

Wild Kea Population Survey Kea Conservation Trust

Winter Survey 2008 Report (sponsored by T-GEAR Trust)

Abstract

The first winter survey of kea was undertaken in July 2008 as part of a proposed 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 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.

92 recording sheets were received from a total of 38 participants covering the 4 weekends throughout July. A total of 108 kea were observed at 42 locations in the South Island. However a portion of these were most likely multiple counts of the same birds (ie repeat counts on separate weekends) as was proven to be the case where individual birds were able to be identified through leg bands.

All information was entered onto the KCT database and eBird (OSNZ). Observations were also compared with the Atlas of Bird Distribution data (2007) to visualize presence/absence of kea within the known species range.

Content

1. Introduction -----	3
1.1 Kea Population Estimates-----	3
1.2 Bird Population Estimate Methods-----	3
1.3 International and National Bird Survey Examples-----	4
1.3.1 Audubon Christmas Bird Count (CBC)-----	4
1.3.2 Cape Parrot Big Birding Day (CPBBD)-----	4
1.3.3 Landcare Research Garden Bird Count-----	4
1.4 Kea Winter Survey-----	4
2. Winter Methodology -----	5
2.1 Volunteers-----	5
2.2 Locations-----	5
2.3 Recording Sheets-----	5
3. Analysis -----	6
4. Results -----	6
5. Discussion -----	7
5.1 Survey Value-----	7
5.1.1 Anecdotal Information-----	10
5.1.2 Advocacy-----	10
5.2 Changes to future surveys-----	10
5.2.1 Banding and Tracking-----	10
5.2.2 Recording sheets-----	11
5.3 Volunteer personnel-----	11
6. Conclusion -----	11
7. References -----	12
8. Acknowledgements -----	13
9. Appendices -----	14
Appendix 1: Winter recording sheet-----	15
Appendix 2: Survey Locations/Dates/Max kea-----	17
Appendix 3: Anecdotal comments-----	19

1. Introduction

1.1 Kea Population Estimates

Little is known of the current population status of Kea in the wild. This is due to several factors relating to species behaviour, habitat and range, their lower conservation priority status and continued conflict with humans. Numbers have dramatically reduced over the past 100 years with over 150,000 estimated killed in a legal bounty system until partial protection was granted in 1971 and full protection in 1986 (Temple, 1978). The most recent estimate of overall population size indicate numbers as low as 1000-5000 individuals remaining (Anderson, 1986) or as high as 15,000 (Bond and Diamond, 1992; Jackson, 1960). Both figures are widely regarded as estimates only and have been recognised in the latter study to be potentially unreliable (Bond and Diamond, 1992). This unreliability may be due to the fact that kea tend to congregate around areas of human activity (also supported by Wilson & Brejaart, 1992 as stated in Brejaart, 1994) and as such extrapolation of these figures throughout the entire kea range is likely to provide a falsely inflated estimate of numbers. Distribution of kea has been determined on two occasions through the Atlas of Bird Distribution in New Zealand (Bull et al, 1985; Robertson et al, 2007). However this information provides only evidence of presence/absence across the species range, not numbers.

1.2 Bird Population Estimate Methods

Methods used to estimate bird population numbers are varied however their validity and usefulness is dependant on species biology and habitat type. In the case of Kea, more commonly used counting and population monitoring methods such as mark/recapture techniques and 5 Minute Bird Counts (5MBC), are not considered suitable. Territorial mapping, radiotelemetry and banding/re-sighting techniques are considered to be the most appropriate methods for monitoring this species (Spurr & Powlesland, 2000).

In the case of kea the low density, marked seasonal and lifestage variation in conspicuousness and extremely rugged habitat present a number of challenges to obtaining an accurate total population count (Elliot & Kemp, 2004).

