

# Community – Kea Project Plan

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## Fiordland/Te Anau

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**Key contact person:** Kea Conservation Trust – Tamsin Orr-Walker – [info@keaconservation.co.nz](mailto:info@keaconservation.co.nz); Ph 0274249594

### Aim

The aim of the Community – Kea Project Plan is to i) facilitate long-term community kea conservation initiatives and ii) to change the way we think, act and live with kea in our communities. This will be actioned through development of collaborative Project Plans across the South Island. Each community plan will address concerns specific to the local community and threats to the resident kea population.

### Project Background

This initial project plan outline has been developed as a result of discussions with communities during the Kea Conservation Trust's (KCT) Winter Advocacy Tour - 20 July – 3 August 2015. The tour was funded by Dulux and supported by Department of Conservation (DOC). The tour theme, "Building a future with kea", aimed to promote a new MOU between communities and kea. This initiative is in line with the new Strategic Plan for Kea Conservation (refer attached draft document), objective 3: to i) increase positive perceptions of kea and reduce conflict and ii) facilitate formation of community led kea conservation initiatives.

Local Community – Kea Project Plans will be activated by two Community Engagement Coordinator's (CEC's) based in the following areas:

1) Upper half of the South Island: Northern region (Nelson/ Motueka/ Kahurangi), Central North (Nelson Lakes/ Murchison/Arthur's Pass/Christchurch/Mt Hutt) and upper West Coast (Greymouth and Hokitika). There is also the potential to include Kaikoura at a later date (the eastern most population of kea).

2) Lower half of the South Island: Lower West Coast (Franz/Fox Glaciers and Haast), Central South (Mt Cook, Wanaka/Mt Aspiring and the Routeburn/Dart/ Queenstown areas) and Fiordland (Te Anau/ Milford/Murchison mountains).

Each project plan, will be developed in detail over the next two years and will involve creation of an active volunteer network and facilitation of funding streams (external and internal). The plans will take into account eight threats, actual and potential, to the wild kea population which have been identified by kea researchers.

- 1) Predation by introduced mammals
- 2) Lead in kea habitat (e.g. flashings and lead-head nails, tyre weights, lead shot)
- 3) Poorly-deployed pest control devices (e.g. poison baits and traps laid for pest control and aerial 1080 operations)
- 4) Avian diseases
- 5) Climate change (e.g. changes in predator abundance, food availability and habitat quality)

- 6) Accidents with human objects (e.g. motor vehicles, snow groomers, rubbish bins, electricity sub-stations)
- 7) Destruction/removal of nuisance individuals (permitted or illegal)
- 8) Illicit trade in wildlife

Threat focus and mitigation will be area and resource dependant and take into account community interests, expertise and support.

### **Fiordland/Te Anau**

Fiordland is located in the south-western corner of Southland. A total of 1.2 million hectares of this area is covered by the Fiordland National Park (NP) which also makes up a major part of the Te Wahipounamu World Heritage site which extends into Westland.

The area is extremely remote with access limited due to the steep mountainous terrain, deep lakes and many fiords, or sounds, of which the area is famous for. Milford Sound lies within the NP and is accessed by chartered flight or State Hwy 94 from Te Anau (almost 2 hours drive). The area west of the divide has a high annual rainfall (8000mm in Milford Sound compared to 1200mm in Te Anau). Te Anau is approximately 2 hours from both Invercargill and Queenstown.

Although the resident human population within Fiordland is minimal (120 in Milford Sound (2006)) and nearby settlements Manapouri and Te Anau support only 2,000 permanent inhabitants, the area is visited by up to a million visitors annually. Tourists come to trek NZ's Great Walks and tramping trails, many of which are located in the eastern part of Fiordland NP (the Hollyford, Kepler, Routeburn and Milford tracks as well as Dusky track, Greenstone walk and the Humpridge tracks). They also come to explore the Sounds by boat and kayak (Milford, Doubtful and Dusky Sounds), and hunt tahr, chamois and deer.

Tourism makes up a high proportion of the areas income (along with electricity generation and agriculture). In 2003 visitor spending in the area was \$92 million, and almost 3,000 people were employed full-time in the tourism industry and tourism support services (GHD, 2005).

