                   |                  |                           |
|---|--------------------------------|-------------------|--------------|-------------------|------------------|---------------------------|
|   | <b>Nelson/<br/>Marlborough</b> | <b>Canterbury</b> | <b>Otago</b> | <b>West Coast</b> | <b>Southland</b> | <b>Numbers<br/>of kea</b> |
| <b>2008</b>   | 19                             | 32                | 30           | 2                 | 0                | 109                       |
| <b>2009</b>   | 6                              | 39                | 6            | 15                | 0                | 123                       |
| <b>2010</b>   | 10                             | 41                | 5            | 2                 | 9                | 81                        |

The reasons for the different level of responses may be due to the type of activities carried out by volunteers and density of population. Additionally the poor response from ski fields and some tour guide companies this year, may be due in part to a glitch with the email contacts system. It was discovered during the survey that the initial contacts survey list which included the ski fields an 2008 volunteers list, was not activated and as such ski fields not on the KCT email updates list did not receive updates until midway during July.

This technical hitch has now been corrected. It is hoped that next year will see an increase in ski field participation.

## 5.0 Discussion

### 5.1 Survey Value

#### 5.1.1 Advocacy

As in previous years, recruitment of volunteers for this project continued to be a major focus. This involved extensive distribution of advertising material on a national level outlining reasons for the project, numerous seminars and conference presentations detailing species issues and knowledge gaps, radio and newspaper interviews and visits to key stakeholders. The survey resulted in a major influx of information to the Trust with positive dialogue and relationships being initiated between conservation and education organisations,



*Dr Lorne Roberts (Unitec, NZ) and Tamsin Orr-Walker (KCT) talking to locals at the Twizel Events Centre at the end of June (hosted by Dean Nelson (back right), DOC Twizel). Photo credit: Kevin Moore*

recreational businesses and users (skiing, hunting and tramping groups in particular), local community groups, captive facilities and tertiary institutions. Major events included the pre winter advocacy tour and the National Tahr Show held in Christchurch as follows:

A pre winter advocacy tour was conducted between 25<sup>th</sup> June – 4<sup>th</sup> July 2010. Tamsin Orr-Walker (Project Coordinator) and Dr Lorne Roberts (KCT Science Advisor; Unitec NZ) spoke at a number of public venues which also provided the opportunity for public discussion. These were hosted by the following groups in the following locations:

- Environment Canterbury - Christchurch
- Geraldine High School - Geraldine
- Department of Conservation - Twizel
- Queenstown Kiwi and Birdlife Park - Queenstown
- Whare Kea - Wanaka
- Forest and Bird - Wanaka St Johns
- National Kiwi Centre - Hokitika

The Southland and Nelson/Marlborough regions were not visited due to time and resource restraints.

Additionally, the KCT volunteers (Melanie White, Laura Young, Cynthia Muir and Karen Banwell, set up a booth at the Christchurch National Tahr Show (Forest and Game Foundation) to promote the work of the KCT and the Winter survey to hunters.



*Laura Young and Dr Lorne Roberts (Unitec) at the Christchurch Tahr Show 2010.*

### **5.3 Volunteer personnel**

A glitch in the volunteer database and contacts system meant that several crucial groups were not contacted until halfway through the survey in July. This may have resulted in fewer numbers of people participating in the survey than would have otherwise.

This stresses the importance of developing a new database which allows efficient sorting and contacting of key businesses, groups and individuals prior to the survey and allows easy integration of new contacts.

### **5.2 Changes to future surveys**

#### **5.2.1 Volunteer database**

As a result of technical difficulties arising from the 2010 survey, the KCT is looking to find a person to develop an effective and efficient contacts database. This is to be completed by May 2011.

#### **5.2.2 Key contacts**

As stated in past surveys, developing key contacts in each area or key organisation (eg ski-fields, tramping groups, DOC, community conservation organisations, mountain guides/tourism companies, NZ scouts etc) should continue to be developed for subsequent years. This is in the process of being developed by the Project Coordinator and is to be in place by May 2011.

### **6.0 Expenditure**

The 2010 survey was funded by Hubbards Food Ltd (\$5,000) and the KCT (\$3,561.93).

Total expenditure for the pre-survey advocacy tour and survey coordination, data entry and reporting amounted to \$8,561.93.

### **7.0 Conclusion**

The 2 main objectives of the winter survey 1) to increase public awareness and empathy for wild kea and issues impacting on the species and; 2) to provide a long-term, cost effective and easily replicable method of surveying kea populations, have been met for the third year, however to ensure that this method continues to be supported by the public and increased buy in is achieved over subsequent years, a more effective contacts system and database is required to ensure all previous volunteers are contacted and new contacts are easily added to the database. Additionally continued development of key personnel throughout the South Island is required to increase local buy in to subsequent surveys.

## 7.0 References

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## 8.0 Appendix – Kea Recording Sheet

**Kea Recording Sheet** – for one day's observation only (please copy this sheet for any additional observations or download from [www.keaconservation.co.nz](http://www.keaconservation.co.nz)). For information on completing the sheet please visit our website.

Please complete all questions and return to the Kea Conservation Trust by post, fax or email or transfer info to our online form and submit instantly!

Email: [p.notabilis@xtra.co.nz](mailto:p.notabilis@xtra.co.nz)

Postal Address: 83 Tanekaha Rd, Titirangi, Waitakere City 0604.

Ph. 09 817 3002; 0274249594; Fax 09 817 2655

On-line: ([http://www.keaconservation.co.nz/kearesearchprojects/populationresearch.html#send\\_kea\\_sightings](http://www.keaconservation.co.nz/kearesearchprojects/populationresearch.html#send_kea_sightings))

### Observer Details:

Name/s: \_\_\_\_\_

Address \_\_\_\_\_

Email: \_\_\_\_\_ Ph no/s: \_\_\_\_\_

| Date (day and date)<br>(Eg. Sun 4 <sup>th</sup> July) | Observation start and end times<br>(eg. 12.30-2.15pm) | Exact time maximum number of kea seen<br>(eg. 1.20pm) | Location Name (description and coordinates if possible)<br>(eg. public walking track between Carrington and Barker Huts Arthur's Pass) |
|---|---|---|--|
|   |   |   |  |

**Kea Details:** *(Please complete all boxes – write N/A if not applicable; do not leave blank. Remember, zero is a valid count)*

Tick box if kea are heard but not seen  *(please add in any comments below)*

| Category   | Maximum Kea Numbers | Are kea banded? | Band Information( use more paper if necessary and attach to this form) |
|--|---------------------|-----------------|--|
| Sub-Adults<br><i>(any yellow around the beak and eyes)</i>                 |                     |                 |  |
| Adults<br><i>(no yellow anywhere around the beak or eyes)</i>              |                     |                 |  |
| Unknown age<br><i>(not able to tell either of the above)</i>               |                     |                 |  |
| Total kea observed during study period                                     |                     |                 |  |
| General Behaviour<br><i>(please describe what you see the birds doing)</i> |                     |                 |  |

**Additional Comments:** *(including any kea seen or heard prior to the survey period)*

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