Species life cycle and gender: Although kea are generally considered conspicuous, this is usually confined to a specific period during their lifecycle (juvenile/sub adult prior to establishing a pairing) and to their gender (males are generally more conspicuous than females). As such juvenile/sub adult males are most often observed to frequent human areas to scrounge for food or investigate new objects. Paired adults and the locality of their nest site are notoriously difficult to detect until such time as fledglings begin to leave the nest site to forage (Kemp, pers comm).

Biology and Behaviour: Little is known of wild kea biology and behaviour (Grant et al, 1993). Major gaps in information on sex ratios, dispersal range of the species, use of the landscape and the extent of movement of individuals between areas requires that extrapolation of data from a localised area to the extended range of the species should be done with caution (Wilson and Brejaart, 1992).

Range and Habitat: Kea cover an extensive range across some of the most inhospitable and extreme environments in New Zealand. Kea are found the length of the South Island within (but not limited to) 3 million ha of conservation land (Robertson et al, 2007). Habitat includes high altitude mountain terrain extending to lowland coastal beech forests of the West Coast and the Kaikouras on the eastern side of the Alps. Radio tracking of individuals is conducted on foot or by plane both methods of which are resource demanding and depend on certain assumptions of range of marked individuals (as above).

1.3 International and National Bird Survey Examples

1.3.1 Audubon Christmas Count (CBC)

The annual CBC relies on an enormous volunteer pool to identify and record bird species and numbers throughout the Americas. The Audubon organizers consider the counts to fulfill two main objectives; 1) to raise public awareness of species conservation and to allow the public to take ownership of the issues directly impacting on bird conservation and; 2) to identify trends over time in population distribution and status of a variety of bird species. The validity of these counts comes from the numbers of volunteers taking part in the counts, the number of locations observed, and the length of time that these have been taking place (over 100 years in this case).

The survey results are used in compiling reports such as Watchlist 2007, which identified 178 species requiring immediate conservation action, and the Common Birds in Decline Report which utilized 40yrs of data collected during the CBC to establish common bird population trends (National Audubon Society Ltd, 2008). As such the CBC is considered a useful working tool for identification of threats to bird populations.

1.3.2 Cape Parrot Big Birding Day (CPBBD)

The CPBBD records sightings of an endangered African parrot species over a two day period utilizing a large volunteer pool. The Cape Parrot is an afro-montane species whose presence is unpredictable in their range making estimates of population size difficult. Although there are inherent issues when counting this species (potential double counting, missing areas where they are on a particular day, poor weather etc) the results collected over time have provided important information on population trends. Utilisation of a large volunteer base also provides opportunity for advocacy (CPBBD, 2007).

1.3.3 Landcare Research Garden Bird Count

This New Zealand survey, now in its second year, is run in conjunction with the Ornithological Society of New Zealand (OSNZ), Forest and Bird and the Ministry for the Environment (MoE). The count runs for 1 hour during a specified week in winter and seeks over time to gather “valuable information on changes in distribution and population trends of birds in our urban environment”. Utilising public input allows large scale monitoring to increase survey strength. (Landcare Research, 2008).

1.4 Kea Winter Survey

The kea population survey as a whole has been developed to take into account all aspects of kea behaviour, and habitat as well as, in the case of the winter survey, to raise awareness within the general populace as to issues facing the species. The survey design is in line with international examples (as detailed previously).

The winter survey portion of the project 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 (ie skifield areas). 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. Winter Survey Methodology

2.1 Volunteers

An extensive advocacy drive was initiated in 2007 to help establish a large volunteer pool for the counts beginning July 2008.

Volunteers recorded maximum numbers of kea at a variety of sites across the South Island high country areas and in historical kea territory. These counts were conducted on 4 consecutive Saturday and Sunday afternoons throughout July between the hours of 12 noon and 4pm 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

Sites were 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 (1985 and 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.

2.3 Recording Sheets

Information on the recording sheets was split into three main sections; observer, location and kea details (refer appendix 1 for recording sheet example).