### **Fiordland Conservation Efforts**

The Fiordland area is predominantly conservation estate which includes extensive Wilderness areas. These areas do not have tracks, huts or bridges and vehicles and aircraft are prohibited making them accessible only to a few hardy souls. Because of its remoteness and lack of human modification, this area has provided a refuge for several of NZ's rarest species. Up until recently birds such as kakapo and takahe were common and historical records tell of a dawn chorus "deafening" in its volume; so much so that visitors to Deep Cove in the 1970's were unable to sleep in (Department of Conservation (DOC)). Today, the picture is very different with introduced predators such as possums, rats and stoats taking a heavy toll on endemic species, including the kea. Other impacts include the introduction of browsing species such as deer damaging sensitive vegetation and habitats and poor management of fishing areas in the sounds resulting in pressure on the marine environment. In an effort to reverse the damage, a number of conservation initiatives have sprung up driven by DOC and the local community. These include creation of offshore island sanctuaries (Specially Protected Areas) and marine reserves, and eradication of pest species (flora and fauna).

There are a number of conservation groups in the area which drive much of this work (outside of the Department of Conservation (DOC)), but a large proportion of this work is undertaken by the Fiordland Conservation Trust (FCT).

The FCT is a community-driven initiative supporting conservation projects in Fiordland, Southland and New Zealand's Sub-Antarctic Islands. It runs a number of ongoing pest control programmes; Kids Restore the Kepler (Kepler Track, Te Anau), Sinbad Sanctuary in Milford Sound, pest eradication on

Indian Island (Dusky Sound), the community Milford trapping network (40ha – 140 traps managed by volunteers); and predator control in the West Arm Lake Manapouri to Deep Cove which provides support to the predator free islands in Dusky Sound. The Trust also runs a number of one off species transfer and trapline set up projects.

In addition to this is the Southland Conservation Board (SCB) which has a “conservation advisory and community liaison role in the Southland and Fiordland regions” (SCB, 2015). The conservation board provides an important link between DOC and the community providing opportunity for community representatives representing the public interest, to advise DOC about local conservation.

Other locally driven conservation volunteer groups and projects include ‘Buy a Box’; a community driven trapping initiative in the Doon Valley area, Te Anau; the Eglington River Habitat Group which focuses on weed control within black fronted tern habitat; Humpridge Track pest control; Kepler Challenge stoat trapping (500 traps along the length of the Kepler track); Manapouri Weedbusters targeting the lake edge; Pomona Island Charitable Trust (pest eradication in Lake Manapouri); the Fiordland Marine Guardians, Save Fiordland, The Fiordland Wapiti Foundation (stoat and red deer control), the Hollyford Conservation Trust, Trips and Tramps stoat trapping at Cleddau Delta and Milford Sound Lodge.

**Figure 1. Map of Fiordland Conservation Trust projects**



**Table 1. Location of conservation work carried out by conservation groups in Fiordland**

Group	Location	Activity	Trap #s	Focal species
Fiordland Conservation Trust	Milford, Doubtful & Dusky Sounds; Lake Te Anau & Manapouri.	Short and long term predator control and species transfers		
	Kepler track, Te Anau	Kids Restore the Kepler - trapping		
	Milford Sound	Sinbad sanctuary		
	Indian Island (Dusky Sound)	Pest control and species transfers		
	Milford township and tracks Cle	Milford trapping network (40ha – 140 traps managed by volunteers);	140	
	Anchor Island, Dusky Sound	Little spotted kiwi transfer		LSK
	West Arm Lake Manapouri to Deep Cove (supports predator free islands in Dusky Sound);	Predator control		
DOC	Murchison Mountains Special Takahe Area	Predator control	4000	Takahe and Tokoeka
DOC	Milford Sound, Resolution Island etc	Predator control community trapping programmes		
Trips and Tramps	Cleddau Delta, Milford Sound	Stoat trapping (in conjunction with DOC and FCT)	140	
Milford Sound Lodge				
Hollyford Conservation Trust	“island” of 2500 hectares in the area surrounding and south of Martins Bay, Whakatipu Waitai, in the lower Hollyford Valley.	developing a predator free mainland island and are looking to re release Weka and Kiwi		
Fiordland Marine Guardians	10 marine reserves (including Milford Sound)	Protection of the marine environment		
Pomona Island Charitable Trust	Pomona Island, Lake Manapouri	Predator control		
Save Fiordland	Te Anau – Queenstown through NP	Campaign against building a tunnel and monorail	n/a	n/a
Fiordland Wapiti Foundation	Wapiti ballot area – east to Lake Te Anau; south to Charles Sound and north to Light River	Control of deer (red and wapiti) and support of conservation programmes. Stoat trapping (30km trap line) in the Worsley Valley in conjunction with DOC	?	Wapiti
KCT	Borland Valley	Kea survey work 2009,2011	n/a	Kea