Observer details included name and contact details of counter (and/or observer code number), date and time over which observation took place and type of count conducted (stationary vs travelling).

Location details included survey location (name, description and/or GPS information), weather conditions (degree of rain, snow, wind, temperature), and approximate numbers of people present in observation area (3 categories).

Kea details included the exact time when maximum numbers of kea were observed, total maximum numbers of kea 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.

3. Analysis

All information from the returned recording sheets was entered into Excel Microsoft Word Kea Database and eBird (OSNZ bird recording database).

Recorded locations were also entered into the Atlas programme to compare presence/absence of kea at these sites with existing historical data (OSNZ, 2007).

4. Results

A total of 74 individuals and/or groups registered for the July 2008 winter survey (appendix 1).

92 recording sheets were received from a total of 38 participants covering the 4 weekends throughout July. Two of these sheets had 3 observations apiece (ie the observer drove between 3 points over a 2 hr period to count known groups of resident kea).

Date	Maximum kea #	Number of locations
Sat 5 th	10	8
Sun 6 th	9	9
Sat 12 th	2	8
Sun 13 th	38	18
Sat 19 th	19	8
Sun 20 th	7	8
Sat 26 th	15	12
Sun 27 th	8	12

A total of 108 kea was observed at 42 locations in the South Island (average of 2.6 kea/site). However a portion of these were most likely multiple counts of the same birds (ie repeat counts on separate weekends) as was proven to be the case where birds had identification bands (ie Rainbow skifield area where a maximum of 4 resident birds were identified from a total of 14 sightings across the 4 weekends).

Of the 108 kea sighted a total of 14 kea (13 adults; 1 subadult) from 8 separate sightings, was observed to be banded. Of these 14 birds, 8 were observed at Rainbow ski-field and were identified as a maximum of 3 individuals (a fourth bird at this site was unbanded). Another 2 observations in 2 different locations in Arthurs Pass identified 2 apparently separate birds to be the same individual. Colour banding of birds was found to be a particularly valuable method of individual identification.

Taking only maximum counts of kea at each location a total of 78 kea was observed.

The maximum number of kea observed in any one area at any one time was 13 (Porter Heights ski field) and the average number per site was 1.9.

Numbers of returned sheets from each region were as follows: Canterbury - 32 sheets; Nelson/Marlborough – 19 sheets; Otago – 30; Southland – 9; West Coast - 2.

Observation areas were dependant on volunteer accessibility and presence and for this report were represented by the following categories; ski field area, wilderness area, private residence and public/vehicular areas. Both longitudinal studies and a gathering of momentum for the project will provide more accurate information on presence of kea respective to local environments and their trends across time. These preliminary results although not statistically robust suggest that kea tend to gather in larger groups in ski field areas followed by public/vehicular areas, and finally wilderness areas.

Fig. 1 Number of kea related respective to local environment.

Local Environment	Number of sites in each environment	Max # of kea observed across all sites	Av max # of kea per site
Ski field area	11	29	2.64
Wilderness area (walkway track/hut)	22	27	1.23
Public/vehicular areas (roadways, villages)	7	17	2.43
Private residence	2	0	0.00

5. Discussion

5.1 Survey Value

The value of the annual winter survey lies in its ability, over time, to analyse trends in wild kea populations. This can only be achieved through construction of a comprehensive database of kea sightings. The value of these results will therefore be dependant on the number of data points collected in each subsequent year (ie number of volunteers recording kea and number of locations visited).

As this is the first year of the survey there are no published records and only a few informal recordings of kea counts to compare data against. As such the 2008 Winter survey should be viewed as a starting point for all subsequent surveys to cross reference information from.

Comparison of kea presence/absence data at each survey location (refer appendix 2) can however be viewed against the 2007 NZ Atlas of Bird Distribution Data (Robertson et al, 2007) (Refer Fig 2 and Fig 3 on following pages (Kemp, 2008)).