### Fiordland Kea

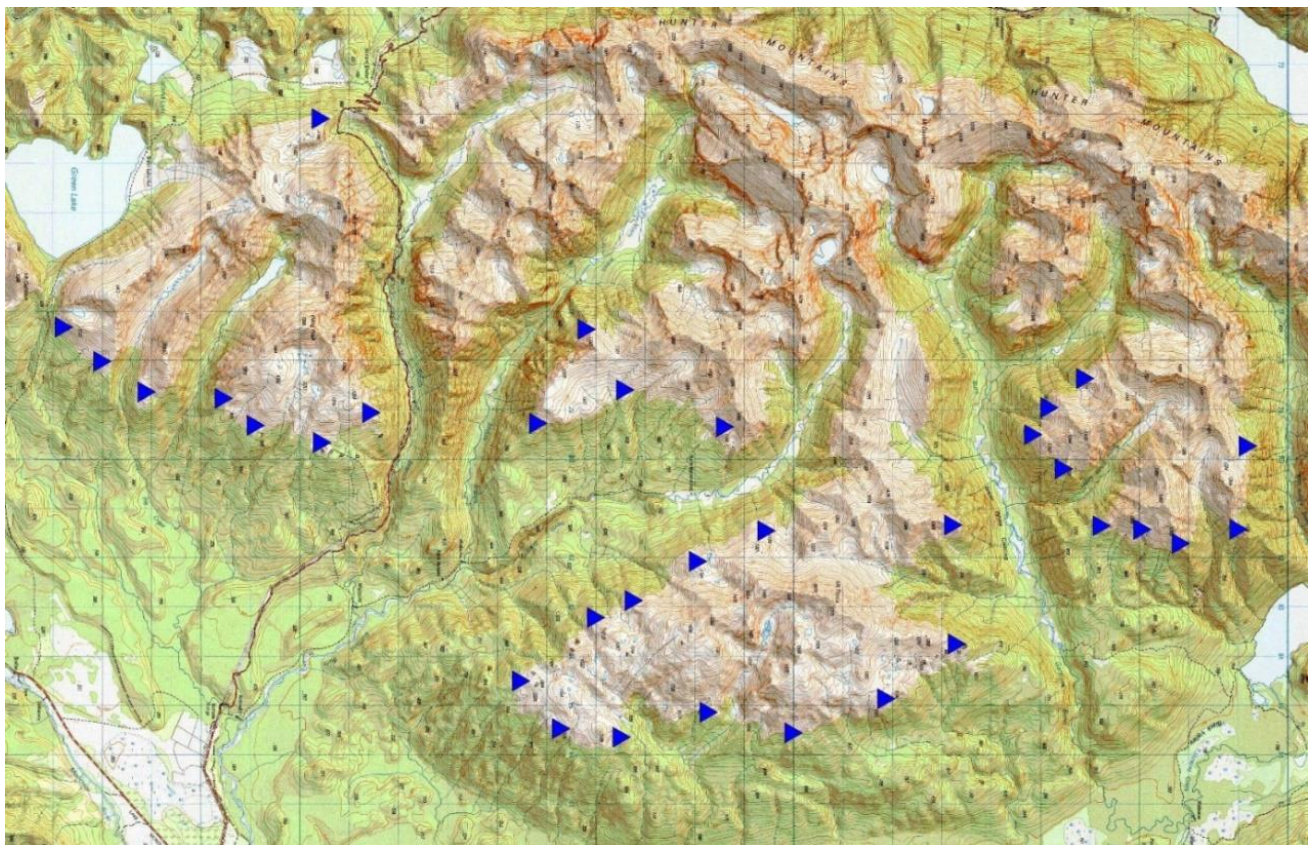
The majority of kea - human contact within the NP is centred at walking tracks and huts (inclusive of the Great Walks), Deep Cove hostel, Homer Tunnel, carpark areas from the Tunnel to Milford Sound



(eg The Chasm) and in Milford Sound at the township and marina. Kea are infrequently reported visiting Te Anau or surrounding farm land. Reports of conflict have been reported at Milford Sound (kea damaging fishing boats) and Homer Tunnel (pinching of a visitors passport and money from a vehicle) and the Chasm carpark area (damage to vehicles). It is not known if lead is an issue to kea in Fiordland as the prevalence and availability of lead has not been documented. In addition, blood lead levels have not been tested in these populations. What is known is that of the 40 bivvy's and huts in the Te Anau area alone, 33 were built prior to the 1990's when lead head nails and flashings were used extensively in roofing throughout NZ. Of the kea that have been tested around the South Island, Mt Aspiring NP was found to have very low blood lead levels whilst the Mt Cook population had very high lead levels.

Population research is also minimal. The KCT surveyed the Borland Range kea population as part of its census work in January 2009 and 2011 but no other population research has been carried out to date. Approximately 3,100 ha was surveyed across a 10 day period each year, around Green Lake, Eldrig Peak, Grebe Valley and South Borland Burn. This area has no pest control in place. A total of 23 kea were caught and processed over the 2 years.

**Figure 2. Map of Borland Valley kea survey area (Kemp, 2009)**



In 2009 a total of 9 kea were caught (6 adult males, 2 adult females and 1 sub-adult male). 2 breeding pairs were confirmed and 2 nest sites located – one with 2 unfledged chicks inside and the other with no evidence of fledglings. No fledglings or juveniles were sighted during the survey period. A follow up expedition to catch the unfledged chicks was unsuccessful. No transmitters were attached.

In 2011, 7 kea were caught (5 sub-adult males, 1 adult male and 1 adult female). 4 radio transmitters were attached to 3 of the males (2 sub-adult and 1 adult) and the female. The female and 2 males were seen in close proximity to one of the nest cavities (which did not appear to have been active). Three other possible pairs were encountered, these pairs showed only very brief interest before leaving, suggesting they may still be busy servicing active nests. One fledgling was seen foraging with

an adult. Sightings and call rate were only slightly better than the Nelson Lakes where an 80% decline in the population had been observed over a 10 year period (predation was seen to be the main probable cause for decline there). Numbers of confirmed breeding pairs were lower than all other survey sites.

The surveys and any follow up nest monitoring/catch trips were discontinued due to lack of ongoing funding, difficulty finding enough experienced personnel, challenging weather conditions (high rainfall and snow) and road closures.

Fiordland kea have also been part of a genetics research project by Otago University (N. Dussex pers comm). 45 Fiordland kea (out of a total 473 birds South Island wide) were caught up on the Milford Rd around Homer Tunnel, Mt Luxmore, the Murchison Mountains, Stuart Mountains, Manapouri West Arm and Hauroto. These birds all have unique identity bands.

Reports of kea presence/absence from hunters, helicopter pilots, trappers and researchers etc vary enormously across the NP and across years. Some reports suggest large flocks of kea in remote back country areas while others report increasingly diminished sightings. The majority of these sightings have not been formally reported and as such are not available to analyse. In short, very little is known about the status of this population.

## **Areas of note**

### Homer Tunnel

There are two places in the South Island where you are (currently) almost guaranteed to see a kea close up and personal; Arthur's Pass in Canterbury and Homer Tunnel in Fiordland. Kea are attracted to these human areas most probably due to feeding (predominantly by tourists). 'Do not feed the kea' signs are visible at Homer Tunnel, however tourists still continue to feed kea, and it has been reported, sometimes with the encouragement of bus drivers. There have been two banding efforts at Homer Tunnel undertaken by researchers at Otago University in 2010 and DOC in 2013. A total of 35 kea were banded and their details entered into the national kea database.

As this is an area where both kea and humans visit and interact, it is also potentially an area where research on behaviour, signage, education and alternative interaction methods could be conducted.

### Resolution and Secretary Island's

The new Strategic Plan for Kea Conservation discusses the importance of investigating the feasibility of an insurance population for kea until such time as threats in the wild are mitigated to an acceptable level. Intensive monitoring of kea over the past 5 years has shown that substantial population declines can occur within a few years. Although intensive monitoring can pick up major changes in population stability, it is not feasible to carry out such monitoring across the species' range.