5.1.1 Anecdotal Information

Anecdotal comments were also gathered throughout the survey. Although subjective in nature, this information provides an important record of peoples perceptions of kea status. Of the 5 observers who commented on kea in their area, all were long-term residents/visitors to the location (up to 50 years in one case) and 4 out of 5 had conducted some form of survey on bird numbers for an extended period either for educational or conservation purposes. All observers indicated a belief that kea numbers had significantly decreased in their observation area, although one stated that 2008 was the first year that an increase in numbers had been observed in their area (Refer appendix 3 for comments).

5.1.2 Advocacy

One of the main aims of the survey was to increase public awareness and empathy for wild kea and issues impacting on the species. Advocacy is considered a powerful conservation tool as succinctly illustrated in the following statement by Baba Dioum to the general assembly of the International Union for the Conservation of Nature (IUCN) in 1968. *"In the end we will conserve only what we love. We love only what we understand. We will understand only what we are taught."* (Rodes et al, 1997). This sentiment has echoed resolutely throughout the conservation community and highlights the importance of advocacy as a conservation driver.

As such, recruitment of volunteers for this project was seen as 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, recreational businesses and users (skiing, hunting and tramping groups in particular), local community groups, captive facilities and tertiary institutions. As such this objective was considered to be adequately realised.

5.2 Changes to future surveys

5.2.1 Banding and Tracking

The winter survey was initially designed to provide a long-term, cost effective and easily replicable method of surveying kea populations utilizing a large volunteer base. The initial survey plan was projected to include follow up banding of non-banded birds and to track kea between locations. The importance of colour banding to provide detail on observed kea was highlighted during this project allowing identification of individual birds from a distance. This prevented double counting of birds and may well provide information on kea range in the future. As such continued banding of wild kea is considered important for any future surveys.

However initiation of a follow up banding programme would be an expensive and inefficient use of resources. As such banding and tracking of kea through the summer portion of the project as part of the project methodology is considered to be more cost effective.

5.2.2 Recording sheets

The initial recording sheets were trialed in April of 2008 and several changes made as a result. This was considered necessary to increase the effectiveness of the data collected. During the July counts several other changes were made, or identified as requiring future changes, as follows:

Location: The amount of detail provided by observers in this section was varied. Many of the location names provided were either local names and/or different to their official map names. As such an additional section to encourage observers to provide New Zealand Map Grid (NZMG), New Zealand Transverse Mercator (NZTM) or Global Positioning System (GPS) coordinates is to be added to ensure more accurate locations are identified in future surveys.

Weather conditions: An additional row was added to include presence/absence of snow on the ground.

Kea observations: An additional box is to be included for future surveys to indicate if kea were heard but not seen.

Additional comments: This section was added to the recording sheet as many observers were keen to enter information on past experiences, or observations outside the study period.

5.3 Volunteer personnel

Development of an initial volunteer database which may be expanded on in subsequent years was considered integral to the success of this project. 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.

Key groups/individuals were identified during the recruitment period and considered invaluable to assist in subsequent years volunteer recruiting drives (eg. DoC volunteer group Te Anau, key DoC personnel in each CO/AO/VC's; Canterbury Environment Group, Deep Cove Hostel, Hunting organizers, F&B, tertiary groups, Scouting NZ etc).

Volunteers included members of the public, local community groups, tertiary students, conservation organisations, Department of Conservation personnel, tourism operators, station holders, ski field staff, hunters and trampers.

6. 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 both been successfully met.

The first year of the kea winter survey proved to be a valuable advocacy tool, effectively highlighting kea population status issues and increasing the profile of the species. Although the information from the first survey has limited use in providing estimates of kea numbers across the species range, in subsequent years, and in conjunction with the summer surveys, this method will have the potential to provide improved estimations of kea populations in the wild whilst utilizing a cost effective, standardised protocol which is easily repeatable across years.

7. References

- Anderson, 1986. Keas for keeps. *Forest and Bird* 17:2-5
- Bond, A.B., Diamond, J. 1992. Population Estimates of Kea in Arthur's Pass National Park. *Notornis* 39: p 151-160.
- Brejaart, 1994. Aspects of the Ecology of Kea, *Nestor notabilis* (Gould), at Arthur's Pass and Craigieburn Valley. [dissertation]. Otago:Lincoln University.
- Bull, P.C.; Gaze, P.D.; Robinson, C. J.R. 1985. The Atlas of Bird Distribution in New Zealand.
- CPBBD, 2007. Retrieved 15th September, 2008 from <http://www.cpwg.unp.ac.za/CPBirdCount.html>
- Elliott, G. & Kemp, J. 2004. Effect of hunting and predation on kea, and a method of monitoring kea populations Results of kea research on the St Arnaud Range. Department of Conservation Science Internal Series 181.
- Jackson. J.R. 1960. Keas at Arthurs Pass. *Notornis* 9: 2: p39 -58.
- Kemp, J. 2008. Fig 1 and Fig 2. Department of Conservation. New Zealand.
- Landcare Research, 2008. Garden Bird Survey. Retrieved on 20th September, 2008 from <http://www.landcareresearch.co.nz/research/biocons/gardenbird/>
- National Audubon Society Ltd, 2008. CBC. Retrieved 15th September, 2008 from <http://www.audubon.org/Bird/cbc/>
- Newman, C, Buesching, C.D, Macdonald, D.W. 2002. Validating mammal monitoring methods and assessing the performance of volunteers in wildlife conservation—"Sed quis custodiet ipsos custodies ?". Wildlife Conservation Research Unit, Department of Zoology, University of Oxford, UK Retrieved from <http://www.sciencedirect.com/>
- Robertson, C.J.R.; Hyvonen, P.; Fraser, M.J.; Pickard, C.R. 2007: Atlas of bird distribution in New Zealand. The Ornithological Society of New Zealand, Inc., Wellington.
- Rodes, B.K., Odell, R. 1998. The Dictionary of Environmental Quotations. John Hopkins University Press, Baltimore, MD.
- OSNZ, 2007
- E.B. Spurr and R.G. Powlesland. 2000. Monitoring the impacts of vertebrate pest control operations on non-target wildlife species. Department of Conservation Technical Series 24, Department of Conservation, Wellington, New Zealand.
- Temple, P. 1978. Readers Digest (NZ Edition).

8. Acknowledgements

The Kea Conservation Trust would like to acknowledge the efforts and support of the following individuals and organisations for making this survey both possible and a success: Our sponsor T-GEAR Trust, our Trust Advisors – Dr Nigel Adams and Dr Lorne Roberts, Department of Conservation Area and Conservancy Offices, Visitors Centres, and staff who distributed information and contributed observations, Josh Kemp for provision of the OSNZ graphs, Ray and Maree Goldring of the Environmental Education Centre of New Zealand for distribution of survey information and support.

Also an enormous round of thanks to our individual volunteers who braved severe weather conditions to contribute their kea observations: Friends of Flora (Maryann Ewers and Bill Rooke, Vince Death, Phillip Lissaman, Sally O'Grady), The Remarkables Ski field (Ed Bezett), Andrew Fidler (KCT Advisor), Ray and Gloria Boyer, Steve Robertson, Mary and Richard Shee, Emma Richardson, Ray and Maree Goldring (Environmental Education Centre of NZ), Ruth Peszynski, Kate Steffens (DoC), Janet and Jonathan Lesser, Eldred and Alison Wilden, Josh Brown, Tamsin Orr-Walker (KCT Chair), Lorne Roberts (KCT Advisor), Tammy Bruce (DoC), Cardrona Alpine Resort (Gary Husband), Terry Coyle, Peter Hill, Larry Anderson, Mt Hutt Ski Area (James McKenzie), Richard Gooch, Ohau Snow Fields (Mike Neilson), Wendy Henderson, Hamish Osborne, Mt Olympus (Rowan Buxton), Marilyn Somerville, Snow Farm (Mary Lee), Treble Cone (Katie Thornton), Bob Barrack, Bob Hughes (Deep Cove Outdoor Education Trust), Arrowtown Scouts (Gary Healey and Jane Loe), Bill Roundhill, David Wium, Chas Tanner, Samantha Gale, Honora Renwick, Fox Peak Ski field (Lloyd Kane), Frances Schmechel, Gillian Pollock, Rodney Phillips (DoC), John Aspinall (Mt Aspiring Station).