Two offshore islands have been identified as potential candidates for this purpose (ie are within existing kea habitat). Resolution Island (20,800 ha) and Secretary Island (8,100ha), both of which have been recently 'cleared' of stoats after 130 years of invasion. Kea are known to be present, but their density is unknown. We can expect kea numbers to increase dramatically over the next few decades until the population is limited by density dependent factors (carrying capacity). The carrying capacity for kea on these islands is unknown, but it is anticipated that Resolution could probably hold at least 1000 kea and Secretary probably a few hundred.

Monitoring the recovery of kea on these islands until density stabilises would help establish their value as an insurance population. Data on stoat reinvasion rates is being collected by DOC, and together these will allow development of simulation models for exploring the cost effectiveness of the islands as insurance populations (Orr-Walker et al, 2015).

Regular trapping work is carried out on both islands. Resolution Island has approximately 3,000 stoat traps which are serviced every 4 months. There are no rats or possums and only low levels of stoat reinvasion (L. Bellerby pers comm).

Carrying out an initial baseline assessment of kea presence and numbers during the trap servicing period, particularly on the larger Resolution Island would be a first step in assessing feasibility of an offshore insurance population for kea.

### Murchison Mountains

DOC manages an extensive stoat trapping programme to support the Murchison Mountains Special Takahe Area. A permit is required to visit the area and a boat needed to access it. Over 4,000 traps cover 51,000 hectares making it one of the most heavily trapped areas in the South Island and potentially a very interesting site to study impact of ground based predator control on kea numbers and productivity (in comparison to areas such as Borland which have no pest control). A similar study was carried out on tokoeka in 2011/12.

Kea are regularly sighted in this area and although no formal sightings or population studies have been conducted, reports of kea setting off traps have been received by the KCT since 2008, from DOC workers servicing trap lines (Thakur, pers comm). At one point over 200 traps were reported to be set off by a kea or keas using sticks. This behaviour was caught on film by researchers in 2013/14, placing kea in the unique category of 'tool users'. Reports of kea accessing traps (in some cases with lethal results for the kea) have also been sent from Tasman, Arthur's Pass and Nelson Lakes, although no mention of stick use has been reported in these cases.

### Milford Sound

Informal reports of kea visiting and damaging fishing boats and other human property in the Milford Sounds have been mentioned to the KCT in conversation. The extent to which this occurs has not been investigated. No human – kea conflict has been officially reported in the area. Numbers and prevalence of kea within the village is currently unknown as is identification of threats (including access to lead).

### **Project Plan Focal Areas**

Discussions with the community, DOC and researchers over the years as well as results from our 2009/11 surveys in Borland, have highlighted the following areas requiring attention: i) establish baseline information on Fiordland kea, ii) identify and mitigate threats to the local kea population, iii) investigate behaviour and perceptions of visitors at Homer Tunnel and Milford Sound, iv) investigate requirement and feasibility of a kea education/activity area at visitor areas, v) develop local care of injured kea programme, vi) investigate feasibility of an insurance population and, vii) investigate potential predator control sites to support kea.

#### **i) Establish baseline information on Fiordland kea**

Aims – to better understand kea populations in the Fiordland area, particularly population density, presence/absence and nest survivorship in predator managed vs unmanaged sites.

Methods - three methods will be utilised to gather this information; a) 3 year survey using experienced bird handlers (census work and nest monitoring) at key location/s, b) a presence/absence card reporting system for hunters during the annual Wapiti ballot (end of March), and c) survey of kea during local ongoing bird counts and trap line maintenance (potentially integrated with project vi).