9. Appendices

Appendix 1: Winter recording sheet

Appendix 2: Survey Locations/Dates/Max kea

Appendix 3: Anecdotal comments

Appendix 1: Winter recording sheet

Kea Winter Survey Recording Sheet – for one day’s observation only (please copy this sheet for any additional observation days or download extra recording sheets from www.keaconservation.co.nz/pdfs/recording_sheet.pdf).

For information on completing this sheet: please refer to www.keaconservation.co.nz/pdfs/recording_sheet_info.pdf

Please complete all questions and return to the Kea Conservation Trust either by post, fax or email.

Email: n.notabilis@xtra.co.nz

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

Ph. 09 817 3002; Fax 09 817 2655

Location and Observer Details:

Date of observation: _____

Name and contact details: _____

*Observer Code _____ *if you do not have this code, please contact us or fill in a registration form downloadable from: <http://www.keaconservation.co.nz/kearesearchprojects/current-projects>.

Location Name: _____

Recording Times (anytime between 12 noon and 4pm): Start: _____ Finish _____

Observation Type (please ring the most appropriate category):

Stationary count (at one location during observation period)

Traveling count (between multiple locations during observation period)

Public Presence (please ring the most appropriate category):

No people

Few people (less than 10)

Some people (between 10- 50)

Busy (50+)

Weather Conditions: (please tick one descriptor from each table)

Cloud cover	Yes
Fine (no cloud)	<input type="checkbox"/>
Changeable (some cloud)	<input type="checkbox"/>
Overcast (mostly cloud)	<input type="checkbox"/>

Rain	Yes
None	<input type="checkbox"/>
Intermittent	<input type="checkbox"/>
Constant	<input type="checkbox"/>

Temperature	Yes
Cold (<10°C)	<input type="checkbox"/>
Warm (10 – 20°C)	<input type="checkbox"/>
Hot (> 20°C)	<input type="checkbox"/>

Snow	Yes
None	<input type="checkbox"/>
Intermittent	<input type="checkbox"/>
Constant	<input type="checkbox"/>
Snow on ground	<input type="checkbox"/>

Wind Speed	Yes
Calm	<input type="checkbox"/>
Some wind	<input type="checkbox"/>
Very windy	<input type="checkbox"/>
Constant	<input type="checkbox"/>

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

Exact time maximum numbers observed: _____

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

Additional Comments:

Signature of Observer: _____

Signature of Guardian or Supervisor (if Observer under 18yrs): _____

Appendix 2: Survey Locations/Date/Max Kea

Winter Survey 2008 Location/Date/Max Kea			
East	North	Observation date	Max Kea #
2418968.716	5883651.191	Saturday, 5 July 2008	0
2414979.154	5801628.952	Saturday, 26 July 2008	2
2413978	5807630	Saturday, 26 July 2008	1
2401977.575	5782624.142	Saturday, 12 July 2008	0
2392474.012	5804627.634	Sunday, 13 July 2008	2
2392473.441	5809628.587	Sunday, 13 July 2008	1
2392087	5812225	Sunday, 13 July 2008	5
2399977.596	5769621.637	Saturday, 19 July 2008	13
2392474.012	5804627.634	Saturday, 26 July 2008	2
2391441	5808268	Sunday, 13 July 2008	2
2392473.199	5811628.974	Sunday, 13 July 2008	1
2392087	5812225	Sunday, 13 July 2008	6
2391975.685	5745117.663	Sunday, 13 July 2008	5
2401760	5780170	Sunday, 6 July 2008	0
2401760	5780170	Saturday, 12 July 2008	0
2401760	5780170	Sunday, 13 July 2008	0
2401760	5780170	Saturday, 19 July 2008	0
2401760	5780170	Sunday, 20 July 2008	0
2401760	5780170	Saturday, 26 July 2008	0
2401760	5780170	Sunday, 27 July 2008	0
2396976.786	5778623.223	Sunday, 6 July 2008	3
2396976.786	5778623.223	Sunday, 13 July 2008	1
2396976.786	5778623.223	Saturday, 19 July 2008	2
2396976.786	5778623.223	Sunday, 20 July 2008	2
2275977.844	5715128.814	Saturday, 12 July 2008	1
2273978.461	5718127.870	Saturday, 26 July 2008	2
2391975.685	5745117.663	Sunday, 27 July 2008	1

2392087	5812225	Sunday, 13 July 2008	11
2392473.441	5809628.587	Sunday, 13 July 2008	1
2391975.685	5745117.663	Saturday, 5 July 2008	0
2391975.685	5745117.663	Sunday, 6 July 2008	0
2333966.889	5703122.670	Saturday, 5 July 2008	0
2497487.780	5934680.456	Sunday, 27 July 2008	0
2485976.922	6000203.597	Saturday, 12 July 2008	1
2485976.922	6000203.597	Sunday, 13 July 2008	0
2485976.922	6000203.597	Saturday, 26 July 2008	0
2487477.437	6001704.278	Sunday, 20 July 2008	0
2497989.033	5926677.810	Sunday, 13 July 2008	2
2485976.922	6000203.597	Sunday, 13 July 2008	0
2485976.922	6000203.597	Sunday, 20 July 2008	0
2485976.922	6000203.597	Sunday, 27 July 2008	0
2498489.344	5925677.538	Saturday, 26 July 2008	4
2498489.344	5925677.538	Sunday, 6 July 2008	3
2503733.222	6020712.228	Saturday, 5 July 2008	0
2503733.222	6020712.228	Sunday, 6 July 2008	0
2503733.222	6020712.228	Saturday, 12 July 2008	0
2503733.222	6020712.228	Sunday, 13 July 2008	0
2496487.624	5933179.819	Saturday, 26 July 2008	0
2494237.166	5930678.683	Sunday, 27 July 2008	0
2498489.344	5925677.538	Saturday, 26 July 2008	3
2498489.344	5925677.538	Sunday, 27 July 2008	2
2182467.264	5564522.338	Saturday, 5 July 2008	0
2182467.264	5564522.338	Sunday, 6 July 2008	1
2182467.264	5564522.338	Sunday, 13 July 2008	1
2182467.264	5564522.338	Sunday, 20 July 2008	4
2182467.264	5564522.338	Sunday, 27 July 2008	0
2114578.294	5592790.723	Sunday, 27 July 2008	3
2173488.904	5578016.068	Sunday, 6 July 2008	0
2252725.375	5660156.139	Saturday, 5 July 2008	0

2202717.432	5586733.649	Saturday, 5 July 2008	0
2170023.465	5624967.159	Saturday, 19 July 2008	4
2182467.264	5564522.338	Saturday, 19 July 2008	0
2170023.465	5627714.183	Saturday, 5 July 2008	2
2170023.465	5627714.183	Sunday, 6 July 2008	2
2063082.629	5505005.862	Saturday, 5 July 2008	8
2168088.077	5459657.063	Saturday, 19 July 2008	0
2110871.190	5436051.297	Saturday, 26 July 2008	0
2110871.190	5436051.297	Sunday, 27 July 2008	0
2125313	5593782	Sunday, 20 July 2008	1

2124809.224	5587791.373	Saturday, 12 July 2008	0
2052863.863	5511506.149	Saturday, 19 July 2008	0
2117063.552	5577812.435	Sunday, 13 July 2008	0
2200148E	5697223N	Saturday, 26 July 2008	1
2200480E	5699770N	Sunday, 27 July 2008	2
2052863.863	5511506.149	Saturday, 12 July 2008	0
2178515	5625712	Sunday, 20 July 2008	0
			108

Appendix 3: Anecdotal Comments

1. Arrowtown Scouts:

“We last visited this area in Nov 06. Back then had 6-8 kea at basecamp - confluence of Rob Roy stream and Matukituki River (only 1 this time) and 6-8 at observation area”.

2. Mt Aspiring Station:

“Autumn before last we had 8 kea hanging around, especially in evening and early morning. Mostly young birds. ..This autumn we had up to 5 hanging around at times, but less regular than before.

In the 60s it was not uncommon to see flocks of 20 and sometimes up to 30 birds. My father had pet keas and at times we had up to 30 mates coming down to join them. Nowadays in similar situations we see 8 - 10. I believe there are fewer keas around than in the 60s. At that time the deer had taken out much of their natural food source. There is now far more of their natural food around than there was then. The most logical explanation seems to me that stoats are preying on young kea.

I was away the first 2 weekends in July. On the 3rd and 4th weekends I saw no keas during the day but heard 2 calling overhead during the evening on each of the Sunday evenings”.

3. Deepcove Hostel:

“It is a great sadness that over the years I have seen the demise of the bird life in this area obviously brought about by the increase in the number of possums, rats and stoats. I used to visit Deep Cove every year as a teacher with classes of Y8 students (on some occasions for up to three week stints). I now go in as a relieving hostel manager spending approx 70 days per year in Deep Cove.

When I first started coming in to Deep Cove in the early 70,s it was impossible to sleep in after day break, with the quite amazing sound of the Dawn Chorus. All breeds of birds singing to greet the dawn, including wekas engaging in their usual disputes, keas sliding down the hostel roof and running off with things trappers and school kids may have left outside the hostel overnight .

Up until about fifteen years ago, before students set off on their tramp on the old Doubtful Sound track, we would get them to listen to a tape of native bird calls ---which included keas.. At a certain point on the track, they had to sit in silence for ten minutes and jot down the names of the bird calls they recognised. Both teachers and students got quite a buzz out of this, recording all the different calls they could hear. and good debate often followed. Was it a bell bird or tui or etc? What did they eat, find a picture of one etc. In the early 90,s we did away with this activity. Students could sit patiently for ten minutes and not hear one single bird call! A great sadness

Another tramp the students participated in was, and still is, climbing up the Hanging Valley track to the base of the Huntleigh Falls. Students would always see heaps of keas and they would come round entertaining us all with their antics while we had our lunch. During my last trip to Deep Cove in 2005 with a class of students, we only observed two or three keas on this same tramp. Even my famous kea call (blowing a piece of grass through my fingers) failed to attract any others !!”

“It is really only in the past three or four years we have noticed a rapid decline in the kea population... The last time we saw keas around the hostel was last Christmas. Two young ones and one adult.

I have been back on several occasions this year and apart from seeing a couple at West Arm and three on the Wilmot Pass while traveling in to Deep Cove that was all I observed”.

4. Gottlieb Braun- Elwert:

“Last year I had up to 11 Kea at Caroline Hut. The predator control work in the Tasman Valley appears to be showing good results. Just three years ago we were down to a single bird, down from 13 some 17 years ago”.

5. Friends of Flora:

“On all our monthly trap monitoring days, all line leaders have been asked to take note of Kea, for our records, as we are now doing our own small survey, which will be ongoing (we are doing the same with kaka and falcon). With B&B we take a bird species list on every trip into the park, and have done for 15 years. We certainly don't see Kea as we used to”.