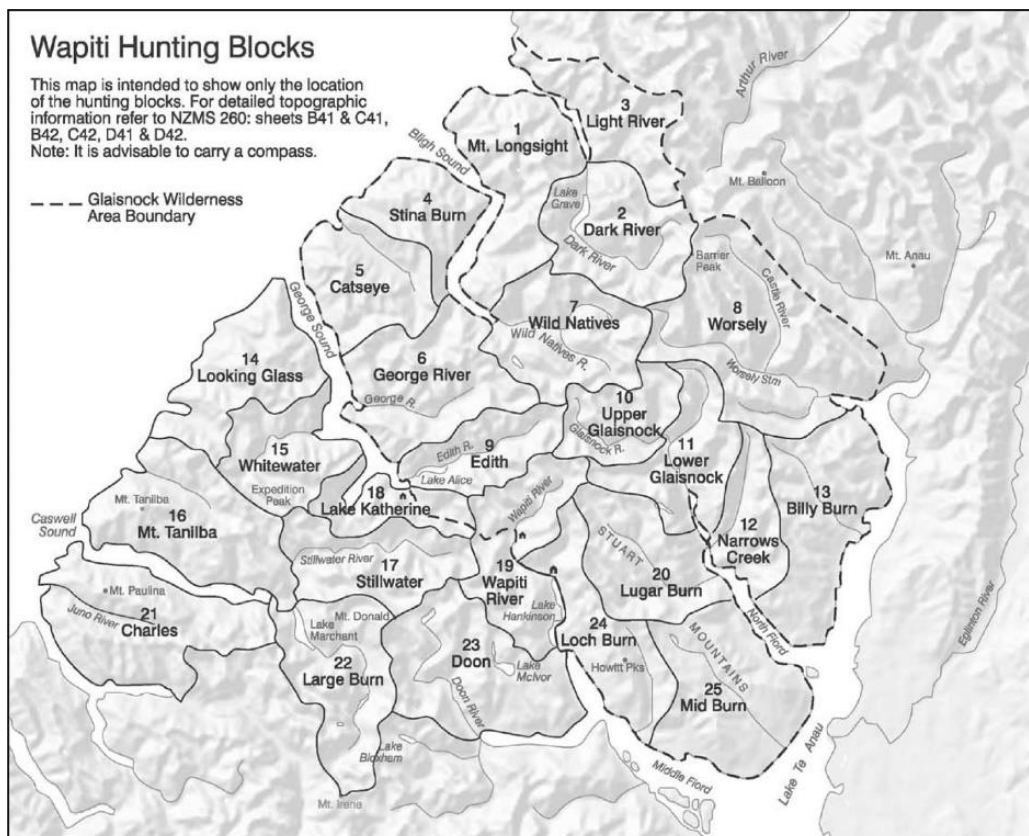
- a) Formal survey and follow up nest monitoring – Surveys to be conducted at site/s of particular interest (Murchison Mountains, Resolution Island, other to be discussed). The same method used for previous kea surveys (and the Borland site) will be used to ensure consistency of data collected and ability to compare between sites as follows:



- Paired observers to be positioned simultaneously at fixed survey points on ridges at or above the bushline, for a 3 hour period each morning (0600-0900hrs) and evening (1800-2100hrs) for 10 days in mid-January (when chicks are fledgling and family groups are most noticeable).
- Each survey point to be observed for 1-2 days depending on whether birds are detected immediately or not.
- Birds are confirmed as resident breeders if they are accompanied by fledglings.
- Kea caught up whenever the opportunity arises, and processed as follows: all birds to be banded, weighed and feathers/blood collected. Adult females to have egg timer transmitters attached to enable nest monitoring follow up. Adult males to have radio transmitters attached to locate nest cavities. Fledglings to have radio transmitters attached to allow survivorship monitoring across years.

Details of the survey method available on request.

- b) Presence/absence reporting in Fiordland Wapiti hunting blocks – Kea presence and absence to be recorded during the annual Wapiti hunt. Over half the hunting blocks are located within the Glaisnock Wilderness area (125,000 ha). This area extends as far as the Milford track to the north, George Sound Track to the south and Lake Te Anau to the east. The total area covered by the Wapiti Hunting blocks is approximately 200,000 ha with the most southern boundary, Charles Sound. A maximum of 450 hunters are able to hunt during the 30 day period beginning the third week of March. This project is supported by the Fiordland Wapiti Foundation who will encourage their members to complete and return their sightings cards.



- c) Survey of kea during local ongoing bird counts and trap line maintenance (e.g Resolution Island).  
Methodology to be developed in line with existing bird counts in the area (in consultation with relevant groups and individuals).

## Funding

- a) The cost for running census and nest monitoring work at up to 2 sites (each of around 4,000 ha) in key areas will be around \$35,000 annually (not including equipment (transmitters, cameras, etc approximately \$10,000 initial set up with additional equipment purchased across years depending on numbers of birds to be monitored). A period of 3 years will be required to ensure that all resident birds are accounted for and territories and nest cavities identified and productivity measured. Total project cost approximately \$115,000.
- b) A lower cost monitoring method, the annual presence/absence card for hunters in the Wapiti Hunting Blocks, can be initiated in March 2016. Cost of the cards is being covered by Paradise Valley Springs (Rotorua) who initially proposed the project to the KCT.
- c) The second lower cost monitoring method will look to piggy back on projects already initiated. Details to be developed in discussion with major stakeholders and potential funders.

### **ii) Identify and mitigate threats to the local kea population**

Aims - this project will investigate potential threats to kea in Fiordland. This will include availability of lead in the environment, risk of kea nest predation, human – kea conflict, other human factors (vehicle strike, access to toxins etc).

Method – in collaboration with the local community, key stakeholder groups, DOC and conservation organisations, conduct background research on the potential impact of each where possible (using anecdotal and factual data). Gathering of information will be through local meetings and discussions, access to building records, access to kea mortality reports and pest control by-kill results, and surveys of human perception of kea in the local area.

*Note: The impact of nest predation is currently not within the scope of this project as there is currently no nest monitoring in place.*

Funding – this project will be funded through the DOC CCPF – Community – Kea Project Plan. Once a review has been completed, funding will be sourced to remove or minimise threats.

### **iii) Investigate behaviour and perceptions of visitors at Homer Tunnel and Milford Sound**

Aims – to understand human – kea interactions at Homer Tunnel and visitor views on kea.

Method – conduct observations and face to face surveys with visitors and tour operators to Homer Tunnel.

Funding – this project will be funded through the DOC CCPF – Community – Kea Project Plan.

### **iv) Investigate requirement and feasibility of a kea education/activity area at visitor areas**

Aims - to ascertain public awareness of the endangered status and threats to kea and if required, to initiate a local education programme designed to reduce the incidence of inappropriate behaviour and conflict.

Method – review all information gathered from previous projects and develop a local education programme focusing on areas of most concern. As part of this also to investigate the feasibility of setting up a kea activity area to provide a focal area for visitor education.

Funding – this project will be funded through the DOC CCPF – Community – Kea Project Plan.

### **v) Develop local care of injured kea programme.**

Aims – support development and running of a local volunteer network to enable injured kea to access veterinary care and rehabilitation.

## Method

- Development of volunteer register (list of vets able to provide initial and long-term medical support for kea and volunteers able to transport birds)
- Develop local SOP with community stakeholders for dealing with injured kea
- Process for transporting kea to specialist veterinary facilities (Massey University (Palmerston Nth), the Nest (Wellington Zoo)), Vet Ent (Queenstown) or the South Island Wildlife Hospital (ChCh));
- Set up a fund to support volunteer kea care efforts (e.g travel expenses (petrol), purchase of support equipment (carry cages etc), expendables (food and hydration) to support holding and transport of kea).

Funding – development of this project will be initially funded through the DOC CCPF – Community – Kea Project Plan. Funds to support the aims above will be raised through crowd sourced funding (e.g. as has been done for Arthurs Pass). Any proposed purchases must be cleared first to ensure there are sufficient funds available.

**vi) Investigate feasibility of an insurance population.**

Aims - to investigate feasibility of Resolution and/or Secretary Islands as insurance population sites.

Method – gather baseline information on existing kea population numbers on Resolution and/or Secretary Islands during quarterly trap maintenance. Method to be developed.

Funding – to be confirmed.

**vii) Investigate potential predator control sites to support kea.**

Aims - to investigate extension of existing predator control efforts into higher altitude to directly benefit nesting kea.

Method – research existing predator control efforts in the Fiordland area in collaboration with conservation groups responsible. Develop mapping plans for the most feasible sites (relatively accessible areas where kea are present) and ascertain local buy in and funding opportunities.

Funding – initial funding through the DOC CCPF – Community – Kea Project Plan. Any predator control programmes launched as additional funding is sourced.

**References**

<http://www.doc.govt.nz/get-involved/volunteer/groups/fiordland/west-arm--deep-cove-pest-control/>

<http://www.doc.govt.nz/Documents/conservation/native-animals/birds/tokoeka-monitoring-murchison-mountains.pdf>

<http://www.doubtful-sound.com/fiordland>

<http://www.venturesouthland.co.nz/Portals/0/Documents/Southland%20Transport%20Study%20Main%20Report.pdf>

Orr-Walker, T <sup>\*1</sup>, Kemp, J<sup>2</sup>, Adams, NJ<sup>1,3</sup>, Roberts, LG<sup>1,3</sup>. 2015. A Strategic Plan for Kea Conservation.